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Message from Vice President, Indian Psychiatric Society  
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Message from Hon General Secretary, Indian Psychiatric Society  
Arabinda Brahma

## PREAMBLE

Preamble for Clinical Practice Guidelines for Psychiatric  
Emergencies and Brain Stimulation Techniques  
Shiv Gautam, Jahnavi Kedare, Siddharth Sarkar, Sandeep Grover

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## Message from the President, Indian Psychiatric Society

Dear Friends

I deem it a privilege to write a few lines for the Clinical Practice Guidelines on Emergency Psychiatry.

It is heartening to acknowledge the sustained efforts of the IPS Subcommittee of Clinical Practice Guidelines under the scholarly guidance of Prof. Shiv Gautam well supported by Dr. Sandeep Grover, Dr. Jahnavi Kedare, and Dr. Siddharth Sarkar. It has been successful in bringing out practical guidelines with recent advances in many specialties of psychiatry. The knowledge of emergency psychiatry is paramount, and the practice guidelines will be very handy not only to psychiatrists but also to other medical practitioners who attend emergencies in their practice. Many changes have occurred in the way medical practice is organized over the years thanks to advances made in scientific understanding of physical diseases and mental illness. A thorough knowledge of behavioral symptoms presented in emergency room is mandatory for any practitioner and more so for a practicing psychiatrist who is called over more often than before. The multi-team approach of management of ICU is taking shape, and it is heartening to note that many of current experts in various specialties are at hand to help the suffering.

Many medical conditions like electrolyte disturbances are associated with psychiatric symptoms, and psychiatric disorders like panic disorder can be so frightening both to the patient and family members that they seek immediate attention of cardiac team. Management of survivors of suicide is a challenge to both psychiatrists and non-psychiatrists in the emergency room. The recent outbreak of COVID-19 too has contributed to the dramatic increase of emergencies and skills in crisis intervention which would be handy to all physicians and paramedical staff.

I congratulate the authors who must have spent sleepless nights to bring out the latest understanding in psychiatric conditions presented in emergency situations.

Long Live IPS!

Dr. N. N. Raju

President

Indian Psychiatric Society

Visakhapatnam

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Nil.

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There are no conflicts of interest.

**Dr. N. N. Raju**

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## Message from Vice President, Indian Psychiatric Society

The divine status of the discipline of medicine is basically due to its role and response in times of emergencies. It holds true for all sub-disciplines including psychiatry.

Effective emergency management of disruptive-aggressive, catatonic, mute, or suicidal patients looks like a miracle even to 'not so lay' people. But we know there is nothing like a miracle.

All such miracles are products of knowledge, training, research, and continuous professional development programs.

We must feel grateful and proud for the contributions of the Indian Psychiatric Society in this regard and we must appreciate the tireless efforts of one of the major contributors, the sub-committee for Clinical Practice Guidelines which every year gives an updated document for use in our day-to-day practice.

I express my gratitude to all the authors for devoting time and hard work to serve the academic needs of members and also interested non-members. My office expresses its sincerest thanks to the Clinical Practice Guidelines Subcommittee led by Dr. Shiv Gautam, Dr. Jahnvi Kedare, Dr. Sandeep Grover, and Dr. Siddharth Sarkar for conceptualizing, leading, and helping the authors in preparing the final draft. Like previous ones, this edition of Clinical Practice Guidelines is also being published as a supplement to the Indian Journal of Psychiatry. We must express our gratitude to our Hony Editor Dr. Omprakash Singh for sparing time to give the final editorial touch.

I am sure, this edition of CPG will help us in practicing evidence and experience-based emergency psychiatry.

Vinay Kumar

Vice President cum President-Elect

**Dr. Vinay Kumar**

**Vice President: Indian Psychiatric Society**

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There are no conflicts of interest.


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## Message from Hon General Secretary, Indian Psychiatric Society

Dear Friends,

It is a matter of great pleasure to know that The Indian Psychiatric Society is bringing out a very important book of clinical practice guidelines on Emergency Psychiatry.

Emergency Psychiatry is a very important area of clinical psychiatry. Over the last few decades, many new concerns and issues have evolved in this area across the globe. In view of these new developments, this new guideline is carried out. This clinical practice guideline is important because a wide range of stakeholders in the country consult the IPS clinical practice guidelines as the gold standard and these are looked upon by many developing countries too.

The effort given by the members of the IPS CPG Task Force to complete the work within the stipulated time needs appreciation. Indian Psychiatric Society is happy in bring out the latest developments in the field of emergency psychiatry and I am sure this CPG will be very useful to experienced clinicians, young post-graduates, and serious researchers.

I sincerely thank and congratulate the IPS CPG Task Force team led by Dr. Shiv Gautam, in addition to all authors on this well-accomplished task. I also thank President Dr. NN Raju, and the Executive Council Members of IPS who all put forward their hands to bringing out this very important CPG book. Special thanks to our Editor Dr. OP Singh for publishing in the supplement copy of the Indian Journal of Psychiatry. I wish that IPS should come up with more such clinical practice guidelines in the future, continuing this healthy and helpful tradition.

Long live IPS!

**Dr. Arabinda Brahma**

Hon General Secretary

Indian Psychiatric Society

**Arabinda Brahma**

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## Preamble for Clinical Practice Guidelines for Psychiatric Emergencies and Brain Stimulation Techniques

**Shiv Gautam, Jahnvi Kedare<sup>1</sup>, Siddharth Sarkar<sup>2</sup>, Sandeep Grover<sup>3</sup>**

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The Indian Psychiatric Society (IPS) has been constantly endeavoring to provide guidance to psychiatrists in India through the Clinical Practice Guidelines (CPGs). For close to two decades, the IPS has formulated several guidelines ranging in topics from schizophrenia, depression, bipolar disorders, sleep disorders, substance use disorders, child and adolescent psychiatry, geriatric psychiatry, forensic psychiatry, psychotherapy, consultation-liaison psychiatry, and other topics. The guidelines have been developed through a consultative process involving experts from different parts of India and tempering the guidelines to the country's resources and needs. Feedback from the practicing psychiatrists from the country has enabled to reflect upon the guidelines and make suitable modifications as necessary. Over time, the guidelines have become a repository of approaches and decisional directions for the clinical care of patients with mental health concerns and psychiatric illnesses.

The present set of CPGs focus on psychiatric emergencies and brain stimulation techniques. Psychiatrists often encounter referrals from emergencies for varied reasons. Additionally, brain stimulation techniques have seen phenomenal growth over the last few decades and are seeing incremental advances and diversifying applications. Thus, a need has been felt for CPGs to address these issues. Fifteen topics were identified related to psychiatric emergencies and brain stimulation techniques. The lead authors for these CPGs were chosen based on their contribution and expertise in particular areas. A task force meeting was organized at Jaipur on July 23 and 24, 2022, where the draft CPGs were presented, and feedback was sought from the participants that included experts from different zones and states. Based on the feedback, the CPGs were revised. The revised CPGs were put up on the IPS website in November 2022 for comments and suggestions from the members of IPS. Final changes in the CPGs were made based upon the final set of comments from the membership.

Most clinicians working in the field of psychiatry would have countered some or other psychiatric emergencies. Management of various psychiatric issues in emergency

settings requires quick decision-making, proper diagnosis, and ensuring safety and early stabilization. Accordingly, in terms of psychiatric emergencies, CPGs in this edition focus on the assessment and management of suicidal behavior, violence and aggression, anxiety and panic disorders, dissociative disorders, breaking bad news, psychosocial crisis, psychiatric emergencies in victims of sexual offenses, and borderline personality disorder. Additionally, psychiatric emergencies in specific subgroups such as children/adolescents, the elderly, medical professionals, and those abusing various substances have also been addressed in separate CPGs.

Brain stimulation services across the country have expanded rapidly in recent times. Accordingly, this edition of CPGs addresses electroconvulsive therapy, repetitive transcranial magnetic stimulation (rTMS), and transcranial direct current stimulation (TDCS).

The development process of the guidelines was inclusive of different approaches of development and recommending suggestions. The guideline development was cognizant of the unique socio-cultural characteristics of the country and the framework of service provision. There is diversity in the manner mental health care is practiced, as there are differences in the scale of operations, expertise and resources available, the mandate of public funding, and private enterprise. These guidelines have been formulated in such a way that these provide adequate framework for proper management, help to maintain relevant standard of care, emerging advances in the field of psychiatry and at the same time are flexible enough to be applicable in different contexts. We acknowledge that the medical field is ever-evolving and new evidence emerging may change the best practices. Thus, clinicians should use their critical judgment while applying the recommendations for a particular scenario, being cognizant of the unique circumstances of the setting, and the patient. It is important to understand that these guidelines are not a substitute for clinical judgment. We envision that the guidelines would contribute to better care of the patients presenting to the clinical setting.



### Financial support and sponsorship

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### Conflicts of interest

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## Clinical Practice Guidelines for Psychiatric Emergencies and Brain Stimulation Techniques

Siddharth Sarkar, Sandeep Grover<sup>1</sup>, Omprakash Singh<sup>2</sup>

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The Indian Journal Psychiatry (IJP) is delighted to present the Indian Psychiatric Society (IPS) Clinical Practice Guidelines (CPGs) for psychiatric emergencies and brain stimulation techniques. These guidelines cover two very important aspects of psychiatric practice – emergencies and brain stimulation techniques. These CPGs have been developed through due process, have involved experts from different parts of India, who have read through the literature, considered unique system and cultural setting of practice, and then provided recommendations. These CPGs have significant relevance for clinical practice in the country for both trainees and those who are currently in practice. However, these should not be considered as a substitute for clinical knowledge. The clinicians can use these guidelines keeping the working conditions in mind and can modify the same as per the needs of the patients and the treatment settings.

The first larger set of topics, psychiatric emergencies, is something which all practicing psychiatrists have to deal with on a fairly regular basis. Emergency is indeed a situation where the patient is vulnerable and where a quicker triaging and decision-making process is engaged to stabilize the situation or address the immediate concern. These emergencies demand our acute and astute attention, while dealing with a patient (and sometimes, others) in distress who requires urgent psychiatric care. Decisions have to be made cognizant of the acuity of the condition as well as constraints of space, information, resources, and pressure from colleagues and family members. The present CPGs cover a gamut of different emergency scenarios where a psychiatrist may need to provide opinion or take charge to manage the situation.

Of late, emergency setting has been a place when medical professionals, including psychiatrists, feel vulnerable.

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Violence against doctors is a sad reality in present day medical practice, and emergency setting is a place where often tempers run high. Sometimes, psychiatrists are victims of aggression of the patient and in a few occasions victims of the aggression of the family members. Multi-pronged approaches may need to be implemented to reduce the violence. The CPGs in the present supplement do lay out and emphasize the measures psychiatrists should take while managing patients with aggression and violence. Nonetheless, additional systemic measures are needed to cater to the risk of violence.

Suicide is an extremely important clinical consideration for psychiatrists. Mental health professionals play a very important role in suicide prevention and providing care of patients with suicidality. The recently unveiled national suicide prevention strategy provides a direction with implementable methods to reduce suicides by at least 10%. These strategies classified as short term, medium term, and long term provide a roadmap of how suicides can be addressed in a vast and varied country like India. The CPGs in the present supplement on suicidal behavior presenting to the emergency complement the strategy by providing guidance on how a psychiatrist can manage the patient when he/she is brought to the emergency services.

The present volume of CPGs also caters to discussing breaking bad news. Often, breaking bad news is not easy and may lead to discomfiture for the patient and the psychiatrist as well. A nuanced consideration of the situation, ascertaining available information with the patient, expression of empathy while providing information, and graded disclosure, can help to make the delivery of bad news less scathing. Perhaps there is a greater need for honing soft skills to improve the satisfaction with the care process.

Substance intoxication is a common presentation in the emergency setting, and often, there is a tussle between the physicians and psychiatrists about their role in the management of substance-related disorders presenting to the emergency setting. The CPGs on this topic will provide

guidance to the mental health professionals about the assessment and management of the same.

Other topics that have been covered in this volume of CPGs include assessment and management of aggression and assaultiveness, anxiety disorders and panic disorder, dissociative disorders, borderline personality disorder, and crisis intervention in the emergency setting. Specific CPGs have also been formulated to assess and manage special populations, that is, children and adolescents, and elderly presenting to the emergency setting.

Another aspect that these CPGs address is the mental health of the medical professionals. Fortunately, there is a growing recognition of the need to take care of mental health of medical community. Mental illnesses are viewed seriously, rather than being swept under the carpet or caricatured. As medical professionals face unique barriers for help seeking (including denial of illnesses, confidentiality concerns, self-medication, etc.), psychiatrists have to make their services available somewhat little differently to such medical professionals. Addressing and removing these barriers to care access may help medical professionals to seek care more frequently. Keeping the tenet 'doctor! Heal thyself' in mind, a healthy medical workforce would be able to take care of their patients better.

This volume of CPGs also caters to brain stimulation techniques. Some modes of brain stimulation and neuromodulation techniques such as electroconvulsive therapy (ECT) have been entrenched in practice since a long time. Newer modes of brain stimulation such as repetitive transcranial magnetic stimulation and transcranial direct current stimulation have been seeing growing research and clinical application in the recent times. There has been a need for guidance to the clinicians on better utilization of these brain stimulation techniques. The CPGs discuss these brain stimulation techniques in significant depth.

The development of the guidelines has been cognizant of the research gaps in some of the areas, especially those relating to contextual aspects of clinical practice of psychiatry. There is a need to enhance collaborative and cross-national research on gaps. The IPS has taken a lead by promoting and funding collaborative multi-centric research on locally relevant clinical questions. Projects are selected through a vetting process and promote more participatory research across diverse settings. However, still there are many unanswered questions, which if researched may provide guidance in our clinical setting. For example, how to better use family members in care of suicidal and violent patients, pharmacodynamic and pharmacokinetics of medications used for the management of acutely violent

patients, process deconstructs and acceptance of diverse approaches of breaking bad news, efficacy of training and recognition for substance intoxication, patient acceptance of ECT vis-à-vis other neurostimulation measures, and others. Future research pursuits may help to provide answers to these questions.

The CPGs also have a scope of reaching out effectively to a larger audience. Effective training modules can be developed by the CPG team to train residents and other interested psychiatrists on the recently released CPGs. Multiple complementary methods can be used to train, for example, didactic lectures, quizzes, and interactive discussion sessions. A wider reach can also be performed through social media. Since attention has become the most valuable commodity in today's times, the salient and actionable points of CPGs may be disseminated through online posts and feeds, possibly taking help of Twitter and Instagram.

As medical literature is ever changing and the best practices evolve, one should caution against casting CPGs in stone. A timely update of the CPG is warranted as newer discoveries are made. The readers need to reflect upon how the CPG relates to their practice and the individual patient at hand. The 'guidance' from the CPG is valuable but should be cognizant of the individual circumstances. The IJP as the repository ensures that the CPG is accessible to psychiatrists all over India and also to the world. The CPGs of IPS also have considerable value for other lower- and middle-income countries which have similar social outlook and availability of healthcare infrastructure. The efforts of the contributors to the CPGs are lauded, and hopefully, these would benefit the practitioners by clarifying their clinical queries.

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# Clinical Practice Guidelines for Management of Suicidal Behaviour

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## INTRODUCTION

Suicidal behavior can be broadly subdivided into suicide-related behavior and suicide-related communication. Amidst the broad array of confusing terms with varying meanings, the terms as used in this guideline have been clarified for the sake of uniformity of communication and approach between clinicians [Table 1].<sup>[1-3]</sup> A simple schematic outline of self-injurious behavior is given below [Figure 1].<sup>[4]</sup>

## EPIDEMIOLOGY

Across the world, nearly 8,00,000 people die by suicide every year, and nearly 74% of suicides occur in low- and middle-income countries. According to WHO's Global Health Estimates, the global age-standardized suicide death rate (SDR) was 9.0 per 1,00,000 population for 2019.<sup>[5]</sup> Suicide is the second most common cause of death among young people aged 15–29 years of both sexes globally. Suicide rates in India are one of the highest globally and account for 26.6% of global suicide deaths. The suicide deaths for 2020

released by the National Crime Records Bureau (NCRB) in 2021 showed a rate of 11.3 per lakh population, the actual figure amounting to 1,53,052 deaths.<sup>[6]</sup> This was the highest number of suicides recorded by India since 1971 which is quite alarming! According to NCRB data over the last few years, individuals belonging to 18–29-year age-group is the most vulnerable group accounting for almost 35% of all cases of suicide. Within this group, there is an increasing trend of student suicides which have multiple reasons including academic pressure. Although suicide in women is decreasing, India still contributes 36% of global suicides in women in 15–39-year age-group. Intimate partner violence is one of the most important causes of suicides in married women of India. The most common methods of suicide (in decreasing frequency) are hanging, consuming poison, drowning and self-immolation. In terms of gender, the rate of completed suicides has been gradually increasing in favor of males with the latest data showing almost 2.5 times more men dying by suicide than women. However, attempted suicides are a greater problem in the women of our country. Thus, appropriate prevention measures at the community level along with proper risk assessment become essential for identifying those at risk and taking appropriate measures.

**Table 1: Definition of common terminology used in this guideline**

**Suicidal ideation-** Thoughts about self-harm, with deliberate consideration or planning of possible techniques of causing one's own death<sup>[1]</sup>

**Suicide attempt-** A self-inflicted, potentially injurious behavior with a non-fatal outcome for which there is evidence (either explicit or implicit) of intent to die<sup>[2]</sup>

**Aborted or interrupted attempt -**Aborted suicide attempt-potentially self-injurious behavior with evidence (either explicit or implicit) that the person intended to die but stopped the attempt before physical damage occurred.<sup>[3]</sup>

**Suicide-** The act of intentionally causing one's death<sup>[1]</sup>

**Self-harm/Deliberate self-harm/Non-suicidal self-injury-**

When an individual engages in inflicted self-damage to the surface of his/her body with the expectation that the injury will lead to minor or moderate physical harm, thus, suicidal intent is absent. The absence of suicidal intent can either be stated or inferred from the circumstances.<sup>[1]</sup>

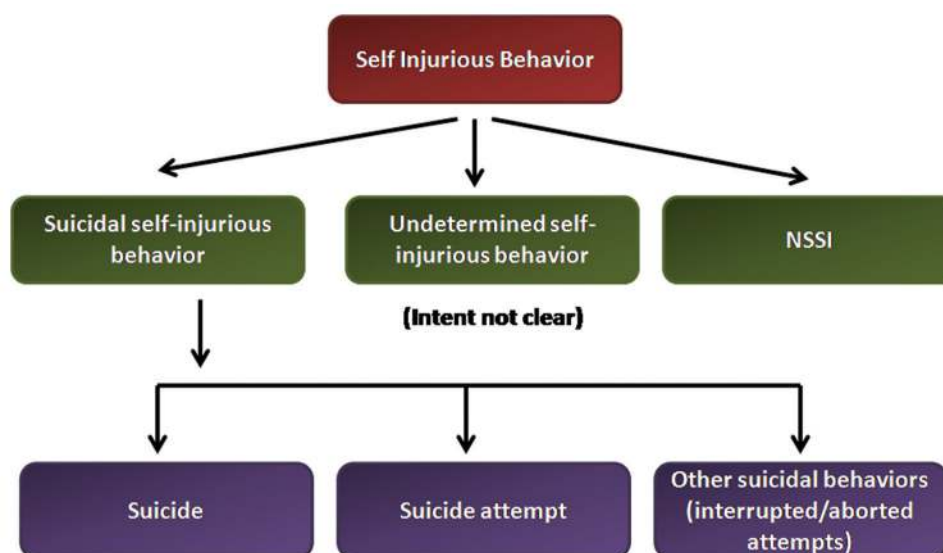
Suicide-related communication involves suicidal threat and suicidal plan.

**Suicidal threat-** Any interpersonal action, verbal or non-verbal, without a direct self-injurious component, that a reasonable person would interpret as communicating or suggesting that suicidal behaviour might occur in the near future<sup>[2]</sup>

**Suicidal plan-** Proposed method of carrying out a design that will lead to a potentially self-injurious outcome<sup>[2]</sup>

## BASIC STEPS OF RISK ASSESSMENT

- 1. Engagement and Therapeutic Alliance-** This is the most crucial step in risk assessment because if this step is not successfully negotiated, information derived from the patient may not be meaningful and adequate. The clinician must use empathy, active listening, respect, and supportive and non-judgmental attitude toward the patient in order to build proper therapeutic alliance. Simple questions like, "Things seem to be a bit difficult for you these days" can go a long way in making the patient relaxed and open up. Proper alliance will lead to honest disclosure on the part of the patient. Wherever possible, the clinician must try to engage the family members and/or immediate support system. The family may be a very important source of additional information and support.
- 2. Psychiatric Evaluation:** A thorough psychiatric evaluation is the next most important step in risk assessment. Majority of those who die by suicide



**Figure 1:** Classification of self-injurious behavior<sup>[4]</sup>. (NSSI- Non-suicidal self-injury)

have been found to have an underlying psychiatric disorder. Disorders commonly associated with suicidal behavior include depressive and mixed episodes, schizophrenia, substance use disorders (especially alcohol), anxiety disorders, borderline personality disorders, and adjustment disorders. Substance use disorder, especially alcohol, confers a risk of 15–23% for suicide. Comorbidity of substance abuse with an Axis I disorder like bipolar disorder and depressive disorder significantly elevates the risk than either condition alone through the common pathway of impulsivity, aggression, and hostility. Among those with bipolar disorder, depressive and mixed episodes pose the greatest risk. History of current and past psychiatric diagnosis, treatment, and family history of psychiatric disorders must be probed. A brief mental status examination should be done. History of coping with stresses must be elicited—whether the person has been able to manage stressful situations in the past or resorted to maladaptive ways of coping. Additional information should be gathered wherever available from friends, families, and treatment records.

3. **Risk Factors:** There are several risk factors which have been variably linked to suicide [Table 2].<sup>[3]</sup> During elicitation of risk factors, the clinician should take note of modifiable risk factors so that these can be addressed.
4. **Protective Factors:** It is important to enquire about factors which may act as “suicide-counters” in individuals harboring suicidal behaviors [Table 3].<sup>[3]</sup> Knowledge of protective factors help in therapeutic intervention in individuals showing suicidal behavior.
5. **Warning Signs:** Unlike risk factors, warning signs denote imminent risk for suicide just like a sudden chest pain serves as a warning sign for heart attack.

Thus, warning signs denote more proximal relation to suicidal behavior apart from being subjective in nature and easily identifiable by lay persons. The working group of the American Association of Suicidology met in 2003 and developed a consensus list of warning signs which denote heightened risk of suicide [Table 4].<sup>[7]</sup>

6. **Suicide Enquiry-** Suicide enquiry involves probing suicidal ideation, plans, intent, and lethality. For those who have presented with a recent attempt, enquiry should be made about all these aspects when he/she had made the attempt and also his/her current suicidal ideation. Past attempts should also be probed with special reference to attempts made in the recent past and the most severe attempts.
  - a. **Ideation:** Eliciting ideation could begin with simple questions like “Have you ever felt that life was not worth living?” or “Have thoughts of harming yourself crossed your mind?”. Once the response is in the affirmative, the clinician can go ahead with more specific questions to find out the following: Frequency, intensity and duration (in the last 48 hours, past month)
    - “How often do you think about suicide?”
    - “Could you rate the intensity of those thoughts on a scale of 1 to 10? How long do they typically last?”
  - b. **Suicide Plan:** Once suicidal ideation is elicited, the clinician should make specific enquiry about the presence of a suicidal plan and whether the subject has taken any steps to put the plan into action. Questions should probe the following areas: Timing, location, lethality, access to means, preparatory acts
    - “Do you have a plan of how you would kill yourself?”
    - “Have you made any specific preparations?”
    - “Do you have poison/weapons/drugs at home?”

**Table 2: Risk factors for suicide (modifiable factors in bold)<sup>[3]</sup>**

Past suicide attempt
Current or lifetime psychiatric disorders
<b>Alcohol and abuse of other substances</b>
<b>Recent stressful life events</b>
<b>(Especially financial/relational loss)</b>
Family history of suicide
Chronic medical illness
History of physical/sexual abuse
<b>Access to lethal means</b>
<b>Hopelessness/despair</b>
<b>Anhedonia</b>
<b>Impulsivity</b>
Recent discharge from a psychiatric facility
Poor support system

**Table 3: Protective factors for suicide<sup>[3]</sup>**

Children at home
Sense of responsibility to family
Pregnancy/motherhood
Religiosity/spirituality
Life satisfaction
Reality testing ability
Positive coping skills
Positive problem-solving skills
Positive social support and bonding
Positive therapeutic relationships
Easy access to support for help seeking

**Table 4: Warning signs of suicide<sup>[7]</sup>**

<b>Verbal</b>
No reason for living; no sense of purpose in life
Feeling trapped-like there's no way out
I am a burden on others
People would be better off without me
<b>Behavioral</b>
Acting reckless or engaging in risky activities, seemingly without thinking
Increasing alcohol or drug use
Withdrawing from friends, family, or society
Tidying up affairs, making arrangements
<b>Psychological</b>
Anxiety, agitation, unable to sleep, or sleeping all the time
Dramatic changes in mood
Hopelessness
Rage, anger, seeking revenge
Command hallucinations

- c. **Intent:** Suicidal intent reflects the intensity of a patient's wish to die and can be assessed by determining the patient's motivation for suicide as well as the seriousness and extent of his or her aim to die, including any associated behaviors or planning for suicide.<sup>[3]</sup>
- d. **Lethality of Suicidal Behavior**—Objective danger to life associated with a suicide method or action. Lethality is to be assessed objectively by the clinician and may not always coincide with an individual's expectation of what is medically dangerous. For example, in many cases of impulsive acts of pesticide

poisoning, the victim consumes pesticide on the spur of the moment without a strong intention to die but the lethality of the agent mostly leads to the unfortunate death of the individual.

**Corroborative History-** Following a suicide enquiry from the subject, corroborative history should always be sought from family members, friends, accompanying persons, treating physicians, and past medical records. This is often helpful in clarifying doubts, getting a more definite picture, especially when there is a discrepancy between the patient's expressed intent and his acts. This also helps in building a support network which is essential in planning management.

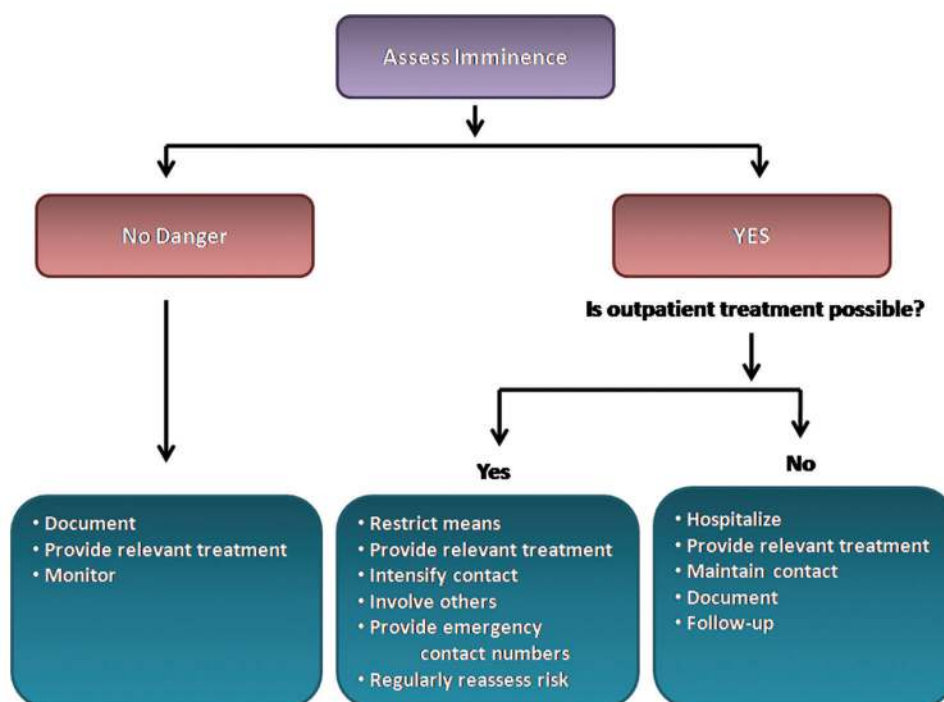
## RISK ASSESSMENT IN VARIOUS SETTINGS

**Emergency Department-** Many a times, a psychiatrist is asked to assess risk in general emergency settings where patients present with suicide attempts. In such situations, one is often faced with a crowded, noisy setting, an unfamiliar, uncooperative, or intoxicated patient. It is difficult to carry out assessment in such situations, and the clinician needs to wait till the situation becomes favorable or conducive to assessment. Sometimes the patient may become drowsy from the effects of intoxication and medical management and stabilization of the patient becomes a priority. A scheme for risk assessment in emergency settings is outlined in Figure 2.<sup>[8,9]</sup>

**Inpatient Setting-** All patients admitted with severe mental illness and substance abuse should undergo risk assessment. Repeat assessments should be done whenever there is a change in treatment settings, worsening of the clinical condition of the patient or there is appearance of a new psychosocial stressor. Since the period immediately after discharge confers high risk of suicide, early follow-up assessments with risk estimation should be carried out.

**Observation by nursing staff and attendants in inpatient settings-** Hospitalized patients having high risk for suicide should be regularly placed on observation protocols. The protocol may require continuous and close observation, or periodic checks every 15 minutes. Periodic checks should be done in an unpredictable manner at varying time intervals. Randomly varied checks make it difficult for a hospitalized patient to plan suicide. Such patients should be placed closest to the nursing station and should have a roommate or an attendant. Need for careful observation should be clearly explained to the attendant.<sup>[10]</sup> A thorough inspection of all items that could be used for self-harm must be done and also an inspection of potential ligature points in the ward. Alerting the ward staff and attendants is very essential in such cases.

**Outpatient Setting-** The clinician should keep in mind the fluctuating nature of suicidality over time. They should



**Figure 2:** Outlines a simple scheme for managing suicidal behavior in an emergency setting<sup>[8,9]</sup>

be especially cautious when the patient reports sudden, unexpected improvement in mood, or shows refusal or reluctance to adhere to treatment. Using information from close family members and associates becomes vital in such cases—both for better assessment and development of support system.

**Use of Assessment tools-** Though there are various standardized assessment tools including objective rating scales and self-report measures, it is advisable not to rely on a single assessment instrument for determining risk of suicide. Such instruments should never replace a thorough clinical evaluation based on the standard methods of risk assessment [Table 5].<sup>[7,11]</sup> Basic goals and techniques of management of acute suicidal crisis are enumerated in Tables 6<sup>[12]</sup> and 7, respectively. Management approach should also take note of several factors which determine the need to hospitalize [Table 8]<sup>[3]</sup> or favor treatment on outpatient basis [Table 9].<sup>[3]</sup>

### EMERGENCY NON-PHARMACOLOGICAL MEASURES

**Safety Plan Intervention (SPI)-** It is one of the most popular and well-recommended measures to deal with acute suicidal crisis. It is a brief cognitive intervention typically lasting 20–45 minutes which provides the suicidal patient with a specified and prioritized set of coping strategies and sources of support which may be used if suicidal thoughts emerge suddenly [Table 10].<sup>[13]</sup> A safety plan is best developed in collaboration with the patient. Assistance of

family members/close contacts may be sought if required. The Government of India has launched a nationwide 24-hour tele-mental health service which will also double-up as a suicide helpline and is available in many regional languages. The numbers are 14416 and 1-800-91-4416 and may be provided to patients.

**No-suicide Contract-** This is a verbal or written agreement between the patient and the clinician which requests the patient from engaging in suicidal behavior in case of sudden crisis. Suicide contracts as effective methods of reducing suicide have limited evidence. Moreover, it is based on “subjective belief” and may lead to a false sense of security on the part of the clinician. Hence, it is not routinely recommended and should not be used in psychotic, agitated, impulsive, intoxicated, and those with cognitive deficits.<sup>[3]</sup>

**Activating Psychosocial Support-**In consultation with the suicidal patient, psychosocial support may be activated by reaching out to family or friends and community resources, and provide details of community services including crisis lines. The main methods of activating psychosocial support are: a. attending to existing relationships, b. building new relationships, c. modifying reactions toward others, d. utilizing family support.

**Psychotherapy-** Cognitive behavior therapy-based interventions focused on suicide prevention have been found effective in patients with suicidal behavior. Dialectical behavior therapy, wherever available, should be offered to patients with borderline personality disorder and history

**Table 5: Risk stratification<sup>[7,9]</sup>**

Risk Level	Risk/Protective Factor	Suicidality	Possible Interventions
High	Psychiatric diagnoses with severe symptoms or acute precipitating event; protective factors not relevant; Substance abuse/dependence; severe depression, command hallucinations; poor support system	Potentially lethal suicide attempt or persistent ideation with strong intent or suicide rehearsal	Admission generally indicated unless a significant change reduces risk. Suicide precautions
Moderate	Multiple risk factors, few protective factors; moderate depression; support system inconsistent	Suicidal ideation with plan, but no intent or behavior. Preparatory acts are usually absent	Admission may be necessary depending on risk factors. Develop crisis plan including safety planning. Give emergency/crisis numbers
Low	Modifiable risk factors, strong protective factors; good support system	Thoughts of death, no plan, intent, or behavior	Outpatient referral, symptom reduction. Give emergency/crisis numbers

**Table 6: Managing a patient with acute suicidal behavior<sup>[12]</sup>**

The basic goals in management are the following

- Ensure immediate safety of the patient
- Stabilize/manage medical complications if any
- Protect the patient from self-harm
- Effect immediate change
- Shift focus from crisis to resolution
- Detect and solve, as far as possible, the acute problem that precipitated the crisis
- Involve family, partner, social support network
- Diagnose and treat the underlying problem that predisposed the patient to suicidal behavior.

**Table 7: Techniques of management of acute suicidal crisis**

- Remove the means (agent)
- Safety planning
- Planning for the future (immediate)
- Decrease isolation (social support)
- Decrease high-risk behavioral factors
- Decrease high-risk environmental factors
- Decrease anxiety and agitation (psychological perturbation)
- Medication management
- Consider hospitalization (if required)

of recent self-directed violence. Problem-solving therapy has also been found to be effective in reducing suicidal behavior.<sup>[9]</sup>

## EMERGENCY SOMATIC TREATMENTS

1. **Electroconvulsive therapy (ECT)**- ECT reduces suicidal behavior in the short term. Its efficacy has been established in acutely suicidal patients, especially those suffering from unipolar depressive disorder.<sup>[14,15]</sup>
2. **Lithium**- Lithium has established efficacy in reducing suicidality in patients with bipolar disorder and major depressive disorder. However, the immediate risk of overdosage with lithium in an actively suicidal patient has to be kept in mind. Steps like prescription of very short duration, supervised medications, and keeping medicines under lock (wherever feasible) should be discussed.<sup>[16]</sup>
3. **Antidepressants**- Antidepressant treatment is generally recommended in treatment of suicidal behavior in cases

**Table 8: Factors determining the decision to hospitalize<sup>[3]</sup>**

Strongly consider hospitalization under the following situations:

1. Prior attempt of high lethality
2. Well-thought-out plan
3. Access to lethal means
4. Uncommunicative
5. Recent major loss
6. Social isolation
7. Hopelessness
8. History of impulsive, high-risk behavior
9. Active substance abuse or dependence
10. Untreated mood, psychotic, or personality disorder

After a suicide attempt or aborted suicide attempt if:

1. Patient is psychotic
2. Attempt was violent, near-lethal, or premeditated
3. Precautions were taken to avoid rescue or discovery
4. Persistent plan and/or intent is present
5. Distress is increased or patient regrets surviving
6. Patient is male, older than age 45 years, especially with new onset of psychiatric illness or suicidal thinking
7. Patient has limited family and/or social support
8. Current impulsive behavior, severe agitation, poor judgment, or refusal of help is evident
9. Patient has change in mental status with a metabolic, toxic, infectious, or other etiology requiring further workup in a structured setting

In the presence of suicidal ideation with:

1. Specific plan with high lethality
2. High suicidal intent

with unipolar depression. The efficacy of fluoxetine and venlafaxine has been proved in reducing depression and suicidality in adult and geriatric population. There are concerns of antidepressant-induced suicidality for which the treating team must psycho-educate the patient and the family members wherever applicable. Particular attention to this aspect must be paid during treatment for the first one month, especially among adolescents.<sup>[17]</sup>

4. **Ketamine**- Studies have shown that ketamine is effective in rapidly reducing suicidal ideation, even with a single dose of 0.5 mg/kg. Ketamine is usually administered as an iv infusion. Though the Va/DOD Clinical Practice Guidelines<sup>[16]</sup> recommend its use, the major issue concerning ketamine is that the benefits have been found to be short term and the trials have been carried out on small patient groups. Hence, the use of ketamine infusion in suicidal behavior still remains off-label.<sup>[18]</sup> Ketamine is a controlled substance



**Table 9: Factors favoring discharge from ER/Outpatient management<sup>[3]</sup>**

Release from emergency department with follow-up recommendations may be possible:

After a suicide attempt or in the presence of suicidal ideation/plan when: Suicidality is a reaction to precipitating events (e.g., exam failure, relationship difficulties), particularly if the patient's view of situation has changed since coming to emergency department  
Plan/method and intent have low lethality

Patient has stable and supportive living situation

Patient is able to cooperate with recommendations for follow-up, with treater contacted, if possible, if patient is currently in treatment

Outpatient management may be considered under the following situations:

No history of potentially lethal attempts

Lack of plan/intent; cooperative family member or other adults

Removal or lack of availability of lethal means

Communicative

Availability of intensive outpatient care

Good social support

Hopefulness

Patient has chronic suicidal ideation and/or self-injury without prior medically serious attempts, if a safe and supportive living situation is available and outpatient psychiatric care is ongoing

**Table 10: Steps of a typical safety plan<sup>[3]</sup>**

Identifying warning signs of suicide- "Intense agitation and anxiety"  
"Severe mood fluctuations"

Internal coping strategies- Things that I can do to distract myself without contacting anyone- "Watching sports", "listening to music"

Socialization strategies for distraction and support- Socializing with other people in their natural social environment (friends, neighbors) or visiting healthy social settings (library, coffee shop)

Social contacts for help in resolving the suicide crisis (close friends, family members)

Professional and agency contacts to help resolve a crisis (local hospital, suicide helpline)

Restricting the available means in the nearby environment (home, hostel)

which is used as an intravenous or intramuscular injection solution for induction and maintenance of general anesthesia. Ketamine needs to be used with caution due to associated side effects related to hemodynamic stability, emergent reactions like vivid dreams, hallucinations, respiratory depression, and drug-induced liver injury, among others. The intranasal preparation, esketamine, has been approved by the Food and Drug Administration (FDA) in August, 2020, to "treat depressive symptoms in adults with major depressive disorder with acute suicidal ideation and behavior." Potential risks associated with esketamine include sedation, dissociation, and abuse or misuse, and in the USA, its use is subject to strict safety controls on dispensing and administration. It has to be dispensed and administered only in certified healthcare settings, and patients must be monitored inside the healthcare setting after administration for a minimum of two hours until patients are safe<sup>[19]</sup>

- 5. Clozapine** – Clozapine has been found to reduce suicides and suicide attempts in patients with schizophrenia and may be considered in this group of patients.<sup>[20]</sup>

- 6. Measures to control acute anxiety and agitation**- These measures are often indicated in controlling severe agitation and anxiety in actively suicidal patients and can be useful in the immediate management. Injectable antipsychotics and benzodiazepines may be used for this purpose in the emergency treatment setting. Benzodiazepines are sometimes used for treating severe anxiety associated with suicidality. We lack adequate evidence to support this recommendation. Moreover, benzodiazepines can frequently be used as means of suicide and can also cause disinhibition in some patients. However, these drugs may be effective in treating severe insomnia associated with suicidality.<sup>[19]</sup>

## LONG-TERM MANAGEMENT OF SUICIDAL BEHAVIOR

### Brief Interventions and follow-up

The World Health Organization (WHO) Brief Intervention and Contact (BIC) treatment modality consists of a one-hour individual information session as close to the time of discharge as possible and, after discharge, nine follow-up contacts (phone calls or visits, as appropriate) according to a specific time-line up to 18 months (at 1, 2, 4, 7, and 11 week(s), and 4, 6, 12, and 18 months), conducted by a person with clinical experience (e.g., doctor, nurse, and psychologist). The information relates to psychological and social distress that often underlies suicidal behavior, risk, and protective factors for suicidal behaviors, basic community-specific epidemiology of suicide, repetition of suicidal behaviors, alternatives for constructive instead of self-destructive coping strategies, and contacts/referral options. WHO BIC has been found to significantly decrease suicides among patients with a history of suicide attempt in low- to middle-income countries (e.g., China, Iran, India, Brazil, and Sri Lanka).<sup>[21]</sup> This could be an effective model of post-discharge aftercare in individuals admitted for suicidal behavior in addition to the usual treatment modality.<sup>[19]</sup>

**Management of Chronic Suicidal Behavior**- Individuals with high chronic risk are those individuals having chronic disabling medical/psychiatric condition with chronic suicidal ideation. They are at a high risk of becoming suicidal in the event of sudden unexpected crisis. Apart from treatment of the chronic condition, these individuals should have a properly designed safety plan in place and undergo regular risk assessments on follow-up visits. Individuals with moderate chronic risk have a similar profile except for a stronger support system and coping reserves. They should be managed on similar lines.<sup>[3]</sup>

### MEDICOLEGAL ASPECTS OF SUICIDE

According to Section 309, Indian Penal Code, whoever attempts to commit suicide and does any act toward

commission of such an offence shall be punished with simple imprisonment for a term which may extend to one year (or with fine, or with both). This has been criticized as a regressive legislation. Attempt to die by suicide is discussed in Section 115 of MHCA 2017.<sup>[21]</sup> Part 1 of the section states that “Notwithstanding anything contained in Section 309 of the IPC, any person who attempts to die by suicide shall be presumed, unless proved otherwise, to have severe stress and shall not be tried and punished under the said Code.” It has an “overriding” effect on Section 309, IPC. Part 2 of the section states that “the appropriate government shall have the duty to provide care, treatment and rehabilitation to a person who has attempted suicide.” Thus, following implementation of MHCA, Section 309 IPC has become redundant in that people who attempt suicide can’t be punished. However, the reporting may need to be done as per local state government rules.

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### Conflicts of interest

There are no conflicts of interest.

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# Clinical Practice Guidelines for Assessment and Management of Aggressive and Assaultive Behaviour

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## INTRODUCTION

Violence and aggression are common in mental health facilities, sometimes with grave consequences<sup>[1]</sup> warrant the formation of a guideline that addresses these issues.

The combination of extrinsic and intrinsic factors along with the context and setting of violence makes the task of its prevention and management a complex phenomenon. The intrinsic components mainly consisted of personality features, current serious mental stress, and difficulty in managing anger. On the other hand, extrinsic factors are more diverse and depend not only upon the physical and social context where violence and aggression happen but also on the aggressor's attitude, victim's characteristics, health professional's training and experience, and perceived risk of danger.<sup>[2]</sup>

## DEFINITIONS OF VIOLENCE AND AGGRESSION

Violence and aggression can be defined as a set of activities that may lead to harm to other persons. It can be expressed in actions or words, but the physical damage remains and the purpose is clear.<sup>[2]</sup>

## EPIDEMIOLOGY

Aggression by patients in psychiatric wards may be a common occurrence. Studies show that 18%-25% of hospitalized patients exhibit violent behavior while in the ward.<sup>[3]</sup> High occurrence of aggression particularly verbal aggression is also reported by Emergency staff.<sup>[4]</sup>

### The association of mental conditions with violence and aggression

Contrary to the popular public view that recognized the link between mental health problems (especially serious mental health problems such as bipolar disorder and schizophrenia) and violence, the literature on this fact varies and shows mixed results.

People with mental health problems are more likely to become victims of violence than perpetrators, and most people do not engage in violence at all.<sup>[5]</sup> However, a consensus has emerged among researchers that a small fraction of patients have a relationship between mental health issues and violence.

Persons with organic brain dysfunction (post-traumatic, posthead injury, and seizure disorder particularly temporal lobe seizures) tend to exhibit violent and aggressive behaviour.

The Epidemiological Catchment area study<sup>[6]</sup> reported a 7.3% of lifetime prevalence of violence within the population who is free from psychiatric issues. On the other hand, the lifetime prevalence of violence was more than double (16.1%) in persons with schizophrenia or major affective disorders and 35% and 43.6% in those with substance use disorders and substance use disorder with comorbid mental health issues, respectively.

An association of violence was noticed, in different meta-analyses with Mood disorders, schizophrenia, and other psychosis.<sup>[7-9]</sup> A huge number of varieties were recognized with an odds ratio between 1 and 7 for schizophrenia in males and between 4 and 27 for females. For bipolar disorder, the odds ratio extended from 2 to 9. Be that as it may, for both disorders a comorbid substance-use disorder expanded the odds ratio up to 3-fold.

In the early 20<sup>th</sup> century, researchers recognized a set of symptoms called threat/control-over-ride symptoms that seemed to be associated with the risk of violence.<sup>[10]</sup> Threat/control-over-ride symptoms are delusional symptoms that make an individual feel like he is under threat and under the control of external forces.

### Personal impact of violence and aggression against self and others

#### *Staff within the hospital*

A fraction of the injuries that happen to staff occur while trying to intervene in fights between patients, but staff

may also receive injuries by unpredictable assaults made by patients who respond to their psychiatric symptoms or by confrontation while stopping patients from leaving the ward.<sup>[11]</sup> Sometimes staff also have to physically intercede to halt patients from harming themselves or attempting to take off to the ward, which may lead to aggression.

### Individual consequences

Patients who carry on violence are likely to encounter more accommodation difficulties, diminished social relations, and social support and be more disconnected. As a result, violence can be dangerous for those involved and have a negative impact on quality of life.

### Relatives, Carers, and Social networks

Family members, carers, and close contacts of patients are more likely to be injured when there is a risk of violence exists. On the other hand, in case the patient is living freely, relatives may pull back and stop supporting and visiting him if they frequently face aggressive and abusive behaviour.

In hospitals, staff blames a person's illness as the source of hostility, while patients blame illness, interpersonal problems, and the environment equally as sources of aggression.<sup>[12]</sup>

This staff awareness is critical to understanding how staff responds to incidents of violence and the postincident support needed to effectively manage the impact on themselves and patients.<sup>[13]</sup>

### Demographic and premorbid factors

Histories of aggression, schizophrenia, and recent illicit drug use are associated with aggression while inconclusive evidence for age, gender, and h/o conduct disorder. Causes of aggressive and violent behavior listed in Table 1.

## RISK FACTORS FOR AGGRESSION AND VIOLENCE

Risk factors are characteristics of the patient or their environment and care that make them more likely to behave aggressively.

Two types of risk factors:

1. Static risk factors:  
Historical and remain unchanged  
Example: Age, sex, family background, and childhood abuse.<sup>[14]</sup>
2. Dynamic risk factors:  
Are changeable and hence there is an opportunity for intervention.

Examples: Presenting symptoms, alcohol and illicit substance consumption, and compliance issue with treatment.<sup>[14]</sup>

Risk assessment involves identifying risk factors and assessing the likelihood and nature of adverse outcomes. On the other hand, risk management involves methodologies to prevent these negative results from happening or to limit their effect. Some researchers believed that static factors were better suited to assess risk over the long term and dynamic factors for assessing the risk of violence in the short term.<sup>[14]</sup>

## VIOLENCE AND AGGRESSION RISK ASSESSMENT AND PREDICTION

Predicting events that are imminent or perceived as imminent is not a trivial task. But, in acute clinical scenarios, it is difficult to perform comprehensive assessments that comprise history and physical and mental status examination in patients with a risk of violence and aggression. Different methods of risk assessment and tool were listed in Tables 2 and 3 respectively.

### Various places where violence risk may be present

Institutional facilities: includes large and small hospitals, nursing homes, long-term care facilities, inpatient/outpatient care facilities, small clinics, and community health facilities.

Fieldwork settings: healthcare or social workers who sometimes need to make home visits.

Use safety measures in all settings to prevent violence and aggression.<sup>[24]</sup>

**Table 1: Causes of aggressive and violent behavior**

Medical causes	Psychiatric causes
Hypoxia, Hypercarbia, Lung Diseases	Acute Schizophrenic Excitement
Disturbed Blood Glucose Levels	Bipolar Disorder- Acute Mania
Malnutrition	Depression-Suicidal Behaviour
Drug effects and withdrawals - amphetamine, steroids, alcohol, prescribed medications, and drug interactions	Substance abuse disorder (Acute intoxication/withdrawal syndrome)
Cerebral Conditions such as - Stroke, Seizure, Infections, Space Occupying Lesions, and Trauma	Alcohol/opium/opiates/cannabis and other substances
Infections - Systemic Sepsis, Urine Tract Infection in the elderly	Acute Situational Reaction/ATPD
Metabolic and Electrolytic Disturbances	Survivors of Sexual Assault
Organ Failure - Liver or Renal Failure	Borderline/Antisocial Personality Disorder/Conduct Disorder

**Table 2: Broadly there are three methods to assess risk**

Unstructured clinical assessments	Actuarial risk assessment	Structured clinical judgments
Past history of Violence and Aggression The effect of mental and physical health issues Personality and Substance use disorders Social and cultural components. <sup>[2]</sup>	Utilize quantifiable predictors based on research; to estimate a quantifiable value for the outcome in question. The main area of focus would be the likelihood of violence or assaultive behaviour happening within a short time period. <sup>[2]</sup>	It includes both the clinical appraisal approach and the actuarial methods. Risk factors identified from an extensive literature review will be assessed by raters using a variety of clinical sources. <sup>[2]</sup>

**Table 3: Various violence-related risk assessment tools**

Brosset Violence Checklist (BVC) <sup>[15]</sup>	This is a pen-and-paper based 6-point scale with a total rating score range from '0-6'. Each of the six components is scored for its presence (1) or absence (0). Cutoff is equal to or >2 It assesses: Threats- physical or verbal, irritability, confusion, vociferous behaviour, and attack on an object.
Classification of Violence Risk (COVR) <sup>[16]</sup>	Interactive and computer-based. Assess the risk of inpatient psychiatric patients committing violence against others. The software generates a report showing the patient's risk of violence (violence likelihood ranges from 1% to 76%), with an enumeration of risk factors that the program took into consideration for the risk estimation
Dynamic Appraisal of Situational Aggression (DASA) <sup>[17]</sup>	It is a seven-item pen and paper-based scale with scores ranging from '0-7'. Cutoff is equal to or greater than 2. Behaviour assessed: sensitivity to a perceived provocation, anger on denial the of request, irritability, impulsive behaviour, negative attitudes, verbal threat, and reluctance to follow directions.
Historical Clinical and Risk Management - 20 items (HCR-20) <sup>[18]</sup>	20-item scale Include ten historical factors, five clinical factors, and five dynamic risk management factors. Scored on a 3-point scale (0-2), with higher scores reflecting the presence of risk factors.
Modified overt aggression scale (MOAS) <sup>[19]</sup>	Measure verbal and physical aggression of people with intellectual disabilities in the community. It is suitable for assessing the effectiveness of interventions aimed at controlling aggressive-challenging behavior in this group.
Nursing Observed Illness Intensity Scale (NOIIS) <sup>[20]</sup>	Behavioral improvement and symptom reduction can be measured more objectively. Completed by an experienced nurse on duty at the end of each shift, based on observations and patient interactions. Can also be used to track patient progress, response to treatment changes, and discharge eligibility. This scale can be used for clinical studies of treatment outcomes.
Psychopathy Checklist Revised (PCL-R) <sup>[21]</sup>	The PCL was designed to use for legal offenders. There are 20 points, each scored on a 3-point ordinal scale (0-2) based on information gathered from the offender's institutional record. This instrument capture idea about the offender's interpersonal relationships, education, occupation, family life, marital status, current and past offenses, drug, and alcohol use, and health problems.
Short-Term Assessment of Risk and Treatability (START) <sup>[22]</sup>	It consists of 20 items. Scoring ranges from '0-2' (0=no relevant strengths/vulnerabilities; 1=some relevant strengths/vulnerabilities; and 2=definite strengths/vulnerabilities). Assess dynamic risk factors for seven adverse outcomes: violence, self-harm, suicide, substance misuse, victimization, self-neglect and unauthorized leave. No 'cut-off' scores are provided.
The Violence Risk Appraisal Guide-Revised (VRAG-R) <sup>[23]</sup>	It is an actuarial risk assessment instrument that contains 12 items. It is appropriate for males who are 18 years old or more and have committed serious, violent, or sexual offenses. The instrument scores based on clinical records rather than interviews and provides a numerical risk estimate.

## MANAGEMENT OF AGGRESSION AND VIOLENCE

Management of aggressive and violent behavior will depend upon the sensorium and orientation of the patient at the time of the presentation. If the patient is disoriented/delirious then the management would be as per the guidelines of a delirious patient.<sup>[25]</sup> If he/she is well oriented and has clear sensorium then management will be as follows.

1. Verbal de-escalation
2. Restrictive interventions
3. Pharmacological management
  1. VERBAL DE-ESCALATION

- Process of verbal de-escalation describe in Table 4
2. RESTRICTIVE INTERVENTION

- Modifications as per the environment
- Personal and institutional alarms to be fixed in easily accessible site.

### Common restrictive interventions include

#### A. Physical Restraint

As per section 97 of the Mental Health Care Act 2017, physical restraint should only be used when there is imminent and immediate harm to the person concerned or to others and it should be authorized by a psychiatrist in charge.

**Table 4: Verbal De-escalation**

Three step approach	Domains of De-Escalation	Descalation in the Emergency setting
The patient is verbally involved. collaborative partnership is established. The patient verbally de-escalates from excitement. <sup>[26]</sup>	Respect personal space. Do not be provocative. Communicate verbally. Be brief. Be aware of desires and emotions. Listen carefully to the patient. Agree or agree to disagree. Laydown law. Set clear boundaries. Provide choice and optimism. Debrief patients and staff. <sup>[26]</sup>	Physical spaces should be designed for safety. Appropriate training of staff to deal with agitated patients. Use objective instruments to assess agitation. Physicians should monitor themselves and feel safe when approaching the patient. <sup>[26]</sup>

### Salient points to be considered as per the mental health act 2017 for physical restraint:

- Physical restraint should not be used longer than necessary.
- Treating psychiatrist or medical officer should be responsible for ensuring the method and nature of the restraint, its justification, and appropriate record.
- The nominated representative should be informed if restraint is prolonged beyond 24 hours.
- It should not be used as a punishment method or counter to staff shortage.
- A person should be placed under restraint at a place where he can cause no harm to him or others and be under regular supervision by medical personnel.
- All instances should be reported to the mental health board on monthly basis.
- For further reference, a reader can use specific restraint guidelines for mental health services in India by Raveesh *et al.*<sup>[27]</sup>

### Techniques used for Physical restraint

#### Approach 1

- For physical restrain, patient should be lying down on the bed. Both upper and lower extremities should be tied with soft clothes or bandages.
- Constant monitoring of patients during mechanical restraint is a must.
- If constant monitoring is not possible, the patient has to be visually observed for at least 15 minutes of restraint time and should be within eyesight. And keep watch at every 10–15 minutes for the remaining hours.

#### Approach 2

- In the prone position, both arm and legs should be joint to the bedside.
- It should be done with cotton bandage.<sup>[2]</sup>
- This will allow some free movement of patient during restrain.

Physical restraint techniques should be modified as per the patient's condition and physical health.<sup>[2]</sup>

### B. Seclusion

Seclusion is not permitted in India as per the existing Mental Health Care Act 2017. However, in western guidelines, seclusion is reported as one of the techniques.

It is 'the involuntary imprisonment of an individual in a room from which the individual is physically avoided from moving out. Patients were watched each 10 to 15 minutes through a window within the door.'<sup>[2]</sup>

One randomized controlled trial<sup>[28]</sup> reported a low level of evidence that suggests a minimal restrictive care (seclusion) is as effective as a more prohibitive pathway (mechanical restraint).

Three reviews<sup>[29-31]</sup> reported that although staff believes restrictive measures to be a necessary step, this was also associated with the feeling of regret, trauma, and concern about the therapeutic relationship.

### Advisable Laboratory Investigations

As soon as the patient is cooperative or sedated by pharmacological management, the following investigations may be done to rule out comorbid organic conditions or for the planning of pharmacological management.

- Full Blood Count
- Liver Function Test
- Kidney Function Test
- Blood Glucose level
- Electrocardiogram
- Electrolytes
- Urinary drug screening
- Brain scan (optional, after clinical judgment)

### 3. PHARMACOLOGICAL MANAGEMENT

Every individual with aggressive and assaultive behaviour presented with a different set of issues. There is a lack of good scientific literature in the area of medical management in the acute setting for aggressive and assaultive behaviour. Pharmacological management of aggressive and assaultive behaviour should be considered only when other methods of management failed or respond inadequately.<sup>[32]</sup> Selection of pharmacological treatment for aggressive and assaultive

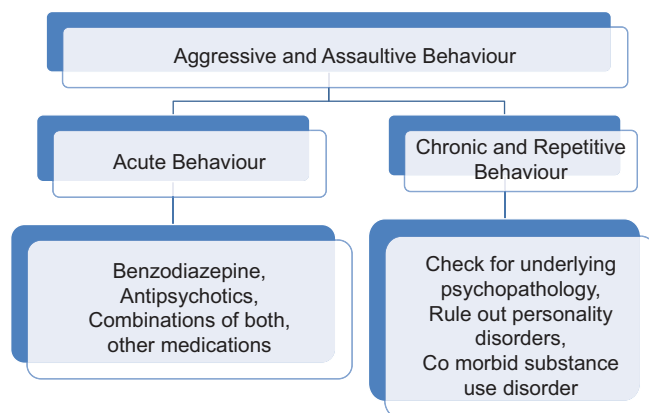
agitation should be based on underlying etiological issues and psychiatric diagnosis. See the overview of pharmacological management of aggression and assaultive behaviour in Figure 1.

Psychiatric reasons for the presentation of acute aggressive behavior are due to psychotic illnesses like schizophrenia, bipolar disorder, schizoaffective disorder, delusional disorder, substance-related issues, conduct disorder, intermittent explosive disorder, and personality problems. Certain patient-related and medication-related factors should be kept in mind before planning an effective management plan.<sup>[33]</sup> Factors to be considered in the pharmacological management of aggressive and violent behaviour shown in Table 5.

A mainstay for pharmacological treatment of aggressive and assaultive behaviour lies in rapid tranquilization in the short term. Search for psychopathology and/or medical reasons and appropriate management of it should be the next step of action.<sup>[2]</sup>

Presentation of such assaultive and aggressive behaviour is also varied in different settings like community, acute and emergency department, psychiatric inpatient setting, or medical setting. The definition of rapid tranquilization is subject to debate. The major goal of treatment is to archive calmness without oversedation of the patient and rapid control of acutely disturbed behaviour.<sup>[2,34]</sup> However, in the case of acute behavioural disturbance, level of sedation is required to a much deeper extent.

The Recent NICE guideline defines rapid tranquilization specific to the parental route, particularly by intramuscular and in the rare case intravenous route. Although this guideline also highlights the use of oral preparations before parental.<sup>[2]</sup> The general principles of pharmacological management of aggressive and violent behaviour listed in Table 6.



**Figure 1:** Outline of pharmacological management of aggressive and violent behaviour

**Management of acute aggressive and violent behaviour**

No agent preferred over the other. The use of medication is based on various factors as mentioned in Table 5. Use of oral medication must be encouraged before any form of parenteral medicine.

But it may depend on the severity of the acute presentation, availability of resources, and patient cooperation.

Also, single medication use should be always preferred over a combination of medicines. Summary of some major studies with different medication combinations and their outcome listed in Table 7. A combination of more than one agent leads to develop unnecessary side effects and negative patient experience. The patient’s age and hepatic and renal function also consider before prescribing any agent.

A stepwise approach should be considered as shown in the following path [Figure 2] for acute management of aggressive and assaultive behaviour.<sup>[2]</sup>

**Oral and inhaled treatment**

Research supported the early use of oral medication due to the good efficacy of medications in controlling assaultive

**Table 5: Factors to be considered in the pharmacological management of aggressive and violent behaviour<sup>[33,35]</sup>**

**Patient-related factors**

- Age: Appropriate consideration to be given in case of old age and children
- Sex: Gender-related issues in the side effect profile should be kept in mind.
- Comorbid medical disorder: Liver and Renal function status should be assessed.
- Comorbid psychiatric disorder: The patient should offer dose optimization in ongoing medication.
- Substance use disorder: drug interactions with substance use and consideration for over sedation.
- Collateral history: Input about physical health and current and past difficulties.
- Patient preference and past response: help to guide about potential effects and side effects.
- Physical health of the patient and current vital parameters: help in selecting medication based on current risks and benefits.

**Medication-related factors**

- Cocurrent medication: risk of over-sedation should be kept in mind.
- Drug interaction: particularly vigilant when a combination of medication use.
- Side effects: Respiratory depression and cardiac conduction problems are major life-threatening problems always kept in mind.

**Table 6: Principles of pharmacological management of aggressive and violent behaviour**

- Individual management plan for the patient.
- Reduce the suffering of the patient.
- Providing a safe environment for others.
- Produce calming effects, but avoid over-sedation.
- Acute control of behavior and reduces the risk of involving stakeholders.
- Pharmacological management should be the last option.
- Avoid combination of medicine and high cumulative dose.
- Consideration should be given to the patient physical health before considering treatment options.

and violent behaviour. Patients with mild to moderate levels of agitation may show cooperation in taking oral medication. Benzodiazepines and antipsychotics have

been used primarily to treat aggression and violent behavior.<sup>[2,36]</sup>

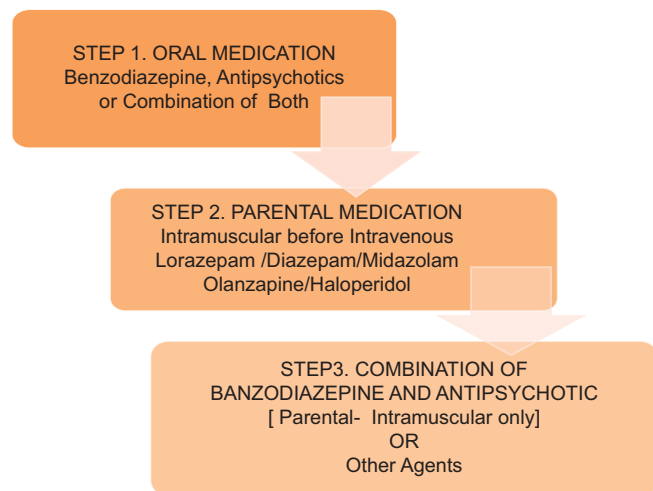
Benzodiazepine acts through the GABA receptors and it has anxiolytic, hypnotic, and anticonvulsant properties.<sup>[33]</sup>

Oral benzodiazepine is available in various formulations like melt –in mouth, oral disintegrated molecule, and buccal preparations. Oral Lorazepam, diazepam, and midazolam were used extensively in the past for controlling violent behaviour. Oral benzodiazepine is relatively safe and less associated with respiratory depression compared to its parental preparations.

Both first-generation and second-generation antipsychotics were used due to their brain-calming effect. Oral mouth-dissolving preparations of Olanzapine, Risperidone (both mouth dissolving and solution base preparation), Haloperidol, and Quetiapine have been used for a long time.<sup>[33]</sup> Sublingual Asenapine has also shown its effectiveness in managing acute behavioural changes.<sup>[33]</sup> Recently FDA approved inhaled form of Loxapine for the management of acute violent behaviour associated with schizophrenia and bipolar.<sup>[37]</sup> But the availability of bronchodilator medication should be ensured due to its serious adverse effect of bronchospasm. Commonly used medication and their adverse reactions are given in Table 8.

### Parenteral treatment

Intramuscular preparations of Olanzapine, Haloperidol, Aripiprazole, Lorazepam, and Diazepam have been used for a long. Research has not shown the parental route has any advantage over the oral route in treatment efficacy but the onset of action is rapid with the parental route. A large observational study shows IM Olanzapine is more effective than all other second-generation antipsychotics.



**Figure 2:** Stepwise approach for acute management of aggressive and assaultive behaviour

**Table 7: Summary of studies with different medication combinations and their outcome<sup>[38-42]</sup>**

Comparison Arms	Outcome
IM Midazolam 7.5-15 mg v/s IM Haloperidol 5-10 mg + Promethazine 50 mg	Midazolam was more sedating [TREC 1]
IM Lorazepam v/s IM Haloperidol 10 mg + Promethazine25-50 mg	Combination was more effective [TRAC 2]
IM Haloperidol 5-10 mg v/s IM Haloperidol 5-10 mg + Promethazine 50 mg	Combination was more effective and tolerable [TRAC 3]
IM Olanzapine 10 mg v/s IM Haloperidol 10 mg + Promethazine25-50 mg	Olanzapine was as effective as another arm in the short term. But the effect did not last for a longer time. [TRAC 4]

**Table 8: Various medication options available for rapid tranquilization, their dosage and maximum dose in 24 h and waiting interval<sup>[33,36,38]</sup>**

Route of administration	Drugs Dosage	Onset of action	Max dose in 24 h	Waiting interval	Special point
Oral	Lorazepam 1-2 mg	20-30 min	12 mg	2 h	Oversedation, Amnesia, Respiratory depression, Paradoxical reaction
	Risperidone 1-2 mg	1 h	6 mg	1 h	EPS, Hypotension
	Olanzapine 5-10 mg	2-6 h	20 mg	2-4 h	Hypotension, Over-sedation
	Haloperidol 5 mg	30-60 min	20 mg	6 h	EPS, Hypotension QT prolongation
Parenteral - Intramuscular	Lorazepam 2-4 mg	15-20 min	4 mg	1 h	Oversedation, Amnesia, Respiratory depression, Paradoxical reaction
	Olanzapine 2.5-10 mg	15-45 min	-	-	EPS, Hypotension, over sedation
	Promethazine 25-50	30 min	100 mg	30 min	Excessive sedation
	Haloperidol 2.5-10	30 min	30 mg	30 min	EPS, Hypotension QT prolongation
	Lorazepam and haloperidol 2 mg+5 mg	30 min	15 mg/4 mg	1 h	Oversedation, EPS, Hypotension QT prolongation
Intravascular	Haloperidol and promethazine 5 mg+25 mg	30 min	30 mg/ 100 mg	30 min	Hypotension, oversedation, EPS
	Lorazepam 1-4 mg	1-5 min	10 mg	15 min	Oversedation, Amnesia, Respiratory depression, Paradoxical reaction
	Midazolam 2.5-10 mg	5 min	-	10-15 min	hypotension, Amnesia, Respiratory depression, Paradoxical reaction
	Diazepam 10 mg	1-5 min	40 mg	30 min	Oversedation, Amnesia, Respiratory depression, Paradoxical reaction
	Anesthetic agents. Ketamine				Should be given under strict medical intensive setup



The combination of IM midazolam and IM haloperidol is more effective than IM haloperidol alone.<sup>[2]</sup> NICE recommends intramuscular lorazepam should always try before haloperidol in case of insufficient information to guide the choice of medication.<sup>[2]</sup> Partial response to intramuscular lorazepam NICE recommends repeated doses of lorazepam based on considering risks and benefits. But in case of the partial response of intramuscular haloperidol addition of intramuscular promethazine should be tried.<sup>[2]</sup> Avoid the use of a combination of olanzapine intramuscular preparation with an intramuscular benzodiazepine in case of alcohol use.<sup>[38]</sup> ECG must be carried out before haloperidol because of the risk of QT prolongation.<sup>[2,38]</sup> The intravenous route is no longer advised as an initial choice for rapid tranquillization.<sup>[2,38]</sup>

Intravenous midazolam is more closely associated with respiratory depression. Flumazenil should have been kept handy whenever the intravenous injection of benzodiazepine is given.<sup>[38]</sup> Medication to be consider in various psychological conditions [Table 9] and consideration in case of the special populations mention in Table 10.

**Management of agitation in emergency and consultation liaison specific should refer to specific guidelines by Raveesh *et al.*<sup>[43]</sup>**

*Monitoring in case of rapid tranquillization*

Monitoring of sedation with appropriate tools and rating scales like the Ramsay scale, Richmond Agitation Sedation scale, and Sedation Assessment Tool should be carried out and postsedation documentation about the incident and trying to find out the cause for such behaviour is also an important part in the management of patients.<sup>[2]</sup> If possible, provide one-to-one nursing and eyesight observation for better management of the condition. Continuous monitoring of vital signs is as mentioned follows [Table 11].

Frequent monitoring of vitals every 15-20 min should be ideally carried out for high-risk patients.<sup>[2]</sup> One should also need to be watchful for acute side effects of antipsychotic medicines like Acute Dystonia, Neuroleptic Malignant Syndrome, Acute Confusional State, Hypotension, Irregular Heart rates, and Respiratory Depression due to benzodiazepine.<sup>[38,44]</sup> Also staff should be trained in providing basic life-saving resuscitation and use of flumazenil in case

of severe respiratory depression. Further investigations are required before giving a repeating dosage of medications and rule-out medical causes and medical comorbidities. If the patient is calm and cooperative for mental status examination, then an attempt should be made for the same.

**Uncooperative violent and aggressive patient at home**

For emergencies, medical treatment for mental illness may be provided by a registered medical practitioner to a person with mental illness either at a health establishment or in the community with the informed consent of a nominated representative. A nominated representative should be available at the time of evaluation. An emergency is to be considered and needs immediate intervention to prevent:

- Death or irreversible harm to the health of a person;
- Person inflicting serious harm to himself or to others; and
- Person causing serious damage to property belonging to himself or to others where such behavior is believed to flow directly from the person’s mental illness.

For the purpose of treatment, only the situations mentioned above can be considered.

Emergency treatment duration is to be considered up to 72 hours from the initial evaluation by a registered medical practitioner/psychiatrist.

Emergency treatment includes transportation of a person with mental illness to the nearest mental healthcare establishment for assessment and management

If management at home is not possible or unaffordable relatives or caregivers of such patients should approach the nearest police station for escorting him/her to the nearest psychiatric care facility for management.

**Management of chronic aggressive and assaultive behaviour**

In some cases, aggressive and assaultive behaviour may persist for a longer duration. The use of specific medication should be required to control future behaviour. Use of a particular medication is based on consideration of clinical features and mechanism of action of the medication. Since no medication has been approved for this specific indication.<sup>[45]</sup>

**Table 9: The table shows various psychological conditions and medication to be considered<sup>[32,37,43]</sup>**

Psychological and Medical conditions	Medication to be considered
Mood Disorder	Antipsychotics preferred over Benzodiazepine
Schizophrenia and Delusional Disorder	Antipsychotics preferred over Benzodiazepine
Post-Traumatic Stress Disorder	Benzodiazepine
Substance Abuse Disorder- CNS depressant	Antipsychotics preferred over Benzodiazepine
CNS stimulant and alcohol withdrawal	Benzodiazepine
Delirium (Non-alcohol withdrawal)	Treat the underlying cause and antipsychotic only if necessary
Delirium (Alcohol withdrawal)	Benzodiazepine
Pregnancy	Antipsychotics
Dementia- BPSD	Low-dose antipsychotic only if necessary, considering risk and benefits

**Table 10: Consideration in case of special populations<sup>[2,33,38]</sup>**

Children and Adolescents	Start with the lowest possible dose Adjust dose according to age and weight Parental Lorazepam preferred over antipsychotics Use of benzodiazepine associated with paradoxical reaction and dis-inhibition More prone to side effects of antipsychotics Monitor Physical Health and Emotions of young person NICE - Recommends only intramuscular Lorazepam
Older Adults	Start with the lowest possible dose Use of benzodiazepine associated with paradoxical reaction and dis-inhibition More prone to side effects
Physical Restrain	Prepared for complication Risk assessment Observe within eyesight
Substance Misuse	No agent superior to other Consideration of IM Lorazepam Avoid Lorazepam in case of alcohol intoxication

**Table 11: Physical health monitoring in case of rapid tranquilization**

Physical and Clinical parameters	Interval
Pulse	Every 2 h
Blood pressure	
Temperature	Every 6 h
Respiratory rate	Constant
Oxygen saturation	Every 30 min
Clinical examination and check for oversedation	Before every dose

The clinician must have to consider other groups of medication apart from antipsychotics and benzodiazepine (i.e., mood stabilizing antiepileptics, antidepressants).

The clinician should also try to diagnose underlying psychopathology in-depth and consider substance misuse and personality-related problems in the case of chronic aggressive behaviour. Prolonged use of antipsychotics in the elderly population should be considered against the risks and benefits.<sup>[45]</sup>

### Workplace violence in psychiatry

Victims of workplace violence subsequently may develop psychological trauma, work avoidance, guilt feeling, powerlessness, and changes in relationships.

A follow-up program for addressing these abovementioned responses may be needed that includes counseling, critical incident stress debriefing, an employee-assistance program, and support groups.<sup>[24]</sup>

### Safety and health training

All staff members should be trained in de-escalation techniques. Training can improve knowledge about hazards and safety measures.

**Patient, client, and setting-related risk factors include**  
Working directly and alone with a person having a history of violence, substance abuse, gang membership, and possession of arms.

Faulty design of working place that may impede safe escape.

A deficit in means of emergency communication.

Transporting patients.

Working in a criminal neighborhood.<sup>[24]</sup>

### Organizational risk factors

Poor staff training and policies, understaffing, inadequate security, overcrowded patients, and unrestricted movement in hospitals are the organizational risk factors.<sup>[24]</sup>

### Training of health workers to reduce risk and violence

The topics for training may include a policy for violence prevention and documentation, possible risk factors, warning signs, diffusing anger and methods of dealing with hostile patients, safety devices and safe rooms, a response action plan, and self and staff defense.<sup>[24]</sup>

Appropriate training of supervisors to recognize dangerous situations so that they can avoid putting staff in such risky situations.

## SUMMARY

Aggressive and assaultive behavior is a complex issue and is dealt with effectively with an appropriate management plan. Environmental modification and the safety of another person and the patient should be our priorities. Nonpharmacological methods should be the choice of initial response in case of such acute behavioral disturbance. A pharmacological approach should be used only in case of failure of other strategies. Extensive monitoring of physical health and trying to find out underlying psychopathological issues should be important aspects of care. Certain points like the definition of treatment end points, proper assessment instrument for response measurement, and issues related to consent and library of patients required further research in this area.

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# Clinical Practice Guidelines for the Assessment and Management of Elderly Presenting with Psychiatric Emergencies

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## INTRODUCTION

The elderly population is increasing globally, and India is no exception. This rise in the elderly population is due to increased life expectancy. The most common psychiatric disorders among the elderly include dementia and depression. Compared to the adult population, the healthcare needs of the elderly are higher due to the high rates of comorbidities and multimorbidities. There is also high comorbidity between mental disorders and physical diseases among the elderly. Due to the high prevalence of comorbidities and multimorbidities, many elderly patients are on multiple medications. All factors make the elderly often complex patients.

Comorbidity refers to the occurrence of two chronic conditions in the same person. Multimorbidity is the presence of multiple medical conditions in a single individual. Different systematic reviews that have included data from different countries have estimated the prevalence of multimorbidity to range from 13 to 95%, with a higher prevalence among the elderly compared to other age groups and an increase in prevalence with increasing age.<sup>[1,2]</sup> Multimorbidity is associated with poor quality of life, higher treatment burden, reduced perception of quality of care received, poor caregiving experience, including development of physical and mental health morbidity among the caregivers, higher negative caregiving experience for the health care providers, and higher health care utilization and economic burden. Multimorbidity is further understood as concordant or discordant multimorbidity. The concordant multimorbidity usually emerges at the same time and requires similar treatment. Examples of such multimorbidity include co-occurring coronary artery disease and cerebrovascular disease. Discordant multimorbidity has the occurrence of multiple conditions that usually appear to be unrelated to each other and resultantly require different management approaches. The commonly noted discordant multimorbidity in the elderly includes physical diseases and mental disorders.<sup>[3]</sup> Data suggest that elderly patients with mental disorders are more often on polypharmacy.<sup>[4]</sup> Evidence suggests that as the number of multiple physical

illnesses increases, there is an increase in the prevalence of mental disorders. Data also indicate that patients with depression, psychosis, and sub-clinical psychosis have a higher prevalence of physical conditions. Multimorbidity has also been associated with a higher rate of cognitive decline.<sup>[3]</sup> The presence of multimorbidity among the elderly makes them more vulnerable to seeking emergency care.

Emergency medical care is at the crossroads of inpatient and outpatient medical care. The emergency and accident services provide care to patients coming with critical illnesses. Data suggest that the elderly account for 12–24% of the emergency visits, which is higher than that for young adults.<sup>[5-7]</sup> Data suggest that the elderly have multiple emergency visits and require hospitalization.<sup>[8]</sup> Studies from different parts of the world indicate that the elderly presenting to emergency have a high prevalence of mental disorders and substance use disorders.<sup>[9]</sup> A systematic review that included patients' data at admission to the emergency department estimated the prevalence of delirium to range from 7 to 20%.<sup>[10]</sup> Other studies have evaluated the prevalence of cognitive impairment varying from 26–40% in elderly presenting to emergency services.<sup>[11-13]</sup> The prevalence of alcohol misuse among the elderly seen in an emergency has been estimated to be 14%,<sup>[14]</sup> and that of substance use disorders in a lifetime has been estimated to be 45.5%. The prevalence of recent use (i.e., in the last 3 months) has been estimated to be 27.0%.<sup>[9]</sup> It is further shown that patients presenting to emergency services with comorbid substance use disorders have higher mortality rates.<sup>[15]</sup> The presence of multiple physical illnesses and polypharmacy increases the risk of delirium, which often warrants emergency care.<sup>[16]</sup> A study from India that screened elderly patients presenting to the emergency medical outpatient settings for psychiatric disorders estimated that 47.4% of patients had at least one axis-I psychiatric disorder and 35.3% had a substance use disorder, with an overall prevalence of either axis-I disorder or a substance use disorder to be 62%. In terms of specific psychiatric disorders, delirium was the most common disorder, seen in one-third (34.1%) of patients, followed by dementia (9.5%), depressive disorders (8.2%), adjustment disorder (3%), and anxiety (not

otherwise specified) disorder in 3.4%. Regarding substance use disorders, 31% of participants had tobacco dependence, and 19.8% had alcohol dependence syndrome. A higher prevalence of delirium and dementia was seen among those aged >70 years.<sup>[17]</sup> All these suggest a need to assess the elderly presenting to the emergency services more thoroughly for mental disorders.

The Indian Psychiatric Society published clinical practice guidelines (CPGs) for managing various psychiatric disorders amongst the elderly in 2007 and 2018. These guidelines covered various psychiatric disorders seen among the elderly but did not focus on assessing the elderly in an emergency setting. This guideline provides a broad framework for assessing and managing psychiatric morbidity among elderly patients presenting to the emergency. In India, the association of mental professionals in emergency services varies. Hence, these guidelines are not particularly applicable to any specific model of psychiatric care in an emergency and will require minor modifications to suit the needs of patients, service models, and precise settings. The recommendations are primarily meant for elderly patients seen in an emergency setting. However, these can also be applied to elderly patients seen in consultation-liaison setting too. It is expected that proposals will have to be tailored to suit the needs of individual patients.

#### **Engagement of mental health professionals in the emergency setting**

In India, emergency services are labeled differently across the country. Sometimes, hospital-based emergencies are labeled as emergency, casualty, emergency medical or surgical outpatient, and trauma services. Further, the terminology of emergency medical services has also been extended to include out-of-hospital acute medical care and/or transport to definitive care. Accordingly, the involvement of mental health professionals in the emergency setting varies depending on the service model. In most places, psychiatrists are on-call and attend to patients in the emergency when called by physicians or surgeons. In institutional settings, in a few places, trainee residents are posted in the emergency and provide services at the request of the physicians. This model has improved referral rates.<sup>[18]</sup> In most private settings, too, psychiatrists are available on-call. Once a patient presents with a psychiatric emergency or a patient known to be suffering from a psychiatric ailment presents to the emergency, often there is a tussle between the physician/surgeon about who will act as the primary treating team. In such a situation, it is crucial to have open communication and good collaboration with the physicians. Both teams should collaborate initially to conclude the cause of the presentation and should be available to shift the patient under their care and act as the primary treating team.<sup>[19]</sup> It is always better to have a good consultation-liaison and local standard operating procedures to facilitate patient care.

#### **Common psychiatric emergencies among the elderly encountered in the emergency setting**

Any psychiatric disorder can present in the emergency setting. However, the commonly encountered psychiatric emergencies in the emergency setting include agitation, aggression, lack of cooperation in treatment, suicidal behavior including medication overdose, altered mental status, catatonia, substance withdrawal/intoxication, panic attacks, dissociative disorders, psychosocial crisis, toxidromes (neuroleptic malignant syndrome, serotonin syndrome, anticholinergic syndrome), medication withdrawal states (antidepressant withdrawal syndrome, catatonia due to withdrawal of antipsychotics, benzodiazepines), psychotropic-related neurological emergencies (examples, dystonia, akathisia, seizures, etc.) and psychotropic-related medical-surgical emergencies (i.e., hyponatremia, gastrointestinal bleeding, falls due to use of psychotropics, etc.). A psychiatrist may also be called to provide clearance for surgery or assess the patient's capacity to consent to a procedure. Further, a psychiatrist may be called to evaluate an elderly patient who is a victim of elder abuse [Figure 1].

#### **Psychiatric assessment of elderly persons presenting to an emergency**

An elderly presenting to the emergency setting with psychiatric symptoms can present with first-onset psychiatric symptoms, worsening of the previously known psychiatric illness, or the emergence of new-onset in a person already known to be suffering from a psychiatric ailment. The basic principles of psychiatric assessment remain the same, i.e., thorough history taking, physical examination, mental status examination, and carrying out the required investigations. While taking history, clinicians should not only focus on psychiatric history but also comorbid physical illnesses.

In an elderly presenting with a new-onset psychiatric syndrome, it is imperative to consider the possibility of psychiatric manifestations being due to an underlying medical-surgical illness or medical emergency. Further, some medical emergencies may present symptoms akin to a psychiatric syndrome (myocardial infarction simulating a panic attack). In such a situation, it is always of paramount importance to rule out possible medical morbidity. Because elderly patients often have underlying multimorbidity, a decompensation in the underlying medical illness or medications used to manage medical diseases can also precipitate psychiatric emergencies. Further, it is essential to remember that physicians tend to prescribe psychotropics independently without seeking psychiatric consultations. Hence, the possibility of psychiatric emergencies related to the ongoing psychotropic medication or withdrawal due to psychotropics must be considered while considering a different differential diagnosis.

In a patient who is suffering from mental illness, while evaluating psychiatric history, it must be remembered



**Figure 1:** Common psychiatric emergencies among the elderly

that an elderly known to be suffering from a mental illness can present with a new-onset medical and psychiatric emergency (for example, delirium in a patient with dementia). Further, some psychiatric emergencies may be precipitated by the continued use of substances or sudden withdrawal of substances. This group of patients may also develop worsening of the underlying psychiatric illness and emergencies related to the use or withdrawal of ongoing psychotropic medications.

### History taking

Accordingly, while history taking, the clinicians should focus on the onset of the current symptoms and ongoing psychiatric symptoms and their association with any decompensation of the continuous or new-onset medical illness, the addition of any new medication (psychotropic or non-psychotropic), removal of any drug (psychotropic or non-psychotropics) in the recent times, substance use pattern (any recent change in the way of substance use, any new substance use), history of fall, any change in the sleep pattern, eating habits, and social support. Due importance should also be given to the assessment of sensory deprivation (visual or auditory) and review of frailty. Assessment of elder abuse requires a high index of suspicion. Treatment history requires careful evaluation of ongoing medications in terms of all ongoing drugs, medication supervision, medication adherence, and any recent change in the prescription or doses of ongoing medications. It is important to remember that the elderly have a lower level of physiological reserve. Hence, any tiny change should be given due importance while evaluating drug intoxication/withdrawal.

Further, while evaluating the addition or withdrawal of any medications, the issue of drug interaction should be kept in

mind. In addition to the prescribed medications, importance should also be given to the use of over-the-counter medications (medications for sleep, constipation, anti-allergic, anti-tussive, etc.), and medications from other pathies (homeopathy/ayurvedic). Another critical aspect of evaluating medication history is assessing the total anticholinergic burden of all ongoing medications in the patient, as the high anticholinergic burden is one of the crucial causes of delirium.

All patients should also be evaluated for any psychosocial stressors. These could be either of recent onset or have been present over time. The temporal association of psychiatric symptoms in terms of beginning and worsening with the stressors should be understood.

Focusing on the patient's mobility is also essential. The elderly are more prone to falls, especially when they require mobility aids to walk, sedative medications, or those that can lead to postural fall of blood pressure. If a patient presents with a fall, evaluation in terms of the place of fall, an activity that the patient was involved in, the type of fall, and the presence of any symptoms such as dizziness, fainting, and weakness in posture change (such as that standing from sitting/lying down posture) should be performed. Intoxication with substances should also be kept in mind while evaluating falls. Additionally, the association of falls with psychotropics known to cause postural hypotension must also be kept in mind.

Due importance should also be given to assessing the patient's cognitive performance in the history. Poor cognitive functioning can contribute to poor medication adherence, intake of the wrong medication, or accidental

poisoning; when a patient is not supervised, or unknowingly consume undesirable things. Clinicians should also give due importance to the evaluation of the course of cognitive performance over time, especially in recent few months, few weeks, few days, or few hours, as this can provide essential clues about the diagnosis, possible onset of psychiatric syndromes, which can further help in identifying the precipitating and or the contributory factor(s). Due importance should also be given to collecting information about the daily fluctuation in cognitive functions and any recent change in the pattern, as this can also provide important diagnostic clues.

Understanding the available social support is also essential, as this influences the care the elderly may receive in their home setting. Collecting information about elder abuse (which is understood as the acts of omission that result in harm or threatened harm to the health or welfare of an older person) is a sensitive issue, and its history should be carefully evaluated. The patient should be interviewed separately and given time and reassurance to open up.<sup>[20]</sup>

In case the patient has already made a suicide attempt, it should be evaluated in terms of lethality, understanding of the patient about the consequences of the act, and preparation made before the action so that others do not find out about him/her.

While history taking, an effort should be made to collect information from all available sources, including the patients, family members, and caretakers. Efforts should be made to talk to previous clinicians managing various physical and psychiatric conditions [Table 1].

## PHYSICAL EXAMINATION

In general, psychiatrists often do not give much importance to physical examination. However, this is of paramount importance in the emergency setting as this plays an important role in providing clues to the underlying medical causes of psychiatric syndromes and distinguishing psychiatric syndromes associated with underlying general medication from psychiatric syndromes not associated with underlying general medical conditions. It is important to remember that some new-onset psychiatric symptoms (agitation/aggression) or psychiatric syndrome (delirium) may be related to underlying general medical conditions. A thorough physical examination can also help distinguish between different toxidromes; provide evidence for features of various psychotropic medications and medication intoxications/withdrawal. Vitals (pulse, blood pressure, respiratory rate) should also be evaluated, as these can provide additional clues about various clinical conditions. Evaluation of body temperature can also provide information about multiple toxidromes, underlying sepsis, or infection.

During the physical examination smell of a patient's breath should not be ignored as this can provide important clues about underlying physical illness and associated medical emergencies (for example, the fruity smell in patients with diabetic ketoacidosis) or substance intoxication (smell of alcohol).

Another critical aspect of evaluation is assessing the patient's general health in frailty and obesity. Frailty is a biological syndrome characterized by lower reserve and resistance to stress resulting from cumulative functional decline in multiple physiological systems, leading to vulnerability to adverse outcomes.<sup>[21]</sup> It is associated with falls, hospitalization, and mortality. The characteristic features of frailty include unintentional weight loss, impaired grip strength, self-reported exhaustion, slow walking speed, and reduced physical activity. It is also reported to be associated with severe adverse outcomes during the first 30 days after discharge from an emergency.<sup>[22]</sup> Due importance in history should also be given to the assessment of daily living and instrumental activities of daily living.

While carrying out a physical examination, the presence of injury marks should also be given due importance, which may be indicators of physical abuse. Another important aspect of physical examination is an assessment of catatonia. Clinicians often miss out on subtle catatonic signs. Identification of catatonia is essential because it can prompt the clinicians to carry out the Lorazepam challenge test, which is a significant proportion of patients and may lead to dramatic improvement. It is also important to remember that physical examination should not be a one-time effort but should be repeated from time to time, as continuous monitoring of various physical signs and symptoms can help clarify the diagnosis [Table 1].

## MENTAL STATUS EXAMINATION (MSE)

Mental status examination in the emergency setting is one of the most critical aspects of evaluating the elderly. The initial evaluation should be on the AVPU (A-Alert, i.e., the patient is awake, oriented, responsive, and able to communicate; V-may appear unresponsive to start with but responds to the loud verbal stimulus; P-painful, i.e., the patient does not respond to the verbal command, but responds only to the painful stimuli such as sterna rub and pinching; U- Unresponsive, i.e., the patient does not respond to either verbal stimuli or painful stimuli). Initial brief evaluation and understanding of the level of response in AVPU can also help determine which should be the primary treating team. Based on history and physical examination findings, the psychiatrist or the other specialist can be the primary team for an alert patient [Figure 2]. However, patients who only respond to painful stimuli or are unresponsive to stimuli should be primarily assessed by the physician even though the patient may have a past psychiatric history or new-onset psychiatric manifestations. Physicians

**Table 1: Basic assessment of the patient in the emergency setting****History taking**

- Onset and course of psychiatric symptoms: New-onset, known to be suffering from psychiatric illness with worsening of symptoms; known to be suffering from psychiatric illness, now presenting with a different set of psychiatric symptoms; known to be suffering from psychiatric illness but now presenting with new medical symptoms
- Current psychiatric symptoms: Altered mental state, agitation, aggression, suicidal ideations/attempt, anxiety, dissociation, depression, psychotic symptoms, catatonia, etc.
- Cognitive symptoms: Any cognitive deficits in the patient, any change in cognition in a patient with no cognitive impairment or those with pre-existing cognitive impairment
- Chronic medical illnesses: Diabetes mellitus, hypertension, coronary artery disease, cerebrovascular disease, Parkinson's disease, epilepsy, etc.
- Current medical symptoms: Fever, diaphoresis, loose motions, constipation, stupor, coma, breathing difficulty, seizures, etc.
- Substance use: Type of substance, the pattern of substance, any recent increase or decrease in the quantity of substance, last intake of the substance.
- Self-harm behavior/accidental overdose: Medication overdose, self-poisoning, accidental poisoning.
- Medication history: Review all prescription (psychotropics and non-psychotropics) drugs, over-the-counter medications, self-medications, any recent change in medicines, any recent change in medication doses, medication adherence, and anticholinergic burden.
- Temporal relationship: Current psychiatric symptoms with current medical symptoms, current psychiatric symptoms with a course of the chronic medical symptoms, current psychiatric symptoms with psychotropic medications, present psychiatric symptoms with non-psychotropic drugs, current medical symptoms with psychiatric symptoms (current and long-term), current medical symptoms with psychotropic medications.
- Mobility and falls: Any walking difficulty, evidence suggestive of postural fall, history of recent falls.
- Sensory deprivation: Visual impairment, auditory impairment.
- Psychosocial stressors: Ongoing stressors for the long run, recent psychosocial stressors.
- Available social support: Who is/are the caregiver (s), emotional bonding with the patient, time spent with the patient, etc.
- Elder abuse: Look for elder abuse

**Physical Examination**

- Level of consciousness: coma, stupor, delirium
- Vitals: pulse, blood pressure, respiratory rate, temperature, jaundice
- Pupil size
- Skin: dry, warm/cold, diaphoresis
- Oral cavity-dry/salivation
- Cardiovascular examination
- Respiratory examination
- Gastrointestinal: sluggish or increased bowel sound, evidence for constipation or loose motions, hepatomegaly, splenomegaly
- Neurological examination: neurological deficits, plantar, clonus, reflexes, size of the pupil
- Other symptoms: diaphoresis, dry skin
- Catatonic signs: rigidity, waxy flexibility, mitgehen, mitmachen, grimacing, automatic obedience, ambitendency, staring, mannerism, echopraxia, etc.
- The smell of the breath
- Bladder: evidence of full bladder
- Frailty, obesity
- Evidence for nutritional deficiencies
- Injury marks

**Mental status examination**

- Level of responsiveness: alert, responds to verbal stimuli, responds to painful stimuli only, no response to verbal or painful stimuli.
- Type of psychiatric symptoms: anxiety and worries, depressive cognitions, delusions, hallucinations
- Cognitive functioning
- The course of psychiatric symptoms
- Suicidal ideations

**Investigations**

- Routine investigations: Hemogram, renal function tests, serum electrolytes, liver function test, serum glucose levels, X-ray chest and electrocardiogram, urine drug screen, vitamin-B12 levels, vitamin D levels, arterial blood gas (ABG) analysis
- Neuroimaging: New-onset psychiatric syndrome, patients with neurological signs or symptoms, those with a pre-existing neurological condition or brain pathology, if a patient has a significant change in clinical presentation, among those with a family history of neurological disorders, presence of a history of head injury, presence of seizures, delirium, recent or progressive cognitive decline, and before electroconvulsive therapy
- Others: Based on the history, physical examination, and investigation reports

Note: The clinician can modify and customize the assessment as per the need of an individual patient

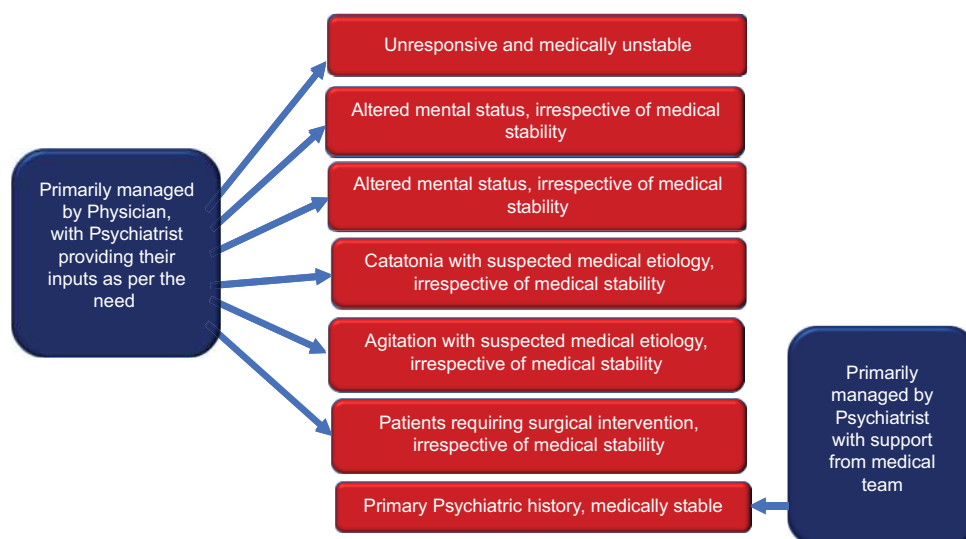
should also primarily assess patients who respond to loud verbal stimuli. However, the psychiatrist can provide their input based on their history and mental status examination about the possible diagnosis and management.

An essential aspect for the psychiatrist to remember is that some patients may change from one level to another rapidly, i.e., an unresponsive patient may become fully alert or start responding to loud verbal commands. Hence, psychiatrists

should be prepared to assess the patient's mental state from time to time and document the findings of each assessment. A rapid fluctuation in the level of response from fully alert to the loud verbal command may indicate delirium.

In fully alert patients or those responding to loud verbal commands, efforts should be made to carry out a detailed MSE, as in other situations. While doing so, any kind of sensory deprivation should be kept in mind, and if these





**Figure 2:** Deciding about the primary team

could be corrected, it should be done before proceeding with MSE. It is important to remember that carrying out MSE in elderly patients requires patience and compassion. It is also crucial that the clinician is respectful toward elderly patients. It is also paramount that the clinician carrying out MSE speak slowly and clearly and check with the elderly whether they could understand the question or not, and if required, the questions should be repeated. During the MSE, it is also crucial to use non-verbal communication such as standing close to the patient, and touching the patient, as these can encourage the elderly to be more cooperative.

Due importance should be given to assessing cognitive functions and psychomotor activity, besides evaluating the speech, mood, form of thought, content of thought, and perception. This examination can provide diagnostic clues about the underlying psychiatric syndrome. While assessing cognitive function, every effort must be made to get the best out of the patient, rather than focusing on a higher level of dysfunction. For the assessment of cognitive functions, structured instruments such as mini-mental status examination (MMSE), Hindi mental status examination (HMSE), and Montreal Cognitive Assessment (MoCA) can be used. Similarly, the level of agitation or psychomotor retardation may also be recorded using specific scales for assessing agitation, such as the Richmond Agitation Sedation Scale (RASS).

The assessment of suicidality is essential to evaluate an elderly patient presenting with psychiatric symptoms to the emergency. All patients should be actively asked about current suicidal ideations and active suicidal plans. This becomes much more important in patients with self-harm or those reporting hopelessness.

#### Use of structured scales

The assessments (physical and mental status examinations) can be supplemented by structured scales [Table 2].

Structured scales can be used to assess other aspects of history, physical examination (for example, frailty index to assess frailty), and MSE (Beck Depression Inventory to rate the severity of depression, Delirium Rating Scale-98 Revised (DRS-R98 to evaluate the severity of delirium). Similarly, screening instruments for various diagnoses (such as the confusion assessment method [CAM]) can be used to screen patients for any specific diagnosis.

#### INVESTIGATIONS

All patients presenting to the emergency should undergo certain basic investigations, and depending on the findings of history, physical examination, and mental status examination, further investigations can be considered. The primary investigation panel should include a hemogram, renal function tests, serum electrolytes, liver function tests, serum glucose levels, X-ray chest, and electrocardiogram. All elderly patients with new-onset psychiatric syndrome should also undergo neuroimaging. Additionally, neuroimaging should be considered in patients with neurological signs or symptoms, those with a pre-existing neurological condition or brain pathology, if a patient has a significant change in clinical presentation, those with a family history of neurological disorders, presence of a history of head injury, presence of seizures, delirium, recent or progressive cognitive decline, and before electroconvulsive therapy<sup>[23,24]</sup> [Table 1]. Other investigations should be decided based on the clues from the history, physical examination, and MSE. The investigations should be repeated from time to time to monitor the clinical status of the patients.

#### FORENSIC ISSUES

Patients facing elder abuse may require ensuring their safety of the patient. If the assessment suggests that the patient's safety may be compromised during the hospital stay or after

**Table 2: Scales for assessment of different psychiatric conditions (by physicians or psychiatrists)**

Psychiatric condition	Screening instruments
General level of responsiveness	Glasgow Coma Scale
Agitation	Richmond Agitation Sedation Scale Behavioral Activity Rating Scale
Delirium	Confusion Assessment Scale (CAM) Confusion Assessment Scale Intensive care unit (CAM-ICU) Delirium Rating Scale-Revised-98
Depression	Patient Health Questionnaire-2 (PHQ-2) Patient Health Questionnaire-9 (PHQ-9) Beck depression inventory
Catatonia	Bush Francis Catatonia Screening Inventory Bush Francis Catatonia Rating Scale (BRCRS)
Anxiety	Generalized Anxiety Scale-7
Cognitive functions	Mini-mental Status Examination Hindi-mental status examination Montreal Cognitive Assessment
Premorbid cognitive functioning	Short form of the Informant Questionnaire on Cognitive Decline in the Elderly (IQCODE)
Dementia	Dementia Rating Scale
Behavioral and Psychological Symptoms of dementia	Neuropsychiatric inventory
Suicidality	SAD PERSON SCALE Beck Suicidal inventory
Alcohol withdrawal	Clinical Institute Withdrawal Assessment for Alcohol Scale (CIWAS-Ar)
Opioid Withdrawal	Clinical Opioid Withdrawal Scale
Elder Abuse	Caregiver Abuse Screen Evaluation
Frailty	Frailty Index
Assessment of activities of daily living	Katz Index of Independence in Activities of Daily Living
Instrumental activities of daily living	Lawton Instrumental Activities of Daily Living Scale (IADL)

Note: The selection of the scales would be influenced by the diagnosis and the need of the individual patient.

discharge, appropriate steps must be taken to report the same to the police to initiate legal action.

## DIAGNOSIS

Diagnosis of all psychiatric syndromes should be made per the standard nosological system. However, it is essential to remember that some of the symptoms (such as agitation) and psychiatric disorders (such as delirium and catatonia) can be due to varied conditions [Table 3]. Similarly, there could be an overlap of symptoms between various toxidromes, intoxication states, and withdrawal states [Table 4]. A careful history, physical examination, MSE, and specific investigations can clarify the same. It is also important to remember that patients with dementia can develop superimposed delirium.

## ETIOLOGICAL ASSESSMENT

As many psychiatric emergency presentations may be caused by underlying medical illness, ongoing medication (toxicity/withdrawal), or substance use (intoxication/withdrawal), it is crucial to evaluate the possible underlying etiologies.

In this regard, it is also important to remember that although the primary presentation may be with psychiatric symptoms possibility of manifestation of medical illness mimicking a psychiatric syndrome should be kept in mind because any misdiagnosis can lead to

adverse outcomes in the form of mortality. For example, the clinical presentation of myocardial infarction may mimic anxiety. Anxiety may be a manifestation of angina, arrhythmia, asthma and other pulmonary diseases, pulmonary embolism, hypoglycemia, and temporal lobe epilepsy. The new onset of psychosis in the elderly may be a manifestation of thyrotoxicosis, hyperparathyroidism, adrenal insufficiency, seizure disorder, space-occupying lesion in the brain, etc.<sup>[25]</sup> Similarly, agitation may be a marker of pain or full bladder.

While evaluating the underlying etiology of delirium, catatonia, and agitation, it is essential to remember that many organic conditions can cause these syndromes/symptoms [Tables 5-7]. It is also important to remember that agitation may result from delirium and catatonia. Additionally, agitation can also be seen due to various psychiatric disorders. A careful history can help to distinguish between agitation due to underlying general medication conditions and primary psychiatric disorder [Table 8].

During the assessment, it is also important to remember that patients with various primary medical illnesses, psychiatric disorders (on treatment/not on treatment), and toxidromes can develop secondary medical complications, such as secondary infections (aspiration pneumonia), organ failure(s), and head injury. which can make the diagnostic clarification difficult, and require immediate attention.

**MANAGEMENT**

The primary goals of emergency assessment and management include triage and prioritizing elderly care, diagnostic clarification, clinical stabilization, ensuring the safety of the patient, de-prescription and prescription, non-pharmacological measures, briefing the family members and patient, monitoring the progress, and deciding about the treatment setting (inpatient–psychiatry/medical–surgical ward, intensive care unit,

outpatient care), as emergency care is usually transit care [Figure 3]. However, it is essential to remember that these measures are carried out almost simultaneously rather than sequentially.

*Triage and prioritizing elderly care:* Some of the issues that should be kept in mind while evaluating and managing an elderly patient in an emergency include reducing the waiting time, ensuring the physical comfort of the patient, reducing the external stimuli, and, if possible, managing the



**Figure 3:** Principles of management of patients in emergency

**Table 3: Overlap of psychiatric syndromes and symptoms commonly seen in emergency**

	Agitation	Altered mental state (delirium)	Mania	Psychosis	Anxiety	Depression	Catonia
Organic conditions	√	√	√	√	√	√	√
Delirium	√	X	-	-	-	-	√
Mania	√	-	X	√	-	-	√
Psychosis	√	-	-	X	√	√	√
Anxiety	√	-	-	√	X	√	-
Depression	√	-	-	√	√	X	√
Catonia	√	√	√	√	√	√	X
Dementia with BPSD	√	-	√	√	√	√	√
Pain	√	√	-	-	√	√	-
Akathisia	√	-	-	-	√	-	-
Substance intoxication	√	√	-	-	-	-	-
Substance withdrawal	√	√	√	√	√	√	√
Neuroleptic malignant syndrome	√	√	-	-	-	-	√
Anticholinergic syndrome	√	√	-	√	-	-	-
Serotonin syndrome	√	√	-	-	-	-	-
Medication withdrawal	√	√	-	-	-	-	√
Medication overdose	√	√	√	√	√	√	√

Note: Patients with mania, psychosis, depression, and anxiety can develop delirium due to various causes, and if delirium is the presenting clinical picture in the background of these disorders, alternative causes for delirium should be evaluated.

**Table 4: Differential diagnosis of various toxidromes**

	NMS	Serotonin syndrome	Anticholinergic syndrome	Malignant hyperthermia	Antipsychotic toxicity	Antidepressant toxicity-TCAs	Antidepressant toxicity-SSRI/SNRI	Lithium toxicity	Valproate toxicity
Temperature	↑	↑	↑	↑	↑	↑	↑	N	↑/↓
Muscle rigidity	↑	↑	N	↑	↑	N	↑	↑	↑
Tremors	+	+	-	+	+	-	+	+	+
Reflexes	↓	↑	N	↓	↓/N	N	↑	↑	-
Myoclonus	-	+	-	-	-	-	+	+	-
Clonus	-	+	-	-	-	-	+	+	-
Seizures	-	+	+	+	+	+	+	+	+
Altered sensorium	+	-	+	+	+	-	-	↑	+
Irritability	+	+	+	+	+	+	+	↑	+
Agitation	↑	↑	↑	↑	↑	↑	↑	↑/↓	↑
Heart rate	↑	↑	N	↑	↑	N	N	N	↑
Respiratory rate	↑	↑	↑	↑	↑	↓	↑	↓	↑
Blood pressure	↑	↑	↑	↑	↑/↓	↓	↑	↓	↓
Pupil	N	↑	↑	N	N	↓	↑	N	↑
Bowel sound	N	↑	↓	↓	N	↓	↑	N	↑
Skin and mucosa	D	N	d	D	D	d	N	N	-
CPK levels	↑	-	-	↑	↑	-	-	-	-
Myoglobinuria	+	-	-	+	+	-	-	-	-
Leucocytosis	+	-	-	+	+	-	+	+	-

	Carbamazepine toxicity	Benzodiazepine toxicity	Alcohol toxicity	Opioid toxicity	Sympathomimetic toxicity	Antipsychotic withdrawal	Antidepressant withdrawal	Benzodiazepine withdrawal	Heat stroke
Temperature	↑	↓	↓	↓	↑	↓	↑	N	↑
Muscle rigidity	↑	↑	↑	↑	↑	↑	↑	↑	□
Tremors	-	-	-	-	-	+	-	+	-
Reflexes	↑/↓	↓	-	-	-	↓	-	-	-
Myoclonus	+	-	-	-	-	-	-	+	-
Clonus	-	-	-	-	+	-	-	+	-
Seizures	+	+	+	+	+	-	+	+	+
Altered sensorium	+	+	+	+	+	+	+	+	+
Irritability	-	+	+	-	+	+	+	+	+
Agitation	+	↑	↑	↑	↑	↑	↑	↑	↑
Heart rate	↑	↑/↓	↓	↓	-	-	-	↑	↑
Respiratory rate	-	↓	↓	↓	↑	↑	↑	↑	-
Blood pressure	↓	N	N	↓	↑	N	N	N	-
Pupil	↑	N	N	↓	N/↑	N	↑	-	-
Bowel sound	↓	-	P	↓	D	D	-	-	D
Skin and mucosa	-	-	-	-	-	↑	-	-	-
CPK levels	-	-	-	-	-	-	-	-	-
Myoglobinuria	-	-	-	-	-	-	-	-	-
Leucocytosis	-	-	-	-	-	-	-	-	-

D-Diaphoresis; d-dry skin; N-Normal Size; +: Present; -: Absent; P-Pale and Blue skin

**Table 5: Risk and etiological factors for delirium<sup>[16]</sup>**

**Socio-demographic variables:** age >70 years/advanced age, male gender, institutionalization

**Baseline mental status:** cognitive impairment/dementia, depression, social isolation

**History:** previous history of delirium

**Sensory impairment:** visual and/or hearing impairment

**Medical illnesses:** severe medical illness, high APACHE II score, fracture at admission to the hospital, brain disorders such as Parkinson's disease, tumors, and infections

**Physical status:** fever, hypotension, poor functionality/immobility, limited pre-morbid activity levels

**Metabolic disturbances:** electrolyte imbalance, anemia, acid-base imbalance, hypoglycemia

**Medications**

- **Sedative-hypnotics:** benzodiazepines; especially long-acting agents, barbiturates, Antihistamines (e.g., diphenhydramine)
- **Narcotics:** Meperidine
- **Drugs with anticholinergic effects:** Oxybutynin, tolterodine, antihistamines, antipsychotics (e.g., low potency neuroleptics such as chlorpromazine), promotility agents, tricyclic antidepressants (especially amitriptyline, imipramine, and doxepin), the cumulative effect of multiple medications with anticholinergic effects
- **Histamine-2 Blocking agents:** Cimetidine
- **Anticonvulsants:** Phenytoin, phenobarbitone
- **Antiparkinsonian medications:** Dopamine agonists, levodopa-carbidopa, amantadine, anticholinergics, benzotropine
- Use of more than three medications

**Laboratory findings:** High urea/creatinine ratio, hypo/hyponatremia, hypo/hyperkalemia, hypoxia, hepatic failure

**Surgery and anesthesia:** Unplanned (i.e., emergency) surgery, immobility after surgery, preoperative use of narcotic analgesics, type of surgery (hip replacement surgery, neurosurgery), emergency surgery, longer duration of surgery, type of anesthetic, postoperative pain, intraoperative blood loss

**Pain:** Poor pain management

**Nutrition:** Malnutrition, dehydration, hypoalbuminemia

**Treatment-related factors:** Use of physical restraints, indwelling catheter, a high number of procedures during early hospitalization (X-rays, blood tests, etc.)

**Sleep:** Sleep deprivation/insomnia

**Treatment setting:** Intensive care units, longer duration of hospital stay

**Others:** Alcohol abuse, urgent hospitalization, frequent hospitalizations

elderly in an isolation room, and ensuring that there are no potentially dangerous objects in the treatment setting.

**Ensuring the safety of the patient:** Patients with self-harm should be monitored closely, and high-risk management should be instituted; attempts should be made to medically stabilize these patients, and as per the need, they should be shifted to the psychiatry inpatient facility or transferred/referred to the nearest psychiatric facility. Those patients requiring monitoring for physical health consequences should be shifted to the medical–surgical wards or intensive care units as per the need.

**Physical Stabilization:** An essential aspect of managing patients in the emergency setting is physical stabilization, which is often done alongside assessment or, at times, may have to be done only after preliminary examination due to a life-threatening presentation. For clinical stabilization, first importance should be given to the airway, breathing, and circulation stabilization.

**Table 6: Etiology of catatonia among the elderly reported in the form of case reports (adapted from)<sup>[26]</sup>**

**Neurologic:**

- Dementia: Alzheimer's dementia, frontotemporal dementia, Lewy bodies dementia, mixed
- Dementia, dementia not otherwise specified
- Epilepsy: Non-convulsive status epilepticus
- Cerebrovascular disease
- Encephalitis: NMDA encephalitis, para-neoplastic encephalitis, anti-Hu encephalitis, viral encephalitis
- Parkinson's disease
- Cerebral anoxia/hypoxia
- Creutzfeldt-Jakob's disease
- Epidural empyema
- Frontotemporal lobes atrophy
- Cerebral Whipple's disease
- Progressive supranuclear palsy
- Intellectual disability
- Frontal lobe syndrome
- Hypothermia, frontal lobotomy
- Occipital brain tumor
- Atrophy of the brainstem and cerebellar vermis

**Metabolic:**

- Organ failure: Acute renal failure, heart failure, liver failure
- Post liver transplantation
- Dehydration
- Electrolyte disturbances: Hyponatremia, hypernatremia
- Infectious: Urinary tract infection, pneumonia, COVID-19 infection
- Endocrine: Hyperparathyroidism, hypothyroidism, hyperthyroidism
- Others: B12 deficiency, pernicious anemia
- Malignancy: Cancer of the colon

**Medications**

- Antipsychotics: Haloperidol, droperidol, loxapine, pipotiazine, trifluoperazine, tiapride, aripiprazole, risperidone, quetiapine
- Other medications: Phenelzine, allopurinol, prednisone, rivastigmine, donepezil, azithromycin, cefepime, amiodarone, tacrolimus, methotrexate, imiquimod
- Medication Withdrawal: Nitrazepam, diazepam, alprazolam, oxazepam, temazepam, clonazepam, chlordiazepoxide, lorazepam, clozapine, olanzapine, risperidone, chlorpromazine, levomepromazine, bromperidol, haloperidol, cyamemazine, amantadine, lithium, gabapentin
- Toxic substances: Manganese

The physician rather than the psychiatrist should primarily do this. However, during this process, psychiatrists can provide their input to manage various psychiatric manifestations, mainly to address conditions that may impede or disrupt the achievement of physical stability—for example, managing delirium and agitation so that the patient remains cooperative for treatment.

**Diagnostic clarification:** It is an essential step in managing the patient. A high index of suspicion is required to rule out all suspected causes of clinical presentation. It is also crucial to remember that often elderly patients with psychiatric disorders do not receive proper health evaluation from time to time and may have undetected physical illnesses. Hence, depending on the clinical presentation, additional investigations may be considered. Often elderly patients who are brought to an emergency are on many medications, and the psychiatric presentation may be related to the medication's intoxication, withdrawal,

**Table 7: Causes of agitation<sup>[27]</sup>**

Category	Medical conditions
<b>General medical condition</b>	<ul style="list-style-type: none"> <li>• Delirium</li> <li>• Metabolic derangements (e.g., hypoglycemia, hyponatremia, hypocalcemia)</li> <li>• Hypoxia</li> <li>• Thyroid disease</li> <li>• Environmental toxins</li> </ul>
<b>Surgical conditions</b>	<ul style="list-style-type: none"> <li>• Head injury</li> <li>• Severe burns</li> <li>• Major surgical intervention in recent times</li> <li>• Postoperative period (especially among the elderly)</li> </ul>
<b>Neurological illnesses</b>	<ul style="list-style-type: none"> <li>• Intracranial mass or hemorrhage</li> <li>• Stroke</li> <li>• Infection (e.g., meningitis, encephalitis)</li> <li>• Seizures (post-ictal phase)</li> <li>• Dementia</li> </ul>
<b>Toxicity</b>	<ul style="list-style-type: none"> <li>• Anticholinergic intoxication</li> <li>• Antiepileptic medications</li> <li>• Stimulants</li> <li>• Steroid psychosis</li> <li>• Serotonin syndrome</li> <li>• Neuroleptic malignant syndrome</li> <li>• Alcohol intoxication/withdrawal</li> </ul>
<b>Psychiatric Disorders</b>	<ul style="list-style-type: none"> <li>• Psychotic disorder</li> <li>• Mood disorders</li> <li>• Dementia</li> <li>• Anxiety disorder</li> <li>• Personality disorder</li> <li>• Acute stress reaction/adjustment disorder</li> </ul>
<b>Medication side effects</b>	<ul style="list-style-type: none"> <li>• Akathisia</li> </ul>

**Table 8: Distinguishing features between agitation due to primary psychiatric disorder and agitation due to underlying medical condition<sup>[27]</sup>**

	Primary psychiatric disorder	Underlying medical condition
Onset of agitation	Gradual	Sudden
Past psychiatric history	Present	Absent
Vital signs	Usually, normal	Usually, abnormal
Physical examination	Usually, normal	Usually, abnormal
Type of hallucination	Mostly Auditory	Visual>auditory
Emotional state	Flat, cheerful, sad	Emotional lability
Attention and concentration	Usually, intact	Often impaired
Level of consciousness	Usually, alert	Often impaired, fluctuations

or side-effect. Hence, clinicians often face the dilemma of which drugs to continue or discontinue. It is crucial to remember that sudden withdrawal of medications in patients on psychotropics can lead to complications (for example, seizure), and continuation of agents responsible for the clinical presentation can lead to progression and mortality. In this regard, clinicians need to understand the basic principles of deprescription.

**Deprescribing:** It is understood as a systematic process of recognizing, reducing the doses of medications, or stopping/replacing the medicines when the current and potential risks of continuing the drugs outweigh the current or potential benefits by considering the patient's medical

morbidity, functioning, values, and preferences. The final aim of the process is not necessarily to stop the medications entirely but is the judicious use of drugs.<sup>[28,29]</sup> This process has been primarily understood in the context of elderly outpatients, and medication withdrawal is made stepwise. However, in an emergency, such a stepwise stoppage of medications may or may not be possible. However, the basic principles and steps [Table 9] can also help deprescribe in an emergency. The first step in the process of deprescribing is to obtain a comprehensive medication history. Rather than limiting to reviewing the prescription, asking the patient/caregivers to show all medications the patient is taking is better. This can provide important information about prescription medications and over-the-counter (OTC), complementary/alternative medicine agents, and wrong medications (prescribed one medication but dispensed something else). Each drug should be evaluated for its potential to be reduced in dose or discontinued. If a profound adverse effect (hyponatremia, upper gastrointestinal bleeding) is suspected, and the medication should be stopped immediately. When the patient is medically unstable, and on psychotropics, a decision about stopping and continuing should be based on the current severity of medical instability impact of continuing psychotropics on current clinical presentation (for example, to continue benzodiazepine or opioids in patients with respiratory difficulty) and risk involved with abrupt discontinuation of the medication.

A similar situation arises when a patient on psychotropic medications with a medical–surgical emergency requiring urgent surgery is referred to a psychiatrist for continuing or stopping the ongoing psychotropic medications. Essential aspects to be considered while providing clearance for surgery are the: impact of sudden withdrawal of psychotropic drugs (medical withdrawal syndromes and adverse effects), the impact of stopping psychotropics on the course of illness for which the psychotropics were recommended earlier, the type of surgery, drug interactions between psychotropics and the anesthetic agents, the impact of psychotropics on recovery from general anesthesia, impact of psychotropics on the new or old medical illness which has currently got destabilized, and impact of the continuation of psychotropics on an increased risk of bleeding.<sup>[32]</sup> Another aspect in emergency setting is deciding about surgical clearance of an elderly patient presenting with a history of using the substances in recent times, which could be a few hours or a few days ago.

There is a lack of literature on these aspects, especially concerning the emergency setting or surgery. However, the data and recommendations for routine surgery can also be considered for an emergency. From a surgical point of view, the American Society of Anaesthesiology (ASA) divides the different group of patients into six categories and

**Table 9: Principles and steps to deprescribe<sup>[30,31]</sup>****When to consider deprescription?**

- Polypharmacy (receiving >5 medications)
- Multimorbidity
- Renal impairment
- Multi-prescribers and transient care
- Medication non-adherence
- Limited life expectancy
- Older age
- Frailty
- Dementia

**How to decide which to stop?**

- Review all medications
- Estimate life expectancy
- Define care goals
- Verify current indications
- Determine the need for preventative care
- Determine the benefit-harm of medications
- Is the medication use responsible for clinical presentation-toxidromes
- Is the clinical presentation due to the withdrawal of medication?

**Which medication to deprescribe-identify the drug to deprescribe**

- Have no valid or current indication
- Responsible for or contributing to the clinical presentation
- Were started as a result of a prescribing cascade, a situation in which one medication is started to treat a side effect of another medication
- Are generally high risk in the elderly population (e.g., anticholinergics in older adults)
- Are ineffective
- Are used for a preventive indication in a patient receiving palliative care (e.g., bisphosphonates)
- Cause unacceptable treatment burden (e.g., insulin in a person with dementia who is fearful of needles)

**Planning and implementing deprescribing**

- Prioritize drugs for discontinuation and plan the order of discontinuation
- Medications that are causing (or have a high risk of causing) harm, and those which are of most significant concern to the patient, should be stopped first
- Stop one drug at a time, however, in case an adverse drug reaction is suspected, or if there is minimal risk of an adverse drug withdrawal reaction, two or more drugs can be withdrawn simultaneously
- Tapering is recommended where there is the risk of adverse drug withdrawal reactions or if there is concern that the underlying condition will return or worsen
- Decide about the frequency of monitoring

**It is essential to consider these four critical points when developing a deprescribing plan:**

- How severe is the toxicity/risk to the patient about continuing the medication
- How long the patient has been taking the medication (particularly a concern for benzodiazepines)
- Dose and half-life of the drug in question
- The likelihood of developing an adverse drug withdrawal reaction
- Discuss the plan with the primary physician and family (also with the patient, if the patient is in a position to participate in such an interaction)

**Important things to remember:**

- Monitor the patient closely for potential withdrawal reactions
- If there is any doubt about whether a medication can be stopped abruptly, it is safer to taper the dose over weeks to months.

**Follow-up**

- Develop a plan for monitoring and assessment

tend to make recommendations for the continuation and stoppage of a varying class of medications. ASA, category-1 includes healthy patients (those who are fit, non-obese, are non-smokers, and have good exercise tolerance). ASA category-2 includes subjects with mild systemic diseases (i.e., patients with no functional limitations and have well-controlled conditions, e.g., treated hypertension, obesity with body mass index (BMI) <35 kg/meter<sup>2</sup>,<sup>[2]</sup> frequent social drinker or cigarette smoker). Patients in the ASA category-3 include those with severe systemic disease that is not life-threatening.

In contrast, the ASA category-4 includes patients with a severe systemic disease that constantly threatens the

patient's life. The ASA category-5 includes moribund patients who may not survive without an operation, and ASA category-6 includes brain-dead patients. Most patients for whom psychiatrists are consulted in an emergency are in ASA category-4 or above. Further, it is important to note that all psychiatric patients, who are on psychotropics are in general considered to be belonging to the ASA category-3 or above.

In general, stoppage of antipsychotics other than clozapine is not recommended before surgery. Concerning antidepressants, the general recommendations are to stop antidepressants for patients belonging to ASA class III-VI. Monoamine oxidase inhibitors (MAOIs) need

to be stopped in all patients. In terms of mood stabilizers, lithium needs to be stopped, whereas valproate and carbamazepine can be continued.<sup>[32-34]</sup> However, it is essential to understand in elective surgeries, the clinicians may have enough time to stop the medication and allow it to wash out; however, the same may not be accurate for patients in the emergency. Hence, psychiatrists should discuss the possible risks with the surgeon and anesthetists [Table 10]. The available literature with regard to benzodiazepines suggests that these can be continued. Patients taking opioids, such as buprenorphine and methadone, and requiring emergency surgery should be continued and given additional analgesics to manage pain [Table 11]. Patients who have been taking alcohol until recent times and experiencing withdrawal or are likely to experience withdrawal can be advised benzodiazepine during the perioperative periods. An important fact here to remember is that if a patient is experiencing alcohol withdrawal and requires surgery, psychiatrists can discuss the possibility of using

propofol and ketamine for anesthesia as these drugs are recommended for the management of alcohol withdrawal too. However, it is essential to remember that if these agents are used, the withdrawal can start slightly later in the postoperative period and require appropriate management [Table 11]. The use of thiamine in patients with alcohol withdrawal should not be forgotten.

**Prescribing:** The prescribing (starting new medication) in the emergency in the elderly is influenced by the type and severity of the psychiatric condition for which psychotropics are being considered, the presence of alternative treatment other than psychotropics (crisis intervention, supportive psychotherapy), comorbid medical illnesses, the severity of the comorbid physical diseases (patient receiving palliative care, moribund patient, the severity of condition suggests that patient is unlikely to survive), and risks and benefits of prescribing a psychotropic. In general, it is better to avoid psychotropics whenever the risk of using a psychotropic outweighs the benefit. If psychotropics have to be

**Table 10: Psychotropics during the perioperative period<sup>[32-34]</sup>**

Medication class	General recommendations	Information to be communicated to the surgeon/ anaesthesia team	Psychiatric follow-up
Antipsychotics	Can be continued except for clozapine	To check the drug interaction between the ongoing medications and anesthetic medications, and other medicines to be used during the perioperative period Stoppage of first-generation antipsychotics can lead to cholinergic rebound Continuation of second-generation antipsychotics can lead to serotonin syndrome Review and monitor ECG before, during, and after surgery	
Antidepressants	MAOIs to be stopped Irreversible MAOI - discontinue two weeks before surgery Reversible MAOI - discontinue on the day of surgery Discontinue 24 h before surgery Other antidepressants can be continued only in healthy persons (ASA class-I) and those with mild systemic disease (ASA class II); for other categories (ASA class III-VI), antidepressants should be stopped	If there is a lack of time to stop the medications, the anesthesia and surgical team should be informed about the risk of Serotonin syndrome (especially if the patient is prescribed opioids (such as meperidine, methadone, fentanyl, tramadol), ondansetron, metoclopramide, metronidazole TCAs may interact with sympathomimetics- leading to a rise in blood pressure; TCA, when used with enflurane and desflurane, can lead to seizures; Drug interactions at Cyp450, SSRIs may interact with type-I antiarrhythmic agents Venlafaxine can increase the risk of hypertension Risk of excessive bleeding during the surgery while using SSRIs and SNRIs (should be stopped in patients with high-risk bleeding) If stopped - monitor for withdrawal symptoms for short-acting SSRIs and cholinergic rebound in patients receiving TCAs	Monitor for relapse of primary psychiatric illness Monitor for withdrawal symptoms in case the medications are stopped Monitor for emergence of postoperative delirium
Mood stabilizers	Lithium should be stopped 72 h before surgery Valproate and carbamazepine can be continued	Lithium continuation can prolong neuromuscular blockade Carbamazepine is an inducer of the cytochrome P450 system and can reduce the effect of other drugs Valproate can interfere with platelet functioning Valproate is highly protein-bound, so it can increase the free concentration of high plasma-protein-bound drugs such as propofol	Monitor for relapse of primary psychiatric illness
Benzodiazepines	Can be continued	It can lead to sedation Stoppage can lead to withdrawal symptoms	Monitor for relapse of primary psychiatric illness in case it is stopped Monitor for withdrawal symptoms in case the medications are stopped Monitor for emergence of postoperative delirium



prescribed, the general principles of prescribing among the elderly should be kept in mind [Table 12].

**Table 11: Managing substance withdrawal during the perioperative period (Sritapan *et al.*, 2020; Ungur *et al.*, 2020)**

Substance	Information to be communicated to the surgeon/anesthesia team
Alcohol <sup>[35]</sup>	<p><b>Start thiamine</b></p> <p>If urgent surgery is required and there is no time to detoxify, discuss the possible use of propofol during the surgery</p> <p>Use symptom-triggered intravenous benzodiazepines (lorazepam if there is hepatic decompensation; diazepam, if there is no hepatic dysfunction) in increasing doses, before or after the surgery</p> <p>If no or partial response to benzodiazepines- consider clonidine, dexmedetomidine, baclofen, ketamine, and neuroleptics as a symptom-orientated adjunct</p>
Opioids <sup>[36]</sup>	<p><b>Substitution therapy with tramadol for the patient using illicit opioids</b></p> <p><b>For patients on buprenorphine-</b></p> <ul style="list-style-type: none"> <li>Using a low dose of buprenorphine (2-8 mg per day)-can continue buprenorphine as an analgesic, and the dose can be increased every 6-8 h</li> <li>For patients who are not able to tolerate sublingual buprenorphine, it can be discontinued 72 h before surgery and replaced with a full mu-opioid agonist for pain management</li> <li>If the risk of relapse is high, then replace buprenorphine with methadone and titrate upwards to achieve adequate pain control</li> <li>Consider additional regional anesthesia if this is feasible and multimodal analgesic combinations (clonidine, ketamine, dexmedetomidine, and remifentanyl) to target pain pathways at different sites to provide superior pain relief and decreased opioid consumption</li> <li>Methadone-continue with the same. Consider additional regional anesthesia if this is feasible and multimodal analgesic combinations (clonidine, ketamine, dexmedetomidine, NSAIDs, and remifentanyl) to target pain pathways at different sites to provide superior pain relief and decreased opioid consumption</li> </ul> <p><b>Inform the anesthesia team about the use of substitution therapy and a patient being dependent on opioids</b></p>

**Table 12: General principles for prescribing among elderly**

- Start low, go slow
- Baseline investigations: must
- Review medical history and prescriptions, including the over-the-counter medications
- Substance use history, including the last use, quantity used, etc.
- Review the anticholinergic load before prescribing
- Evaluate for sensory deprivation - consider how it is going to affect the adherence to medications
- Keep the prescription: as simple as possible
- Evaluate the social support-who is going to supervise the medication
- Explain to the patient/caregiver what to do in case of side effect
- Follow-up closely
- If the elderly reports, any new side effects, do not ignore
- Have a good understanding of drug interactions
- Avoid polypharmacy
- Use medications for the shortest possible duration
- Monitor investigations regularly

**Non-pharmacological measures:** The role of non-pharmacological measures in the emergency should not be underestimated, and all patients/caregivers should be psychoeducated about the diagnostic possibilities being considered and the possible management plan. Depending on the symptoms and/or disorders, specific measures such as verbal de-escalation (agitation) and reorientation cues should be used.

**Monitoring the progress:** In the emergency setting, it is essential to maintain continuous vigilance in the emergency setting for elderly patients presenting with psychiatric emergencies because the condition can at times deteriorate rapidly. As per the need, the input and output charting should be maintained, and vitals should be monitored. Similarly, clinicians should continuously monitor the mental state. Depending on the progress, the physician and psychiatrist should be open to shifting the patient's responsibility to be the primary person responsible for the patient's care.

**Briefing the family from time to time about the progress:** This is one of the most important steps in managing patients in an emergency. However, this is often neglected. Briefing the family members about the patient's progress from time to time, concerning the severity of illness, current complications, possible time required for recovery, and chances of survival is of paramount importance. This can prevent violence against the treating team in case of an adverse outcome and help the family members by shifting the patient to another hospital or taking the terminally ill patient home.

**Deciding about the treatment setting:** This process should start after the initial evaluation of an elderly patient, and efforts should begin to determine what kind of setting (medical wards, surgical wards, intensive care units, psychiatry ward, etc.) would be suitable for the patient and liaison should start with the concerned teams for shifting the patient to the appropriate setting. Depending on the location being considered, the patient should be stabilized to such an extent that he can be safely managed in such a setting. Before considering shifting the patient to the psychiatry ward, the patient must be medically and surgically stable. The basic principle to remember is that patients should be managed in an emergency for the shortest possible time. Suppose the patient requires inpatient care and due to the non-availability of a bed, the patient cannot be shifted to an inpatient ward or intensive care unit, then family should be allowed to shift the patient to another treatment setting.

**Shifting to inpatient units:** While shifting the patient to the inpatient unit, it is crucial to ensure the patient's safety. All relevant documents must be handed over to

the treating team taking over the patient. The new team should be informed if the results of any investigations are pending.

**Documentation:** In emergency settings, people often work in shifts, and there is a change in the psychiatrists and physicians from one transition to the other. Hence, it is paramount to carefully document history and findings at the baseline and subsequently update them so that the clinicians later managing the patient are aware of the patient's findings and progress. In an emergency, the patient is managed by a multidisciplinary team, and the use of specialty-specific abbreviations must be avoided.

**Discharge of patients:** Patients who do not require inpatient care and can be managed on an outpatient basis, should be

discharged from the emergency after initial stabilization. However, they should be provided clear instructions about when and where to follow up for a further continuation of the care. Depending on the institutional policies, the patient can be followed-up by the same team or another team.

#### Management of specific psychiatric emergencies

Management of various specific psychiatric emergencies has been addressed in different guidelines published by the Indian Psychiatric Society in the past or as part of this issue. Hence, these are not discussed in detail here. However, a brief outline is provided here [Table 13] for the conditions that have been addressed earlier, and the readers can refer to previously published documents for a detailed understanding.

**Table 13: Managing specific Psychiatric emergencies among the elderly**

Clinical Condition	Assessment	Management	Further Reading
• Delirium	<ul style="list-style-type: none"> <li>• Confirm the diagnosis</li> <li>• Look for risk factors and precipitating factors- detailed physical examination, review the medical history and check the ongoing medications, investigate to understand the cause of delirium</li> <li>• Rate the severity of delirium</li> <li>• Electrocardiogram</li> <li>• Arterial blood gas analysis</li> <li>• Input/output charting</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure the safety of the patient</li> <li>• Reorientation cues, supportive measures</li> <li>• Provide unambiguous environment</li> <li>• Maintain competence</li> <li>• Stop the offending agent, correct the underlying metabolic abnormality and other underlying cause (s)</li> <li>• Educate the family about the condition: nature, symptoms, and their role in the management</li> <li>• Monitor the patient's clinical status</li> <li>• Use pharmacological agents (antipsychotics, melatonin, dexmedetomidine) in the lowest possible dose for the shortest possible duration- document the reason for considering the pharmacological agent</li> <li>• While using antipsychotics, get the baseline ECG and monitor the same</li> <li>• Mobilize the patient at the earliest</li> </ul>	Reference No. 16
• Delirium Tremens	<ul style="list-style-type: none"> <li>• Confirm the diagnosis</li> <li>• Assess the last intake, including any reduction in recent time, type of alcohol consumed</li> <li>• History of falls, seizures</li> <li>• Evaluate for nutritional deficiencies</li> <li>• If a head injury is suspected- neuroimaging</li> <li>• Electrocardiogram</li> <li>• Arterial blood gas analysis</li> <li>• Input/output charting</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure the safety of the patient</li> <li>• Manage fluid imbalance, electrolyte levels, and nutritional issues</li> <li>• If intravenous fluids are administered, thiamine should be given before glucose is administered to prevent the precipitation of Wernicke's encephalopathy</li> <li>• Use magnesium sulfate if the patient has hypomagnesemia, as in the presence of hypomagnesemia, thiamine is ineffective</li> <li>• Thiamine 500 mg IV three times daily for 2-to-3 days and 250 mg IV daily for the next 3-to-5 days given as an infusion over 30 min, diluted in 50-100 mL of normal saline</li> <li>• Thiamine 100 mg orally thrice daily for the rest of the hospital stay and during outpatient treatment.</li> <li>• Monitor vitals</li> <li>• Avoid physical restraints, if possible, as the patient may fight them and cause injury</li> <li>• Follow the other measures for delirium</li> <li>• Monitor the patient to avoid any kind of complication and manage the same</li> <li>• Lorazepam 2 mg or diazepam 10 mg (orally/IV), repeat till the symptoms clear- preferably use the symptom trigger method rather than front loading</li> <li>• Total doses given on the first day should be the standing dosage given on the second day, then it should be tapered gradually over 3 to 4 days</li> </ul>	Reference No. 16

Contd...

Table 13: Contd...

Clinical Condition	Assessment	Management	Further Reading
• Agitation	<ul style="list-style-type: none"> <li>• Evaluate the risk factors and cause(s) of agitation- consider the possibility of underlying organic cause, even if the patient is known to have a psychiatric disorder</li> <li>• Further assessment as per the etiology</li> <li>• The routine investigation, including arterial blood gas analysis</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure the safety of the patient</li> <li>• Environmental Manipulation</li> <li>• Ensure the physical comfort of the patient</li> <li>• Decrease the external stimuli and isolation (a quiet separate room)</li> <li>• Remove all such objects in the surrounding that can be potentially dangerous</li> <li>• Minimize the waiting period</li> <li>• Monitor how staff members approach the patient</li> <li>• Verbal de-escalation</li> <li>• Verbal de-escalation</li> <li>• Pharmacological management: when verbal de-escalation does not work</li> <li>• Pharmacological measures: oral/intravenous/intramuscular antipsychotics or benzodiazepines</li> <li>• Management of underlying cause</li> </ul>	Reference No. 37
• Catatonia	<ul style="list-style-type: none"> <li>• Evaluate the cause</li> <li>• Assess for all possible organic etiologies</li> <li>• Investigate as per the suspected etiology</li> <li>• Evaluate the treatment history-type of medications, adherence</li> <li>• Rate the severity of catatonia using the Bush-Francis Catatonia Rating scale (BFCRS)</li> <li>• Monitor nutritional status, complications</li> <li>• Electrocardiogram</li> <li>• Arterial blood gas analysis</li> <li>• Input/output charting</li> </ul>	<ul style="list-style-type: none"> <li>• Supportive measures</li> <li>• Lorazepam Challenge Test<sup>[38]</sup></li> <li>• Baseline BFCRS rating</li> <li>• 1-2 mg of lorazepam intravenously</li> <li>• Review after 5 min</li> <li>• If there is no change- repeat the second dose of lorazepam and evaluate after 5 min (if the lorazepam is given intramuscularly or orally, the second dose should be repeated after 15 min and the final evaluation to be done at 30 min)</li> <li>• &gt;50% reduction in BRCRS: positive Lorazepam challenge test</li> <li>• Treat the underlying medical and psychiatric condition</li> </ul>	
• Dementia with behavioral and psychological symptoms of dementia (BPSD)	<ul style="list-style-type: none"> <li>• Confirm the diagnosis of dementia</li> <li>• Assess the type and severity of the BPSD</li> <li>• Assess the medical and psychiatric comorbidity</li> <li>• Assess for complications from BPSD (for example, head injury, nutritional issues, interpersonal issues, etc.)</li> <li>• Assess the caregiving pattern and environmental factors contributing to the onset or worsening of BPSD</li> <li>• Rule out superimposed delirium, pain, bladder, and bowel-related issues, sensory deprivations</li> <li>• Electrocardiogram</li> <li>• Arterial blood gas analysis</li> <li>• Input/output charting</li> </ul>	<ul style="list-style-type: none"> <li>• Psychoeducation of the caregivers</li> <li>• Manage pain, bladder and bowel-related issues, and sensory deprivations- if these can be modified</li> <li>• Suggesting environmental modifications- suggest changes to modifiable factors contributing to BPSD</li> <li>• Explain to the caregivers about un-modifiable risk factors</li> <li>• Provide comfort to the patient</li> <li>• Discuss the use of non-pharmacological measure</li> <li>• Consider pharmacological measures for the short term- depending on the severity of BPSD, physical comorbidities, medical stability</li> </ul>	Reference No. 39
• Suicidality	<ul style="list-style-type: none"> <li>• Assess the severity of suicidality</li> <li>• Assess for the predisposing and precipitating factors - detailed psychosocial assessment</li> <li>• In case a patient presents with a suicidal attempt- evaluate the medical stability, lethality of the attempt, intent of attempt, planning before the attempt, current suicidal ideation, and planning</li> <li>• Assess for underlying psychiatric and medical morbidities</li> <li>• Rate the severity of suicidal behavior</li> <li>• Assess for future risk of suicidal behavior</li> </ul>	<ul style="list-style-type: none"> <li>• High-risk management</li> <li>• Crisis intervention as per the need</li> <li>• Physical stabilization of the patient</li> <li>• Treat the underlying psychiatry disorder</li> <li>• Address the associated psychosocial factors</li> <li>• Assess the need for psychiatry inpatient care</li> </ul>	Reference No. 40

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Table 13: Contd...

Clinical Condition	Assessment	Management	Further Reading
• Depression	<ul style="list-style-type: none"> <li>• Assess the severity of depression, suicidality, comorbid physical diseases, and psychiatric disorders</li> <li>• Carefully rule out bipolar disorder</li> <li>• Consider the organic etiologies for depression</li> <li>• Assess nutritional status, undiagnosed medical illnesses, frailty, nutritional deficiencies, and current nutritional status</li> <li>• Assess current and past treatment history</li> <li>• Assess for psychosocial stressors</li> <li>• Routine investigations and others as per the need</li> <li>• Assess the level of cognitive functioning</li> <li>• Assess for future risk of harm</li> <li>• Assess for caregiver-related issues</li> <li>• Evaluate the need for somatic treatment, such as electroconvulsive therapy</li> </ul>	<ul style="list-style-type: none"> <li>• Decide about treatment setting- decide about the need for inpatient care</li> <li>• Psychoeducation of patients and caregivers</li> <li>• High-risk management as per the requirement</li> <li>• Pharmacological management of depression based on the severity of depression, history, comorbid physical diseases, psychiatric comorbidity, and past treatment history</li> <li>• If the patient is a candidate for somatic treatment (i.e., electroconvulsive therapy)-consider inpatient care</li> <li>• Address the psychosocial issues, and provide crisis intervention if required</li> <li>• Supportive psychotherapy</li> </ul>	Reference No. 41
• Psychosis	<ul style="list-style-type: none"> <li>• Ascertain the type of psychosis</li> <li>• Assess the severity of psychosis, suicidality, comorbid physical diseases, and psychiatric disorders</li> <li>• Consider the organic etiologies for psychosis</li> <li>• Assess nutritional status, undiagnosed medical illnesses, frailty, nutritional deficiencies, and current nutritional status</li> <li>• Assess current and past treatment history</li> <li>• Assess for psychosocial stressors</li> <li>• Routine investigations and others as per the need</li> <li>• Assess the level of cognitive functioning</li> <li>• Assess for future risk of harm</li> <li>• Assess for caregiver-related issues</li> </ul>	<ul style="list-style-type: none"> <li>• Decide about treatment setting- decide about the need for inpatient care</li> <li>• Psychoeducation of patients and caregivers</li> <li>• High-risk management as per the requirement</li> <li>• Pharmacological management for psychosis based on the severity of psychosis, history, comorbid physical diseases, psychiatric comorbidity, and past treatment history</li> <li>• Address the psychosocial issues</li> <li>• Supportive psychotherapy</li> </ul>	Reference No. 42
• Substance withdrawal/intoxication	<ul style="list-style-type: none"> <li>• Assess the last intake, including any reduction or increase in the recent time, type of substance consumed</li> <li>• Assess the dose of the last intake, time of the last intake</li> <li>• History of falls, seizures</li> <li>• Evaluate for other medical complications</li> <li>• If a head injury is suspected-neuroimaging</li> <li>• Electrocardiogram</li> <li>• Arterial blood gas analysis</li> <li>• Input/output charting</li> <li>• Confirm the diagnosis</li> </ul>	<ul style="list-style-type: none"> <li>• Supportive measures</li> <li>• Monitor cardio-respiratory status - if required, supportive ventilation</li> <li>• Opioid intoxication-use naloxone</li> <li>• Opioid withdrawal-substitution therapy</li> <li>• Symptomatic management</li> <li>• Brief intervention</li> </ul>	Reference No. 43
• Toxidromes	<ul style="list-style-type: none"> <li>• Confirm the diagnosis-consider the symptoms and signs and the investigation findings</li> <li>• Assess for risk factors and precipitating factors</li> <li>• Focus on the type of medication used, any recent change in the drugs in terms of doses, time of starting of drugs, and addition of any new drug to the prescription</li> <li>• Assess the last intake of medication</li> <li>• Assess for current medical complications and comorbid medical illnesses</li> <li>• Rule out other differential diagnoses</li> </ul>	<ul style="list-style-type: none"> <li>• Stop the offending agent</li> <li>• Supportive measures</li> <li>• Monitor cardio-respiratory status - if required supportive ventilation</li> <li>• Monitor input and output</li> <li>• Prevent complications</li> <li>• Use an antidote (use depending on the severity)</li> <li>• NMS: Bromocriptine, amantadine, dantrolene, dopamine agonists (levo/carbidopa); benzodiazepines for supportive care</li> <li>• Serotonin syndrome: cyproheptadine</li> <li>• Anticholinergic syndrome: physostigmine</li> </ul>	Reference No. 44

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Table 13: Contd...

Clinical Condition	Assessment	Management	Further Reading
• Medication withdrawal	<ul style="list-style-type: none"> <li>• Confirm the diagnosis- review the treatment history carefully for the intake of medications in terms of stopping medications or reduction in the doses of medications</li> <li>• Rule out other differential diagnoses</li> </ul>	<ul style="list-style-type: none"> <li>• Supportive measures</li> <li>• Monitor cardiorespiratory status - if required, supportive ventilation</li> <li>• Monitor input and output</li> <li>• Prevent complications</li> <li>• Restart the medications which have led to the withdrawal</li> <li>• Restarting should be done based on the information about the previously prescribed doses, and time since the last intake, and recommended starting schedule for the medication</li> </ul>	
• Medication overdose	<ul style="list-style-type: none"> <li>• Confirm the diagnosis-consider the symptoms and signs</li> <li>• Focus on the type of medication(s) consumed</li> <li>• Assess the time of intake of drug(s)</li> <li>• Assess for current medical complications and comorbid medical illnesses</li> <li>• Rule out other differential diagnoses</li> </ul>	<ul style="list-style-type: none"> <li>• Stop the offending agent</li> <li>• Supportive measures</li> <li>• Monitor cardio-respiratory status - if required, supportive ventilation</li> <li>• Monitor input and output</li> <li>• Prevent complications</li> <li>• Use specific measures (use depending on the severity)</li> <li>• Lithium toxicity: gastric lavage, dialysis</li> <li>• Valproate toxicity: gastric lavage</li> <li>• Carbamazepine toxicity: gastric lavage, hemodialysis, charcoal hemoperfusion, intravenous lipid emulsion, and venovenous hemodiafiltration</li> <li>• Benzodiazepine overdose: flumazenil</li> <li>• Antidepressants and antipsychotic overdose: supportive measures</li> </ul>	Reference No. 44
• Severe systematic complications due to the use of psychotropics	<ul style="list-style-type: none"> <li>• Confirm the diagnosis-consider the symptoms and signs</li> <li>• Requires a high index of suspicion</li> <li>• Assess for current medical complications and comorbid medical illnesses</li> <li>• Rule out other differential diagnoses</li> </ul>	<ul style="list-style-type: none"> <li>• Stop the offending agent</li> <li>• Supportive measures</li> <li>• Monitor cardio-respiratory status - if required, supportive ventilation</li> <li>• Monitor input and output</li> <li>• Prevent complications</li> <li>• Manage as per the recommended guidelines for the systemic emergency</li> </ul>	Reference No. 45
• Crisis interventions	<ul style="list-style-type: none"> <li>• Assess the psychosocial crisis and its significance of the same for the elderly</li> <li>• Assess the social support, coping ability</li> <li>• Assess psychiatric and medical morbidity</li> </ul>	<ul style="list-style-type: none"> <li>• Supportive care</li> <li>• Crisis intervention</li> </ul>	
• Anxiety syndromes	<ul style="list-style-type: none"> <li>• Assess the severity of anxiety</li> <li>• Assess the possible underlying medical illnesses and current presentation being worsening of physical illnesses, rather than this being a psychiatric presentation</li> <li>• Assess for organic etiology for the anxiety, if this is not an indicator of worsening of organic illness</li> <li>• Evaluate for psychosocial stressors and other factors which could lead to anxiety (for example, being informed about cancer or any other life-threatening illness)</li> </ul>	<ul style="list-style-type: none"> <li>• Supportive care</li> <li>• If the organic causes and anxiety as a manifestation of worsening physical illness have been ruled out-consider anxiety disorder</li> <li>• Psychoeducation</li> <li>• Low-dose benzodiazepines SOS</li> </ul>	Reference No. 46

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# Clinical Practice Guidelines for Assessment and Management of Children and Adolescents Presenting with Psychiatric Emergencies

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## INTRODUCTION

India ranks second in being the most populous country. Every fifth person is an adolescent between 10 and 19 years, and every third person is aged between 10 and 24 years. We have a record of the highest number of children and adolescents, more than 434 million. There is wide variation in reporting of psychiatry disorders in CAMH (Child and Adolescent Mental health), and the recent national mental health survey reported a prevalence of 7.3% of morbidity among adolescents. There is no national data on the prevalence of psychiatric emergencies. Overall, there is a trend for increased utilization of psychiatry emergency services by children and adolescents.<sup>[1]</sup>

An American study reports a 60% increase in mental health disorder is the reason to visit emergency services.<sup>[2]</sup> Literature reports that the most frequent emergencies are suicidal behavior, depression, aggressiveness, substance abuse, and violence-related situations. The emergency may be related to an underlying mental health condition, which has relapsed or may be the first episode of an illness. Repeat visits to the emergency services have been reported from 20 to 47%.<sup>[3,4]</sup>

A psychiatric emergency is an acute disturbance of either behavior, thought, or mood of a person and has the potential for a negative impact. This emergency if unattended can cause harm to the patient or other community members. The clinical presentation of psychiatric emergencies in CAMH is usually different from that seen in adults. Assessment warrants identifying symptoms, assessment of underlying disorder, the impact of the emergency on the child and family, the protective factors, and the resources for management. Besides a good history, a thorough examination to rule out medical comorbid or etiological disorders is important. It is imperative to quickly triage and pinpoint symptoms requiring immediate attention. These could be psychomotor agitation, aggressiveness, violence, delirium, and suicidal behavior. Investigations such as drug screening, blood count, electrolyte analysis, cardiac monitoring, and computed tomography may be required in some cases. Early and prompt identification and treatment

would yield positive results. An important competency required is the ability to assess risk and manage it effectively.

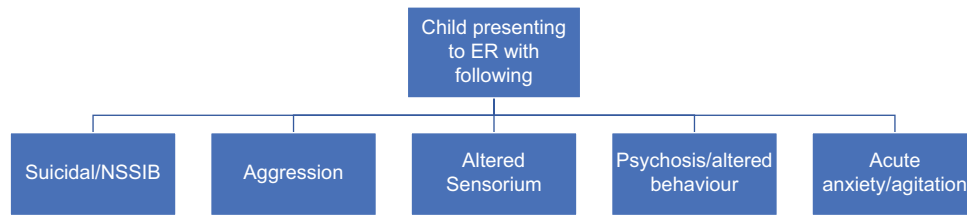
With this large child and adolescent population, coupled with a paucity of child mental health professionals to serve the psychiatry disorders in CAMH, it is important to have standard guidelines for managing psychiatric emergencies in CAMH. A guideline on assessment and management of psychiatric emergencies in children and adolescents encompasses identifying at-risk patients, ensuring safety, interviewing the child and parent, developing a therapeutic alliance, examination, and management of both pharmacological and nonpharmacological approaches strategies.

## EPIDEMIOLOGY

Children and adolescents visit the emergency for a variety of reasons. A western study reported that nearly three-fourths of the patients had a primary psychiatric diagnosis. The most frequent diagnoses reported were anxiety states/panic disorder (14%), depression (13%), drug abuse (11%), and conduct disorders (8%). Other studies have reported personality disorders and schizophrenia/psychotic disorders, aggressive behavior, thoughts or actions of self-harm, medication refills, and autism spectrum disorders as reasons to visit the emergency services. Trends have shown a sharp rise in self-injury and suicide-related emergency visits among children and youth.<sup>[2]</sup> The common presentations can be seen in Figure 1.

Self-harm behaviors encompass suicide attempts, deliberate self-harm, and nonsuicidal self-injury (for key terms in suicide literature, refer to IPS CPG on assessment and management of suicidal behaviors). The World mental health report 2022 highlights suicide to be the third leading cause of death in 15–29 years and the fourth leading cause of death in males in this age group. Overall, it is the fourth leading cause of death among 15–29 years old and accounts for 8% of all deaths in this age group.

Aggression refers to a behavioral style aimed at deliberately harming other people or objects and is considered a way to adapt, but it can be abnormal when rules are broken. It is a



**Figure 1:** Presentation to emergency services

common phenomenon and an important associated feature of psychiatric disorders affecting 10–20% of youth. “Terrible twos” refers to developmentally appropriate aggression in toddlers, which peaks at 30 months and declines by 5 years of age due to the development of self-control and cognitive competencies. Social and relational aggressions are indirect forms of aggression seen in school-going children. During adolescence, the awareness of self-identity and social standing with peers, desire to fit in, and the desire for popularity can lead to greater aggression.

Acute confusional state, commonly known as “delirium” is characterized by an abrupt/acute onset of altered sensorium with a change/fluctuation in baseline mental status, inattention, disorganized thinking with or without perceptual abnormalities (delusions and/or hallucinations), and is the result of an underlying medical condition. It is a vastly underrecognized and underdiagnosed entity in children and adolescents and neither DSM 5 nor ICD 10/ICD 11 includes a definition of delirium specific to children and adolescents. Also, given the developmental stage of children, it becomes difficult to apply the definition of adult delirium as it is in children.<sup>[5]</sup> However, with the development and use of multiple validated tools to evaluate delirium in children and adolescents, it is being increasingly recognized and comprises 10% of all pediatric consultation–liaison referrals. It accounts for ~30% of referrals for critically ill children and is a marker for serious illness.<sup>[6]</sup> Like the types of adult delirium, delirium in children and adolescents is classified into three subtypes based on psychomotor state–hypoactive delirium (apathetic/uninterested child), hyperactive delirium (irritable, thrashing child), and mixed delirium (fluctuates between hypoactive and hyperactive state). While many clinical features of adult delirium may be applicable to children, yet some features are more prominent in children. These are irritability, agitation, affective lability, sleep-wake cycle disturbances, and fluctuations in symptoms. Perceptual abnormalities (delusions, hallucinations), speech disturbances, and memory impairments are less commonly seen in children. Acute onset developmental regression with loss of previously acquired skills, inconsolable child, and reduced eye contact with the caregiver are some unique features of delirium in young children.

Psychosis is defined as a disruption in the thought process, delusions (false, unshakeable beliefs), and hallucinations (false perceptions in the absence of an external stimulus)

as a presenting complaint in children and adolescents in the emergency setup may be a manifestation of a primary psychiatric illness, substance withdrawal or intoxication, or may occur in the context of a medical condition.<sup>[7]</sup>

Among the various manifestations, anxiety symptoms/disorders are among the most common psychiatric conditions in children and adolescents and are associated with an increased risk of suicide attempts and significant morbidity and mortality. The course is considered chronic, persistent, and recurring with high levels of short-term and long-term impairment. At any given time, about 7% of youth worldwide have an anxiety disorder and are more common in girl. The lifetime prevalence rates among 13–18 years is approximately.

20% for specific phobia, 9% for social anxiety, 8% for separation anxiety, and 2% each for agoraphobia, panic, and generalized anxiety. Approximately 4% of children and adolescents experience posttraumatic stress disorder (PTSD) with increases seen in children exposed to trauma. Nearly one-quarter of adolescents presenting to the emergency services have been screened and found to have symptoms compatible with preexisting PTSD.<sup>[8]</sup> Occasionally, children present with an agitation which needs urgent intervention.

Substance use may present as intoxication, withdrawal, or dual diagnosis. Studies have found that substance abuse and mental health conditions presenting to the emergency have overlap with one in five visits for substances complicated by mental health comorbidity. Almost all mental health subcategory was positively associated with substance use.<sup>[9]</sup>

## ASSESSMENT OF CHILDREN AND ADOLESCENTS PRESENTING WITH PSYCHIATRIC EMERGENCIES

### Development of a therapeutic alliance

This is the key to a comprehensive assessment. A solid alliance enables improved outcomes. A strong alliance includes understanding the patient and parents’ priorities, cultural competence, and interpersonal warmth. When working with children or youth with mental illness or at risk of suicide, developing a strong working alliance with parents, caregivers is an important component of the overall relationship-building process. A therapeutic alliance is an interpersonal process that has relational, cognitive,



and emotional dimensions and goes beyond superficial friendliness. The task of the clinician is to reach, together with the person, a shared understanding of the person's illness and suicidality.

The qualities associated with the development of a strong therapeutic alliance are – credibility, warmth, genuineness, empathy, flexibility, regular solicitation of feedback, and common understanding regarding treatment goals. Key aspects of a therapeutic relationship are highlighted in Table 1.

### History taking and examination

The basic tenets of psychiatric assessment, i.e., thorough history taking, general physical examination along with a detailed neurological examination, mental status examination, and relevant investigations are to be followed while evaluating children and adolescents presenting with psychiatric emergency. The history should be collected from as many sources as possible; this becomes important because of various reasons like the child may not have acquired speech and language skills, may be having neurodevelopmental conditions which prevent him from active communication, may not feel safe, secure, and confident to discuss stressful issues, or may be defiant and not ready to talk. It is essential to interview both the parent and child separately. Various techniques for gathering information can be employed, such as interview, play observation, and behavior observation. It is also essential to observe their interaction. This will help the clinician understand the genesis of the various issues and plan intervention. Parents and children may be able to share all concerns in the absence of the other. Children may be able to confide in the therapist in the absence of parents.<sup>[10]</sup>

History taking should include:

- All details of behavior under evaluation – onset, duration, frequency, precipitating/maintaining/relieving factors
- Birth and developmental history to assess for neurodevelopmental conditions like intellectual disability, attention deficit hyperactivity disorder, autism spectrum disorder, learning disability
- Substance use history
- Medication use – past and present
- Presence of constitutional symptoms like fever, headache, arthralgias, rash
- Academic performance
- Risk of self-harm
- Psychosocial information: family structure, family and peer relationships, living situation, any adverse situations/childhood experiences (like trauma and abuse), neighborhood environment, type of parenting
- Past history – hospitalizations, medical conditions like epilepsy, head injury, systemic illnesses
- Family history – psychiatric illness, neurodevelopmental conditions, substance use.

Thorough physical examination of all systems (neurologic, cardiac, respiratory) and vital signs recorded. Information obtained through history and examination will guide the choice of investigations to be carried out. Mental status examination helps to understand a person's emotional state and cognitive capabilities and limitations. It starts with assessing the individuals' level of awareness and orientation to the surroundings, eye contact, communication ability, general appearance, degree of distraction, speech, affective state, thought process (worries, delusions, concerns), hallucinations, evidence of separation anxiety. Cognitive assessment includes assessing for memory disturbances, gross level of intelligence and reasoning ability – whether appropriate to age or not, understanding of problems at hand. It is always a good idea to ask for the skills/strengths/interests of the child while doing a mental status examination.

Suicidal behavior is one of the most common presenting psychiatric emergencies in children. In the assessment of suicidality, various factors need to be considered, as highlighted in Table 2.<sup>[11]</sup> Key terms used have already been described in the section on suicide. (IPS CPG on assessment and management of Suicidal Behaviors).

It is inevitable for a psychiatrist to screen all patients for suicide risk and carry out a comprehensive suicide assessment in suspected children and adolescents. Given the risk of suicide, the risk assessment is necessary to categorize risk and recommend the level of care appropriate to the child. It is also essential to ask questions in relation to suicidality as described in Table 3.<sup>[12,13]</sup>

Various screening instruments are available to assess suicidality in children and adolescents.

1. ASQ (Ask Suicide Screening Questions) developed by National Institute of Mental health consists of

**Table 1: Key aspects on therapeutic relationship**

Key aspects of building therapeutic relationships
Shared understanding of a young person's thoughts, emotions, beliefs and suicidality/aggression
Acknowledge emotional pain in all the patients and recognize that thoughts of suicide are understandable under the circumstances
Convey empathy and instill hope to young people and their parents/caregivers
Feedback

**Table 2: Assessment of suicidality**

Important aspects in suicidal assessment involve the following:
Risk to harm self and others
Clarify diagnosis
Risk factors - biological, social, and psychological risk factors
Level of functioning
Identify strengths, support, protective factors to alleviate distress, mitigate risk of harm to self and others
Clarify problems and goals
Determine the most appropriate level of care for treatment

brief suicide screening questions that take 20 s to administer.

- i. In the past few weeks, have you wished you were dead?
- ii. In the past few weeks, have you felt that you or your family would be better off if you were dead?
- iii. In the past few weeks, have you been having thoughts about killing yourself?
- iv. Have you ever tried to kill yourself? If yes, when and how?
- v. Are you having thoughts of killing yourself right now?

### Suicide risk assessment

It is a one-to-one assessment in which the distressed person is thoroughly interviewed regarding current suicidal desire/ ideation, capability, intent, reasons for dying, reasons for living, suicide attempt plan, past attempts, and protective factors, thus, enabling risk identification and planning intervention. It is essential to evaluate the motivation and intent of any previous attempt and the understanding of the lethality of the suicide act or plan. The various factors to be assessed are mentioned in Table 4.<sup>[14,15]</sup>

The SAFE T (Suicide assessment five-step evaluation and triage):

This is a tool and a pocket card which guides psychiatrists through a comprehensive risk assessment. It includes the following five steps:<sup>[16]</sup>

1. Identify risk factors – especially noting the modifiable factors, as described in Table 4.
2. Identify protective factors – especially those that can be enhanced, as described in Table 5.
3. Make a suicide inquiry – ask questions on ideation, plan, behaviors, intent
4. Assess the risk –

The risk assessment includes

- High-risk level – severe symptoms or acute precipitating event, protective factors are not relevant, potential lethal attempt or persistent ideation with suicide intent; intervention includes – admission is indicated, suicide precautions to be administered.
  - Moderate risk level – multiple risk factors, few protected risk factors, suicidal ideation with a plan with no intent or behavior, admission may be necessary subject to risk factors. Developing a crisis plan is essential.
  - Low-risk level – Modifiable risk factors, strong protective factors present, presence of thoughts of death with no plan/intent/behavior. A patient can be managed in outpatient settings. Facilitate symptom reduction. Give emergency contact numbers.
5. Document the suicide risk level, rationale, intervention, and follow-ups.

**Table 3: Important questions in interview**

Key questions
Have you had thoughts of wanting to harm self?
Do you have a plan as to how you would like to harm yourself?
Have you ever taken steps or prepared to carry out this plan?
Have you tried to harm/hurt yourself before? If so, when and how?
Is there anything/anyone who would keep you from acting on these thoughts?

**Table 4: Suicide risk in children and adolescents**

High risk factors for suicide in adolescents
Intrapersonal:
Depression (modifiable)
Alcohol and drug use (modifiable)
Previous suicide attempts (unmodifiable)
High risk behaviors (modifiable)
Sexual orientation confusion (unmodifiable)
Psychological symptoms - hopelessness, sense of losing control (modifiable)
Dysregulated sleep (modifiable)
Social/situation:
Stressor (modifiable)
Family factors - depression in parents, suicidal behavior, substance use disorders (modifiable)
Family violence (modifiable)
Child abuse/neglect
Lack of social support (modifiable)
Sense of isolation (modifiable)
Victim of bullying/being a bully (modifiable)
Others
Access to lethal means (modifiable)
Stigma associated with asking help (modifiable)
Males at a much higher risk than females (unmodifiable)
Among males - previous suicide attempters (unmodifiable)
age 16 and above (unmodifiable)
associated mood disorder (modifiable)
associated substance abuse (modifiable)
Among females - mood disorders (modifiable)
Previous suicide attempters (unmodifiable)
Immediate risk predicted by agitation and depressive disorder
Multiple suicide attempters

**Table 5: Protective factors**

Protective factors:
Overall resilience
Problem-solving skills
Interpersonal and community connectedness
Safe environment
Awareness and access to physical and mental health care
Positive peer relationships
Positive adult relationships

Protective factors: As highlighted in Table 5, these are factors that mitigate/reduce suicide risk. Adolescents face challenges such as transitioning to adulthood, facing new independence, identity formation, and changing social situations at school and home. They are also at risk of anxiety or depression due to significant physical, hormonal, and social situations at school and home.<sup>[15]</sup>

Nonsuicidal self-injury (NSSI): Another presentation in pediatric emergencies. Defined as direct, repetitive, socially

unacceptable injury to body tissues without suicidal intent. As per ICD 10 (International Statistical Classification of Diseases and related health problems), these exist as a symptom and not as a diagnostic entity. It may vary from deliberate self-harm with suicidal intent to involuntary or stereotyped behavior in developmentally disabled. A common form of deliberate self-harm is cutting and burning. It may be a way to cope with distress, punish themselves, self-soothe or manipulate the environment, or cry for help. Stereotypic behaviors include hitting, biting, head banging, and scratching.<sup>[14]</sup> Certain risk factors which predispose to nonsuicidal self-injury include female sex, earlier NSSI, earlier suicidal ideations and attempts, symptoms of depression, and presence of stress. Also, a higher frequency of NSSI is associated with an increased risk of suicidal ideations and suicidal attempts.<sup>[17]</sup>

A clinician must be aware that NSSI and suicidal behavior are discrete entities, but they may occur in the same person at different points. Table 6 shows some of the differences between suicide attempts and NSSI.<sup>[17,18]</sup>

**Risk assessment for aggression**

For children and adolescents presenting to the emergency department with aggressive behavior, it is important to evaluate for some of the more commonly associated psychiatric disorders with aggression like conduct disorder, oppositional defiant disorder, attention deficit hyperactivity disorder, substance use disorder, depression, disruptive behavior disorder, autism spectrum disorder, intellectual disability, and gaming disorder.<sup>[19]</sup> There is evidence of an increase in physical aggression in adolescents with pathological gaming.<sup>[20]</sup>

A comprehensive assessment including developing therapeutic alliance, gathering detailed multi-informant history, examination, mental status examination remains the first steps to plan an effective intervention.

Performing a risk assessment is important since this involves the safety of the patient and people around. This reflects not only the safety measures that need to be undertaken but also the needs of the child and can direct intervention. Relevant factors for risk assessment are shown in Table 7.<sup>[21]</sup>

**Assessing for reversible causes for altered sensorium**

While assessing a child or adolescent who presents with behavioral abnormalities and altered sensorium additional information should be gathered with respect to the onset of symptoms, type of symptoms-altered sensorium, inattention, memory disturbances, sleep-wake cycle disruptions, agitation, perceptual abnormalities, disturbances in thought processes, any fluctuation in symptoms, medical history including acute/chronic medical illnesses/infection, medications, pain, anemia, etc., and metabolic derangements. Altered sensorium can be due to various factors, and some of the modifiable factors (listed in the Table 8) can be remembered in the form of an acronym “BRAIN MAPS” given by Smith *et al.* 2013.<sup>[23]</sup>

**Assessment for causes leading to the presentation as psychosis**

Assessment of children presenting with psychosis requires knowledge of various causes that can present with psychosis as a presenting complaint, and some of them are listed in Table 9.<sup>[7]</sup>

For assessment of children presenting with psychotic symptoms, a thorough medical evaluation should be carried out and medical stabilization should be done whenever required. Drug ingestion/overdose whether intentional or unintentional may not be recognizable immediately as children are not usually in a position to provide information. So, efforts for rapport building with the child and the family should start at the first contact and continue thereafter. Additionally, it is imperative to provide support to the caregivers when their child is being evaluated. *It is also to be remembered that transient psychotic-like symptoms may be just a developmental phase in the young child; however, such presentations require a careful information elicitation and continued monitoring of symptoms.*<sup>[10]</sup>

Individuals with a primary psychiatric illness usually have normal vital signs; normal orientation to surroundings and hallucinations are mostly auditory in nature. In contrast, individuals with psychotic symptoms in the context of an underlying medical condition may have abnormal vital signs, disorientation, positive signs on physical examination, visual, and tactile hallucinations. There are certain indicators for an underlying medical condition in the context of psychotic symptoms, which can be helpful in arriving at a differential diagnosis. These are:

**Table 6: Differentiate between NSSI and suicide attempt**

	Suicide attempt	NSSI
Intent	Intent to die/lethal	No intent to die/not lethal
Age	Seen in mid adolescence	Late latency/early adolescence
Gender	Female > male (attempts)	Similar in both genders
Method	Poisoning, firearms, jumping	Scratching, banging, burning, cutting, self-hitting body parts, interfering with wound healing
Underlying traits	Maladaptive coping mechanism to regulate overwhelming emotions and to endure life	Desire to escape and to end life
Frequency	Very few lifetime acts	Many lifetime acts
Motivation	Escape	Temporary relief of psychic distress
Consequences	Worsen depression/guilt	Relief of distress

**Table 7: Risk factors and correlates for aggression and conduct disorder<sup>[22]</sup>**

Biological:
Reduced autonomic reactivity
Decreased cortisol levels associated with proactive aggression
HPA axis hyperactivity
Hypo reactivity of amygdala - marker of impaired emotional processing
Deactivation of ACC during emotional response - leading to deficient emotional processing
Lower intelligence
Deficits in executive functioning
Perinatal risk factors - maternal smoking and alcohol use
Parental psychiatric disorder
Genetics
History of violence (especially recent)
Intoxication
Command hallucinations
Impulse control disorders
Concurrent psychosocial stressors
Verbal and physical threats
Psychomotor agitation
Paranoia
Social
Adverse family circumstances - poverty, physical punishment, and neglect
Lack of parental discipline - inconsistent and inconsequent parenting practice (low positive involvement, more hostility, and punishment)
Access to firearms/weapons
Psychological
Personality
Substance use
Previous history of self-harm, violence, and abuse
Adverse childhood experience
Gaming disorder

**Table 8: Modifiable factors contributing to development of delirium in children (Smith *et al.* 2013)<sup>[23]</sup>**

Stands for	Initials of the acronym
B	Bring oxygen: treat hypoxia, anemia, improve cardiac output
R	Remove/reduce drugs contributing to delirium: anticholinergics, benzodiazepines
A	Atmosphere: foreign environment, bright lights, loud noises, physical restraints, frequent change in caregivers, no consistent schedule
I	Infection, inflammation, immobilization
N	New organ dysfunction
M	Metabolic disturbances: hyponatremia/hypermnatremia, hypokalemia/hyperkalemia, hypoglycemia, hypocalcemia, alkalosis, acidosis
A	Awake: disturbances of sleep wake cycle, lack of consistent bed time routine
P	Pain: too much pain, undertreated pain, overtreated pain
S	Sedation: assess the need for sedation and appropriate sedation

- New and recent onset symptoms and/or behavioral change
- Younger children
- History of substance use/recent medication use
- Abnormal vital signs, abnormality of physical examination and/or neurological examination
- Symptoms like disorientation, visual hallucinations, fluctuations in mental status, emotional lability, etc.

One should always clinically assess for the altered sensorium since altered sensorium and psychosis in young children can be difficult to differentiate.

### Assessment of anxiety and agitation in children and adolescents

Anxiety and agitation can have a myriad reason. One needs to differentiate from developmentally appropriate worries, fears, and responses to a stressor, as described in Table 10.<sup>[24,25]</sup>

Detailed clinical history and examination help ascertain key areas of concern and presence (or absence) of problems. A patient may present with an overwhelming surge of anxiety, stress, and fear. They may present as distress, cry spells, tantrums, freezing, clinging, or not wanting to leave a familiar person. Panic attacks peak in late adolescence, affecting 5–10% of adolescence. They express a fear of death with autonomic symptoms such as tachycardia, palpitations, sweating, shortness of breath, chest pain, choking sensation, nausea, abdominal pain, tremors, tingling, and numbness. Children with marked stress and fear in social situations may cry and throw a tantrum and present as a panic attack.

Children who experience trauma following an actual or threatened death, accident, injury, or threat to physical integrity or witness an event (such as sexual abuse, assault, shooting, or an earthquake) may present with PTSD. A response in the form of intense fear, helplessness, and horror may present in emergency settings.<sup>[24]</sup> In an emergency setting, altered consciousness with fluctuating attention needs to be differentiated from trance states or black outs. They may also have depersonalization or derealization episodes.<sup>[26]</sup> A child's belief in an alternate self or imaginary self which control child's behavior and may present in the ED.

Comorbid psychiatric illnesses which may have anxiety include (but are not limited to) depression, attention deficit hyperactivity disorder (ADHD), and behavior, bipolar, obsessive-compulsive, eating, learning, language, and substance-related disorders. It is necessary to look for comorbid medical illness, hyperthyroidism, caffeinism, migraine, asthma, diabetes, chronic pain/illness, lead intoxication, hypoglycemic episodes, hypoxia, pheochromocytoma, central nervous system disorders, cardiac arrhythmias, cardiac valvular disease, systemic lupus erythematosus, allergic reactions, and dysmenorrhea. Medications that can cause anxiety include (but are not limited to) bronchodilators, nasal decongestants and other sympathomimetics, antihistamines, steroids, dietary supplements, stimulants, antidepressants, antipsychotics, and withdrawal from benzodiazepines (particularly short-acting).<sup>[27]</sup> In children who present with seizure-like episode, a clinician needs to differentiate between a dissociative convulsion and an epileptic seizure.<sup>[28]</sup>

**Table 9: Causes of psychosis/psychotic symptoms in children**

Specific disorders	Etiological factors
Known CAUSES	
Central nervous system	Infections: Herpes simplex encephalitis, arboviruses, measles encephalitis, subacute sclerosing panencephalitis, HIV, Epstein bar virus, meningitis, tuberculosis, cerebral malaria, toxoplasmosis Neurodegenerative disorders: multiple sclerosis, Huntington's chorea Epilepsy: temporal lobe epilepsy, postictal psychosis, Landau-Kleffner syndrome Head injury Stroke CNS mass lesions: tumors, abscess Hydrocephalous Vascular: venous thrombosis, ischemia, aneurysm Systemic lupus erythematosus, sarcoidosis Lead poisoning, carbon monoxide poisoning, organophosphate poisoning
Rheumatological conditions	Anemia, vitamin B12 deficiency, vitamin D deficiency
Toxins	Adrenoleukodystrophy, lysosomal disorders, cerebrotendinous xanthomatosis, homocystinuria, urea cycle defects
Nutritional deficiency	NMDA encephalitis, Hashimoto's encephalopathy, thyroid storm, antiphospholipid syndrome
Inborn errors of metabolism	Wilson's disease, acute intermittent porphyria
Autoimmune disorders	
Others	
Substance overdose/abuse	Volatile substances, hallucinogens (lysergic acid, phencyclidine), marijuana, datura, MDMA, amphetamines, methamphetamine, cocaine, bath salts
Prescription drug side effects	Anticholinergics, decongestants (pseudoephedrine), steroids, isoniazid, antibiotics (amoxicillin, clarithromycin, erythromycin), antiepileptic drugs (phenytoin, topiramate, levetiracetam), statins, antiviral agents, immunosuppressive agents
Drug related syndromes	Serotonin syndrome, neuroleptic malignant syndrome, baclofen withdrawal, benzodiazepine withdrawal, sudden psychotropic withdrawal
Primary psychiatric illness	Depression, bipolar disorder, early onset schizophrenia, acute and transient psychosis Trauma and abuse, emotional issues

**Table 10: Difference between developmentally normal anxiety and pathological anxiety**

	Developmentally normal anxiety	Pathological anxiety
Intensity	As per developmental age and event, the anxiety is realistic	The degree of anxiety is unrealistic as per developmental stage and event
Impairment	No interference in daily life Dysfunction seen in academics, friendships and family life	Impairment in academic and family life
Course	Usually remit	Chronic and persistent and linked with poor long-term functioning, suicidality, and general health
Treatment	Usually these children experience remission	Pharmacological and nonpharmacological approaches are used

## USE OF RATING SCALES

There are various rating scales that can be used to augment information obtained by clinical interviews. Some of the rating scales that can be used for various presenting emergencies are listed in Table 11.

## INVESTIGATIONS

The choice of special investigation to be advised (e.g., MRI brain, lumbar puncture, EEG, autoimmune panel, urine for porphobilinogens, specific metabolic studies, etc.) usually is guided by the information gathered through history and examination. The investigations may include a complete blood count, toxicology screen for substances, renal function test, liver function test, electrocardiogram, neuroimaging, and many more.

## DIAGNOSIS

Diagnosis should be made as per the standard nosological

system. However, it should be remembered that a final diagnosis may not be easy to make in an emergency setting (underlying medical conditions will be picked up on investigations), and some psychiatric symptoms like aggression, suicidal behavior, agitation, altered behavior, psychotic symptoms are a presentation of many disorders. Therefore, a thorough history, physical and neurological examination, and mental status examination will help to come to a provisional diagnosis.

## MANAGEMENT OF PSYCHIATRIC EMERGENCIES IN CHILDREN AND ADOLESCENTS

### The decision for admission

The main goal of assessment of children and adolescents in the emergency setting includes triage and focused care, medical stabilization, ensuring the safety of the child or adolescent, relevant investigations, diagnostic clarification, deciding the treatment setting (inpatient- psychiatry, inpatient-pediatrics, intensive care unit or outpatient

**Table 11: Rating scales used in children and adolescents in the emergency setting**

Scale	Validated age of use	Administered by and use	Remarks
For assessment of suicidal behavior			
Self-completion by child and adolescent			
Beck hopelessness scale (BHS) <sup>[29]</sup>	Adolescents	Assess hopelessness	17 True and false items, clinical/research and screening
Columbia Teen Screen (CTS) <sup>[29]</sup>	Adolescents (11-18 years old)	Screen for suicidal behavior, ideation and risk factors	26 Item clinical/research and screening. High sensitivity and specificity
Suicidal Ideation Questionnaire (SIQ) <sup>[30]</sup>	Adolescents (11-18 years old)	Measures frequency and severity	Research and screening High sensitivity and specificity
Suicide probability Scale <sup>[31]</sup>	Ages+14 years	Clinical index of suicide risk	Clinical purpose Self rated
Child Adolescent Suicidal Potential Index <sup>[14]</sup>	6-17 years old	Assess suicidal behavior	30 yes/no items clinical/research and screening Excellent reliability and validity
Clinician administered: child and adolescent			
Child suicide potential scale <sup>[14]</sup>	6-12 years old	Assess suicidal behaviors and risk factors	Clinical and research use
Suicide potential interview <sup>[14]</sup>	11-18 years old	Suicide risk assessment	Diagnostic, research, and screening
Columbia Suicide severity Rating scale (C-SSRS) <sup>[14,32]</sup>	Has been tried children <5 years of age	Assess the patient's responses to screening questions. Validated in emergency situations too	Translated in more than 30 languages. Has been used as a screening tool for suicidality
For assessment of aggression			
Child behavior checklist (CBCL) <sup>[33,34]</sup>	Ages 6-18 years	Parent report of ADHD, ODD, and CD.	112 items rated on three-point scale, plus social activity/academic performance subscales Yields internalizing scores (subscales: withdrawn, somatic complaints, anxious/depressed) and externalizing scores (subscales: Delinquent behavior and aggressive behavior) Screening and tracks outcome
Modified Overt aggression scale (MOAS) <sup>[35]</sup>		Rates behavior over a 1 week. Verbal Aggression against property Autosuggestion Physical Five -point response format Allows assessment of both severity and frequency	For outpatient settings
Impulsive/Premeditated Aggression Scale (IPAS) <sup>[36]</sup>		Self-report. Half of questionnaire items correlate with impulsive aggression, whereas the other correlates with pre meditated aggression.	
Children's Aggression Scale - Parent and Teacher versions (CAS) <sup>[37,38]</sup>	5-18 years old	Frequency and severity of aggression in children and adolescents	Five domains: Verbal aggression, aggression against objects and animals, provoked physical aggression, unprovoked physical aggression, and use of weapons Distinguishes aggression 1) inside vs. outside the home and 2) against children vs. adults
For assessment of altered sensorium			
Pediatric Anesthesia Emergence Delirium Scale (PAED) <sup>[39]</sup>	> 1 year	Clinician rating on behavior observations: Eye contact, goal-directed outcome, awareness of surroundings, restlessness, whether inconsolable child Rating from 1 (not at all) to 5 (extremely)	Bedside rating scale to detect emergence or hyperactive delirium; not useful to detect hypoactive delirium
Cornell Assessment of Pediatric delirium (CAPD) <sup>[40-42]</sup>	Children of all ages	Caregiver rated, eight-item scale. Scoring from 0 (not at all) to 4 (extremely). Scores $\geq 9$ indicates delirium	Bedside tool, easy to administer by caregiver, even in critically ill children, can pick subtle behaviors over time, useful to identify hypoactive and hyperactive delirium

Contd...

**Table 11: Contd...**

Scale	Validated age of use	Administered by and use	Remarks
pCAM-ICU psCAM-ICU <sup>[43-45]</sup>	>5 years 6 months-5 years	Clinician rated; based on DSM-IV-TR criteria. Acute change or fluctuation in mental status Inattention Altered level of consciousness Disorganized thinking If (1) nor (2) is present - negative screen for delirium If (1) and (2) are present plus either (3) or (4) present - positive screen for delirium	Can also be used on children receiving mechanical ventilation. It follows a two-step process for assessment of delirium: 1) Arousal assessed by a sedation scale 2) Delirium is assessed if patient is at least arousable to voice
Sophia Observation Withdrawal Symptoms-Pediatric Delirium Scale (SOS-PD) <sup>[46]</sup>	3 months-16 years	Clinician rated scale. 22 items-17 items pertaining to symptoms of pediatric delirium (PD) and 15 items pertaining to symptoms of iatrogenic withdrawal syndrome (IWS) resulting from prolonged administration and/or high doses of benzodiazepines or opioids; 10 overlapping items. “Yes/No” response for symptoms observed in the previous 4 h	Easily administered in 2-5 min
For assessment of psychosis Brief psychiatric Rating Scale for children (BPRS-C) <sup>[47]</sup>	5-18 years of age	Assess emotional and behavioral problems in children; 21 items scored on a seven-point Likert scale	Easy to administer; takes 5 min
For assessment of anxiety Pediatric Symptom Checklist <sup>[48]</sup>	primary care, school, or other child-serving settings	It is social-emotional screening instruments	
The Multidimensional Anxiety Scale for Children <sup>[49]</sup>	>8 years		
The Screen for Child Anxiety and Related Emotional Disorders (SCARED) <sup>[50]</sup>	>8 years		
The Spence Children’s Anxiety Scale (SCAS) <sup>[50]</sup>	>8 years		
Preschool Anxiety Scale <sup>[50]</sup>	2.5-6.5 years	Parent report adapted from the SCAS that was developed for screening for anxiety in young children	
The Social Anxiety Scale, the Social Worries Questionnaire, and the social phobia subscale of SCARED <sup>[51]</sup>	>8 years	Brief screening measures for social phobia/social anxiety symptoms	

services). Patients with severe symptoms often warrant admission.

Medical stabilization includes care of hemodynamic status (A – airway, B – breathing, C- circulation), nutritional status, physical activity, pain, sedation. Thereafter, the first step should be an assessment for altered behavior/delirium. In any case where altered behavior is present, the management of altered behavior takes precedence (the management of altered behavior is described in the sections below).

Children and adolescents with active suicidal ideations and attempts should be hospitalized if the child’s condition is

unstable. Caregivers’ supervision is to ensure that drugs and any means of self-harm should be inaccessible to the child/adolescent at risk.<sup>[14]</sup>

Steps for suicide prevention in wards are necessary. It is essential to remodel wards to prevent suicide attempts in the ward. Eliminate structures that support hanging objects, exposed pipes, and towel hooks. Install windows that do not open from the inside. Remove harmful objects from the vicinity. Nonsharp utensils are advised to be used. Attendant or caregiver supervision is to be maintained throughout. In children and adolescents, partial hospitalization offers intensive multidisciplinary treatments and skilled

observation and support. This can be offered in those who are disturbed but have a supportive care environment. This allows intervention to stabilize the emotional condition and address stressors.

### Treatment in emergency services

The treatment will vary depending on the cluster of symptoms.

#### Self harm

A detailed discussion with the family and child about specific issues, triggers, and situations that result in suicidal behavior must be carried out. A written, verbal no-suicide contract is commonly discussed with the child and is also used as a probe to understand if the thoughts on suicide change in the child. A verbal or written no-suicide contract has not shown evidence of preventing subsequent suicides.<sup>[14]</sup> However, safety planning should be conducted in the emergency department.

It is here that the mental health professional provides an important function of triage, referring suitable patients for subsequent treatment. Rotheram-Borus *et al.*, 1996<sup>[52]</sup> described a brief emergency room crisis intervention procedure for adolescent attempters. The aims are to facilitate a good experience between family and emergency service staff, set realistic expectations about follow-up treatment, and obtain a commitment from adolescents and relative toward follow-up. A detailed discussion with the patient and family about specific issues or situations which enable suicidal behavior, ongoing stressors, and identifying potential precipitating factors are important.<sup>[14]</sup> In the emergency situation, once the wound care and dressing are completed, a complete psychological assessment is necessary. Upon evaluation when it is clear that the self-harm is NSSI, then interventions focusing on developing motivation to change, facilitate family support, and strengthen positive affect can be taken up in regular outpatient care.<sup>[53]</sup>

#### Safety planning

A safety plan is a document with six steps where the clinician and patient discuss warning signs, coping strategies, ways to reach out for help, and make an environment safer. It involves collaborative work in which the individual develops a personalized list of coping strategies. The steps of safety planning are shown in Table 12.<sup>[11,12]</sup>

**Table 12: Safety planning measures**

Safety planning
Discuss warning signs (mood, behavior, thoughts, images, situation)
Internal coping strategies (relaxation exercise, physical activity) - things I can do to take my mind off my problems without contacting another person
People and social settings that provide distraction
People whom I can ask for help
Professionals or agencies I can contact during a crisis (Lifeline)

#### Safety plan

Example of elements of a safety plan

Step 1: Warning sign

- I feel hopeless and suicidal
- Witnessed an argument between my parents
- Thoughts of previous suicidal attempt

Step 2: Internal coping strategies – Things I can do to distract myself/cope

- Listen to music
- Read a book
- Journal my thoughts

Step 3: Social situations or people that can help to distract me

- Talk to mom
- Talk to my cousin

Step 4: People whom I can reach out to for help

- Ask Dr ABC for help in .... Hospital
- My teacher PQR mobile:

Step 5: Professionals or agencies I can contact during a crisis:

1. Dr. Name/mobile no./emergency contact
2. School counselor Name/mobile no./emergency contact
3. Local hospital emergency
4. Suicide helpline

Make the environment safe:

1. Medications with mom
2. No harmful objects in the vicinity.

A study done on adolescents to assess the association between profiles and mental health utilization reveals five profiles of elevated suicide risk with differing patterns of risk factors which includes the history of multiple suicide attempts, suicidal ideations in the last month, depression, substance use, aggressive behavior, and abuse.<sup>[54]</sup>

#### Pharmacologic treatment

Pharmacologic approaches involve the treatment of the underlying psychiatric condition.

Lithium reduces suicidality and suicide attempts in previous attempters. However, in children and adolescents' supervision is to be exercised in view of a potential overdose in suicidal children.<sup>[14]</sup> SSRIs (selective serotonin reuptake inhibitors) are used to treat the underlying depression. These are considered first-choice medications in suicidal children and adolescents. The clinician must keep a watch on emerging side effects such as suicidal ideas in such patients. One of the major concerns with the use of antidepressants among children and adolescents is the emergence of suicidal ideations (Black box warning) against the use of antidepressants. A cautious approach needs to be considered using antidepressants among children and adolescents, and they must be monitored for any treatment for emergent suicidal behavior. Clozapine can also be used in children and adolescents with suicidality as off label



use.<sup>[14]</sup> Studies have reported the use of ketamine in youth with a decrease in suicidality; however, findings need to be substantiated with longitudinal studies, safety, efficacy, and abuse potential in youth.<sup>[55]</sup>

### Specific psychotherapies

Whilst crisis intervention is possible in emergency settings, once stabilized the child may be engaged in other forms of therapy, such as cognitive behavioral therapy (CBT), interpersonal psychotherapy, and dialectic behavior therapy. Family therapy is specifically designed to treat depression and suicidal thoughts/behaviors. It is to protect adolescents against suicidal ideations and risk behaviors by improving family processes and securing parent–child bond.

When children and adolescents report suicidal ideas, they experience intolerable agony, hopelessness, and helplessness. They may impulsively respond to desperation by attempting suicide. Psychotherapeutic techniques aim at reducing intolerable feelings and thoughts and reorienting the cognitive and emotional perspectives of the suicidal child and adolescent.<sup>[14]</sup>

It is essential for the clinician to relate to the child

- Honest and consistent way
- Understand suicidal patient's attitude and life problems
- Convey and instill hope and optimism.

Electroconvulsive therapy: Suicidality is one indication for electroconvulsive therapy in children. ECT is considered in patients with a failure to respond to two adequate trials or in conditions that are life-saving. As per the Mental Healthcare Act, 2017, Electroconvulsive therapy can be given to children with informed consent obtained from guardians and with permission from the Mental Health review board.<sup>[56]</sup> However, this cannot be in an emergency setting.

### Follow-up and discharge planning

A checklist can be kept in mind before discharging a patient who has attempted suicide.

Children and adolescents shall never be discharged from the emergency without the verifying account from the parent.

- Ensuring supervision by a supportive person at home
- Inaccessibility to lethal means (drugs, weapons, knives, harmful objects)
- Drug dose/duration
- Check that follow-ups are closely spaced.<sup>[14]</sup>

The doctor and parent need to be advised to monitor for warning signs:

- Thoughts of dying – if the child voices thought of dying, disappearing, shooting, other forms of self-harm, or jumping.

- Change in behavior – sad, withdrawn, irritable, anxious, restless, indecisive, difficulty in concentration
- Change in sleep patterns – early awakenings, excess sedation, nightmares, insomnia
- Change in eating habits – loss of taste and appetite, overeating.

### Aggression

The Centre for Education and Research on Mental health therapeutics (CERT) guidelines for the Treatment of Maladaptive Aggression (TMAY) II recommend the following:<sup>[57]</sup>

1. Intervene by giving evidence-based psychotherapy
2. Engage the child, family, and school in psychosocial strategies
3. Initiate psychopharmacologic treatment for psychiatric conditions
4. Evidence-based guidelines to treat primary (underlying) disorders
5. Residual aggression persists and then treat with atypical antipsychotic.

Treatment planning in an aggressive patient should include a review of aggressive behavior, including triggers, warning signs, repetitive behaviors, response to treatment, and prior seclusion and restraint events associated with aggressive acts, along with diagnosing and treating the underlying psychiatric illness. Cognitive limitations, neurological deficits, and learning disabilities need to be taken into consideration.

De-escalation strategies include helping patients manage anger outbursts by using anger management and stress reduction techniques. The de-escalation strategies include allowing children to use self-direction, prompts to manage their own behavior, ignoring peer provocation, negotiating with peers, and use self-directed time out. Prompts that aid children in using these strategies should be a primary treatment intervention and should be included in the treatment plan.

Aggression is often preceded by a period of escalating agitation. Psychosocial interventions help regain self-control and can help avoid the need for physical and chemical restraints. When the youth exhibit warning signs of aggression, behavioral interventions such as verbal interventions, time out, or quiet time can be used. A stat dosing or injectable can be used to avoid the aggressive episode when anticipated. In case less restrictive options fail and there is a danger to self or other and/or imminent danger of damaging property, restraint can be used. All restrained patients should have their pulse, blood pressure, and range of motion in their extremities checked every 15 min. (Refer to the section on aggression in psychosis.)

As per the Centers for Medicare and Medicaid Services restraint guidelines, regulations apply to both physical and

chemical restraints. Documentation is required for the need and monitoring of restraint of 100% of patients.

- Under 9 years of age – every 1-h restraint is to be renewed
- From 9 to 17 years of age – every 2-h restraint is to be renewed
- Above 18 years of age – every 4-h restraint is to be renewed. The outline of the assessment and management of self harm can be found in Algorithm 1.

#### Monitoring and basic care requirement

- Visual check – every 15 min or constant observation
- Release a restraint – every 2 h (may reapply if needed)
- Neurovascular check – every 2 h
- Offer food/water/bathroom – every 2 h
- Behavior check – every 2 h
- Respiratory status check – every 2 h
- Change physical position – every 2 h.

#### Verbal restraint

The clinician can introduce oneself, prepare the patient for what will happen, and respect the patient's autonomy. It is imperative to also offer food and liquids and offer empathic listening. A clinician must keep in mind asking about patient's requests/preferences and honoring reasonable requests. Simple, direct, and soft language with a decrease in stimulation is important. Reassure the patient that they will be safe and offer distraction. Ensure to remove brittle objects/equipment in the vicinity of the patients.

#### Physical restraints

Supine position, avoid covering the patient's face/mouth/nose. Avoid pressure on the neck/back and chest. Elevate the head of the bed, if possible.<sup>[58]</sup>

#### Pharmacological approaches

Taking into account the child's age and development, in addition to psychotherapy, pharmacological approaches are used in patients with aggression. In very young children and preschoolers, caution is to be exercised and nonpharmacologic approaches are preferred. It is important to "start low and go slow" and regularly assess for side effects and progress.

Stimulants like methylphenidate are efficacious in reducing aggression in children with ADHD, and disruptive behavioral disorder and improvement is also seen in oppositional behavior and aggression. Alpha agonists have weak evidence in improving aggression in children and adolescents. SSRIs have shown efficacy in improvement in irritability in children and adolescents with severe mood dysregulation, whereas atypical antipsychotics have strong evidence for use and efficacy in the treatment of aggression in different psychiatric disorders.

Among antipsychotics, risperidone is used as the first-line treatment for aggression, especially in autism spectrum

disorder, ADHD, and conduct disorder. Aripiprazole is also used for the treatment of irritability associated with autism spectrum disorder, and there is off-label use of aripiprazole for aggression. Other atypical antipsychotics such as olanzapine, clozapine, quetiapine, ziprasidone, lurasidone have shown some evidence in reducing aggression. Treatment recommendations for the Use of Antipsychotics for Aggressive Youth (TRAAY) recommend tapering of antipsychotics after 6–9 month period without aggression. The outline of the assessment and management of aggression can be found in Algorithm 2. Typical antipsychotics are usually not recommended due to the risk of tardive dyskinesias. It is important to monitor the safety of antipsychotics medications by educating parents and children. Valproic acid can be used in patients with aggression in disruptive behavior disorder and mood lability. Lithium reports lower aggression in patients with temper outbursts, physical aggression, and explosiveness in youth. Various drugs with doses have been described in Table 13.<sup>[59]</sup>

#### Psychotherapy for aggression

While crisis intervention may have some role, a therapy is offered in nonemergency settings. Therapies for aggression are based on social learning theory and developmental principles taking into account the age of the child.

In younger children, effective programs are behavior modification and emphasis on helping parents improve parent–child interactions. In children less than 12 years or younger, multiple evidence-based parent-centered programs have been effective. These deal with parenting skills, enhancing the relationship between parent and child through effective emotional communication and parent management training. Child-centered programs are used where elements of CBT focus on assisting the

**Table 13: Drugs and aggression**

Drugs	Initial dose	Onset	Half-life (hours)
Lorazepam	0.05-0.1 mg/kg Teen - 2-4 mg	20-30 min (PO) 5-15 min (IM)	12
Midazolam	0.05-0.15 mg/kg Teen - 2-4 mg	20-30 min (PO) 5-15 min (IM)	3-4
Haloperidol	mg/kg Teen - 2-4 mg	30-60 min (PO) 15-30 min (IM)	21
Risperidone	<12 yrs - 0.5 mg Teen - 1 mg	45-60 min (PO)	20
Olanzapine	<12 yrs - 2.5 mg Teen - 5-10 mg	45-60 min (PO) 30-60 min (IM)	30
Aripiprazole	<12 yrs - 1-2 mg Teen - 2-5 mg	60-180 min (PO) 30-120 min (IM)	75
Clozapine	6.25 mg starting dose 150-300 mg in children 200-600 mg in adolescents	1.1-3.6 h	5-16 h
Ziprasidone	<12 yrs - 5 mg Teen - 10-20 mg	60 min (PO) 30-60 min (IM)	2-7 h
Quetiapine	Child - 12.5 mg Adolescent - 25-50 mg	1-2 h	6 h

child in identifying triggers of aggression, challenge cognitive perceptions and improved problem-solving skills. Family-centered programs address dysfunctional interactions between family members, focus on prosocial skills such as cognitive reframing, attentive listening, and address unresolved conflicts that perpetuate aggression. Multimodal psychotherapies such as multisystem therapy and others combine different methods of intervention addressing the needs of the child.<sup>[21]</sup> In patients with gaming disorder, CBT and family interventions are beneficial.<sup>[60]</sup>

### Delirium

There is very little literature available on the management of delirium in children, and thus, clinical practice is based on expert opinion or on information extrapolated for literature on delirium in adults.<sup>[61]</sup> It is generally recommended that the three-pronged approach for the management of adult delirium can be readily applied to the management of delirium in children. It involves the identification and management of predisposing factors, which gives a clue to the underlying etiology of delirium. The three most common causes of delirium in children are infections, medication-related factors, and autoimmune-related factors.<sup>[62]</sup> There should be judicious use of the most common deliriogenic medications, namely anticholinergic agents (diphenhydramine, atropine, scopolamine, chlorpheniramine, hyoscyamine), benzodiazepines, and opioids. The table enlisting the various modifiable factors (BRAIN MAPS) can be used here. This will also direct the investigations that need to be done. There are no FDA-approved drugs for the prevention and treatment of delirium in children. Pharmacologic treatment may be required when the symptoms of delirium interfere with the care and safety of the child and the underlying cause is either under evaluation or one that cannot be immediately remedied. Additional benefit of pharmacological treatment of delirium in children is to shorten the duration of delirious state, reduce emotional trauma and distress associated with invasive procedures and hospitalization, and to shorten hospital stay. Antipsychotics are the preferred drugs, always starting on the lowest dose and then titrating depending upon the child's response. There is no recommended dose range established for use in delirium in children; however, it is advised to start low and go slow. Among the antipsychotics, haloperidol is especially useful parenterally when oral medications cannot be given/not tolerated/severe agitation is present.<sup>[63]</sup> Second-generation antipsychotics like risperidone, olanzapine, and quetiapine are also useful in the treatment of delirium. The emergence of side effects like tachycardia, QTc prolongation, hypotension, sedation, and extrapyramidal side effects should be monitored. Nonpharmacological management of delirium is highlighted in Table 14.<sup>[6,64]</sup> Although melatonin is being used for the management of delirium in adults, its use in the pediatric population is less researched. A retrospective single-center study in children aged 1–18 years admitted to PICU (pediatric intensive care unit) reports that the use of melatonin for

**Table 14: Nonpharmacological management of delirium**

Comments	Intervention
Environmental modification	Calm, reassuring, consistent, adequately lighted, and predictable environment Pictures of family, home, etc., can be put in the room Children who wear glasses or hearing aids should wear them when possible Avoid frequent change of care givers
Promotion of sleep	Optimization of noise and light exposure to promote sleep. Sleep during day except scheduled rest times should be discouraged Eye mask to block light during sleep Avoid overstimulation particularly before bed time
Providing reorientation cues	Calendar and clock for day and time identification Picture of sun during day and moon during night Actively reorient the child
Communication	Speak in a calm and slow pace using clear and short sentences Explain why and where the child is Do not make continued attempts to engage the child; do not argue with the child for any perceptual abnormalities the child might be reporting Do not put questions to the child; rather remind the child about the time of the day

delirium did not decrease the use of antipsychotics for the management of delirium. Hence, use of melatonin in managing pediatric delirium requires further research.<sup>[65]</sup>

Caregiver involvement in the management of delirium in children: management of delirium in children is incomplete without addressing the carers' anxieties and dilemmas. Providing frequent reassurance and guidance about the behavior of the child, fluctuations in symptoms, their role in nonpharmacological management of delirium, and the expected outcome of the condition are essential.<sup>[63]</sup>

### Psychosis

In cases presenting with psychotic symptoms in the absence of altered sensorium/delirium, the initial steps should be directed toward trying to identify the organic causes for psychotic symptoms. Thus, information obtained along with detailed general physical examination and neurological examination gives clues for relevant investigations to be done. In cases with focal neurological deficits, relevant investigations and appropriate care and referral should be done. In cases where no focal neurological deficit is evident, thorough hematological parameters, i.e., complete hemogram, liver function test, renal function test, thyroid function test, serum ammonia level, and toxicology screen should be done. In cases with preserved sensorium and no abnormality in investigations, one should consider a pediatric neurology consultation and plan further investigations to evaluate for autoimmune encephalitis, porphyrias, Wilson's disease. Where abnormality in investigations is detected, appropriate referral and management should ensue, and in cases where no abnormality in investigations is detected, the case should be managed as per the guidelines for the management of primary psychiatric illness.

Pharmacological management involves the treatment of an underlying medical condition in cases where psychotic symptoms are present in the context of a medical illness, along with treatment of agitation and violent behavior as the situation demands. However, a step-wise approach should be followed in the initial management of a violent and/or agitated child.

- Verbal de-escalation: The aim of verbal de-escalation is to distract the child by talking to him/her.
- Show of force: It is another calming method that elicits cooperation.
- Chemical restraint: Sedative/hypnotics are used preferably orally. Lorazepam (0.05–0.1 mg/kg) or haloperidol (0.025–0.085 mg/kg; maximum 5 mg) orally is an alternative to benzodiazepine sedation in an acutely psychotic child or adolescent.<sup>[66]</sup> Due to high propensity of side effects due to the use of typical antipsychotics, atypical antipsychotics (olanzapine, risperidone, quetiapine) can also be used.
- Physical restraint: “Therapeutic holding” is a less severe form of physical restraint where the child/adolescent is held by two persons to allow for time to the child to regain control over his/her behavior. This method is less confining and is allowed up to a maximum of 10 min and should be used prior to physical restraint, in cases where physical restraint is unavoidable and is the last resort available. Proper and adequate documentation about the nature of emergency, patient benefit, and parental consent is mandatory. It should be used for the minimum possible time with continuous monitoring of vital signs.

Pharmacological management includes treatment with antipsychotics, antidepressants, mood stabilizers, and benzodiazepines, depending upon the primary psychiatric diagnosis.<sup>[67]</sup> The outline of diagnostic approach with a child with altered behavior and psychotic symptoms can be found in Algorithm 3.

#### Anxiety

Good therapeutic rapport and alliance with the child are must. It is also very important to have a good doctor–parent relationship because the parents have to become an ally in the treatment of the child. Parents should be involved. In the process of the assessment of the child, the family should be strongly assured that there is nothing physically seriously wrong with the child and the symptoms are psychogenic.<sup>[28]</sup>

Acute treatment<sup>[28]</sup>: This includes the important aspects of care as highlighted in Table 15. The outline of management with anxiety can be found in Algorithm 4. Psychoeducation also forms another important aspect of management, as highlighted in Table 16.

In an emergency setting

- Crisis intervention
- Supportive therapy is implemented

CBT and mindfulness-based therapies can be considered for follow-up.<sup>[24]</sup>

Pharmacotherapy: Whilst de-escalation and reassurance are the first steps, in severe cases, pharmacotherapy plays a role.<sup>[68]</sup> Table 17 shows the various drugs along with doses and indications for the treatment of anxiety.

## CONCLUSION

Psychiatric emergencies in children and adolescents are frequent occurrences in routine clinical practice. The first contact of children and adolescents with psychiatric emergencies may not be mental health professionals, but they are the ones contacted for an immediate consultation.

**Table 15: Acute treatment includes the following**

Assurance
Relaxation/de escalation
Doctor-child and family relationship
Restoration of communication in the family
Realistic solution of the problems
Reduction of sick role and secondary gains
Promotion of positive behavior
Teaching healthy coping
Treatment of comorbid psychiatric or physical disorders
Treatment of chronic condition on follow up
Family-focused cognitive behavior therapy

**Table 16: Important points for psychoeducation<sup>[28]</sup>**

It should be acknowledged that the child has real symptoms and sufferings, but the reasons could be psychological and not physical. Harmlessness of the symptoms should be emphasized. It should be emphasized that symptoms are not dangerous or fatal symptoms in the absence of serious physical disease are common. These symptoms could be better explained by the mind-body relationship, for example, anxiety can lead to palpitations, tremors, rapid breathing, sweating, etc. Emotions can cause physical symptoms and this can happen even in children. Stressors may not be severe or unimportant from an adult point of view but may be very important matter of concern for the child.

**Table 17: Treatment of anxiety - drugs, doses, and indications**

	Dose	Age
SSRIs		
Selective serotonin reuptake inhibitors		
Fluoxetine	20 mg/d	7-17
Fluvoxamine	50-250 mg/d child, max 300 mg/d adolescent	6-17
Sertraline	50 mg/d	5-17
Paroxetine	10-50 mg/d	8-17
TCA		
Tricyclic antidepressants		
Imipramine	100-200 mg/d	
Clomipramine	40-75 mg/d	
BZD		
Benzodiazepines		
Alprazolam	0.75-4.0 mg/d	
Clonazepam	0.5-2.0 mg/d	

Thus, all professionals dealing with children and adolescents should be equipped with the knowledge and process for the assessment and management of psychiatric emergencies in children and adolescents. Thus, this guideline provides a framework for the assessment and effective management of various psychiatric emergencies in this population and gives direction on effectively managing them. It enables the psychiatrist to ensure safety, thorough assessment and investigations, allow risk assessment, standardized care, and identify risk factors, perpetuating factors, and triggers. A step-wise approach as elucidated in the guideline allows for a comprehensive assessment and ensuring effective treatment, using both pharmacological and nonpharmacological methods. Assessment of biological, social, and psychological factors identified as a part of holistic assessment aid in formulating long-term plans and interventions for optimal outcomes. The outline of overview on assessment and management with anxiety and agitation in children and adolescents can be found in Algorithm 5.

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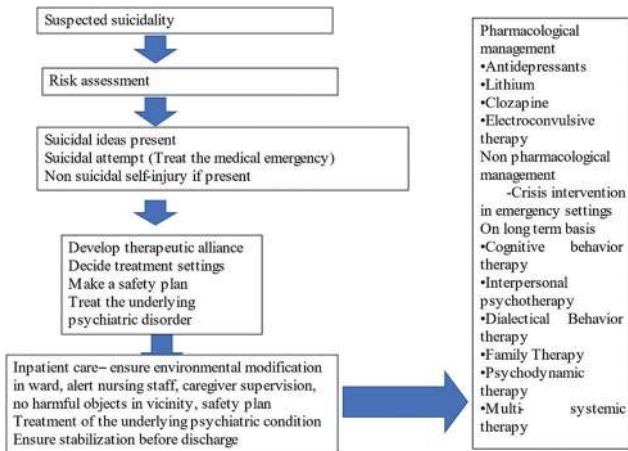
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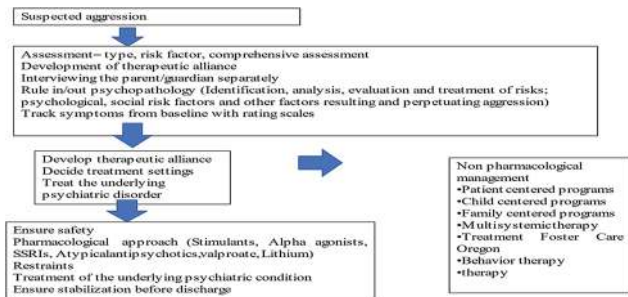
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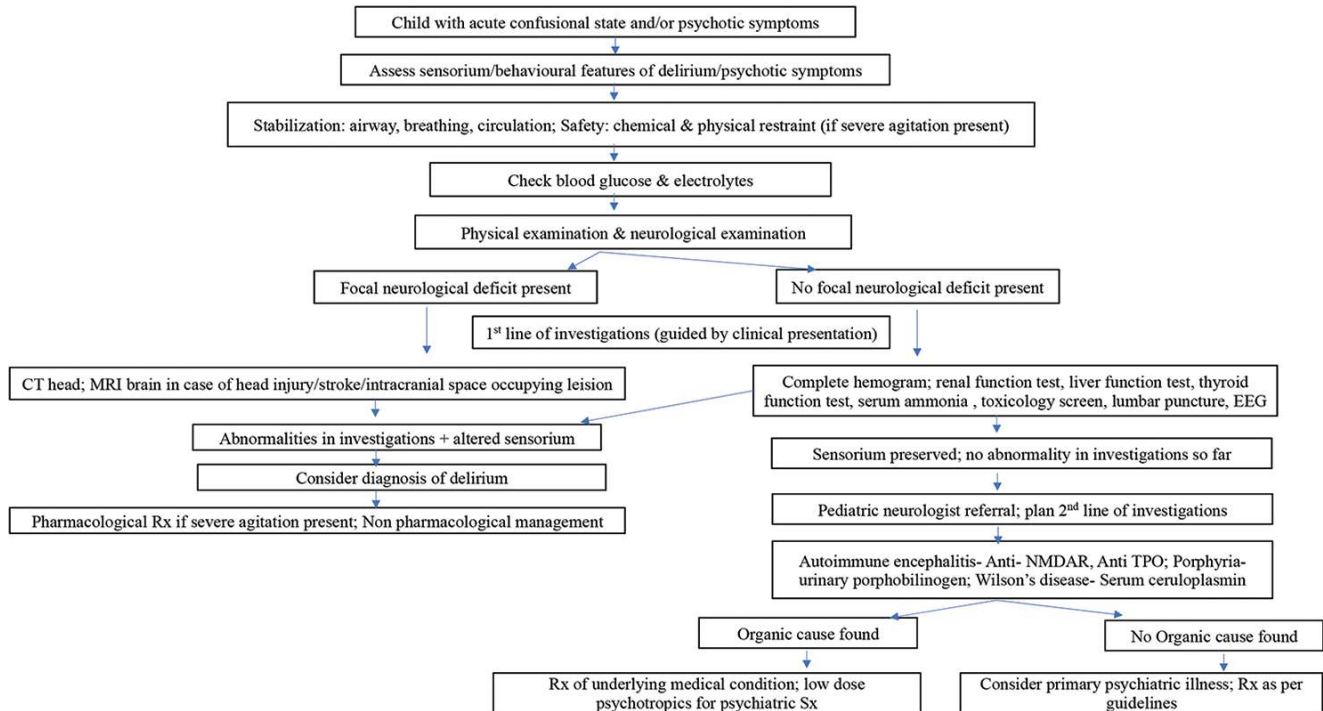
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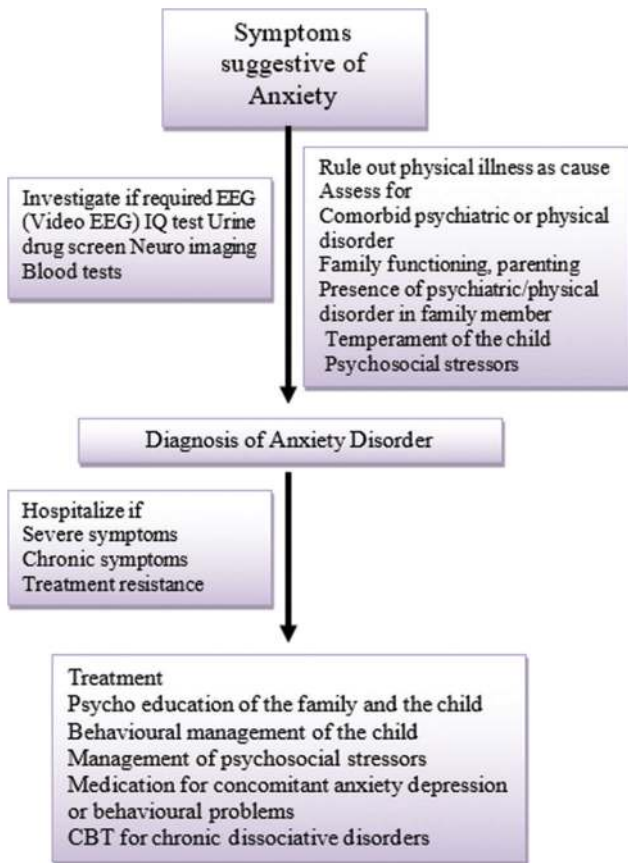
**Algorithm 1: Management of suicidal patient**



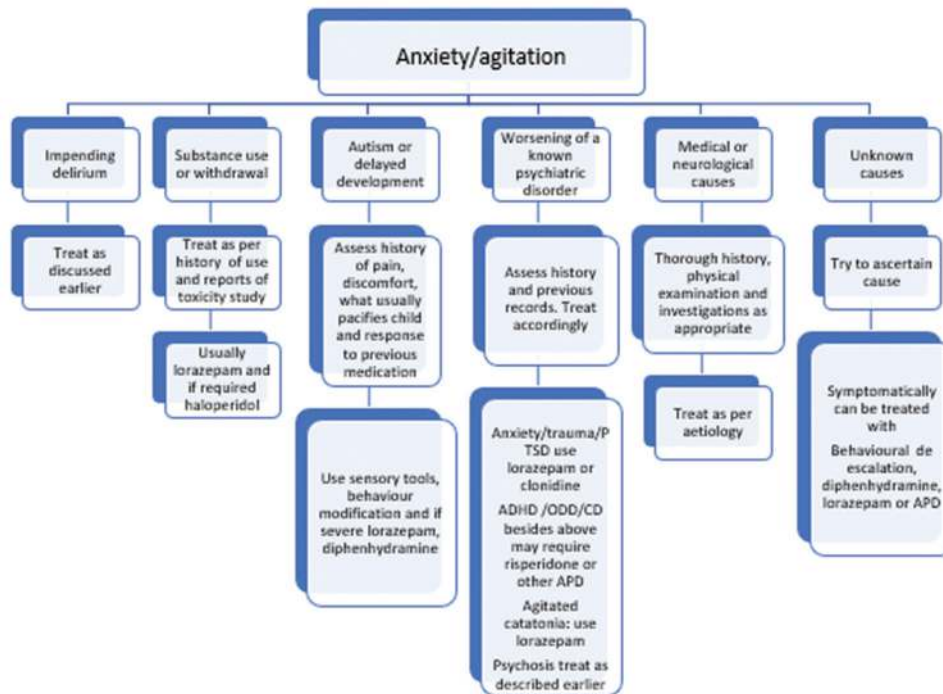
**Algorithm 2: Management of aggressive patient**



**Algorithm 3: Diagnostic approach to a child presenting with altered behaviour/psychotic symptoms**



**Algorithm 4:** Management approach to a child presenting with Anxiety symptoms



**Algorithm 5:** Management of a child presenting with anxiety and agitation



# Clinical Practice Guidelines for Assessment and Management of Psychiatric Emergencies in Victims of Sexual Violence

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## INTRODUCTION

Sexual violence refers to “any sexual act, attempt to obtain a sexual act, unwanted sexual comments or advances, or acts to traffic or otherwise directed against a person’s sexuality using coercion, by any person regardless of their relationship to the victim, in any setting, including but not limited to home and work.”<sup>[1]</sup>

Coercion can encompass the following:

- varying degrees of force
- psychological intimidation
- blackmail
- threats (of physical harm, of not obtaining a job or grade, etc.)

Additionally, sexual violence may also take place when someone is not able to give consent; for instance, while intoxicated, drugged, asleep or mentally incapacitated.

Rape is a sexual violence defined as “sexual intercourse with a woman against her will, without her consent, by coercion, misrepresentation or fraud or at a time when she has been intoxicated or duped, or is of unsound mental health and in any case if she is under 18 years of age” (Section 375 of IPC).

### New definition of rape

Rape is now defined as insertion of penis or any object into the vagina, anus, urethra or mouth or introduction of penis into the mouth or in between the thighs or manipulation of body parts of a child so that penetration occurs. It happens against the victim’s will or without consent, by coercion, under intoxicated or unsound mental health condition, or if she is under 18 years. Marital rape is now included but does not fall under criminal law. The Criminal Law (Amendment) Bill, 2019 called for a gender-neutral law to include male rape but was rejected by the apex court.

Sexual trauma refers to one or multiple sexual violations that invoke significant distress. The term sexual trauma combines the acts of violence with survivors’ responses.

Sexual violence is a universal evil. Though women and children are mainly victims of sexual violence, men are also prone to it. Rape against women and girls is considered as a brutal manifestation of women’s oppression, discrimination, degradation, and violence which they face their entire lives. Survivors of sexual violence present to emergency with many physical and psychological manifestations.<sup>[2]</sup> Psychological support and early treatment in emergencies help to prevent long-term trauma. This guideline is directed toward helping psychiatrists treat patients of sexual violence in emergency situations.

## EPIDEMIOLOGY

The National Crime Records Bureau (NCRB) reported that the rate of rape-related crimes against women and girls has increased significantly (70.7%) from 11.6/100,000 in 2001 to 19.8/100,000 in 2018.

Considering some global surveys, an estimated 7.9% of males and 19.7% of females universally face sexual abuse before the age of 18 years. Asia has a prevalence rate of 23.9%, which is a concerning figure considering long-term physical and psychological consequences of sexual abuse.<sup>[3]</sup>

The prevalence of child sexual abuse (CSA) in India is 53%, as per the report by the Ministry of Women and Child Development; boys were equally affected and more than 20% were subjected to severe forms of sexual abuse.<sup>[4]</sup> The United Nations International Children Education Fund study conducted during 2005–2013 reported that the prevalence of CSA in Indian girls was 42%.<sup>[5]</sup>

Though the prediction of sexual abuse is not generally possible as it is unrelated to any sociodemographic factor, a descriptive study of child victims of sexual assault in West Bengal found that the majority of cases belonged to the lower socioeconomic strata (63.3%) and backward castes (55.8%). The study reported that victim suffered from severe depression and anxiety if the perpetrator is known to the victim.<sup>[6]</sup>

## PHYSICAL AND PSYCHOLOGICAL IMPACTS OF SEXUAL VIOLENCE

The effect of sexual violence depends on the type of offence and its circumstances. It not only affects the bodily integrity of the person but also affects their psychological integrity, along with long-term physical, social, and behavioral consequences. Though both male and female survivors suffer similar physical health, mental health, and behavioral and social problems, females disproportionately bear the main brunt of sexual violence.<sup>[7]</sup>

Physical effects include trauma to the genitals, pregnancy, sexually transmitted disease (STD), and human immunodeficiency virus (HIV) infection, whereas mental health consequences include depression, posttraumatic stress disorder (PTSD), anxiety, sleeping difficulties, somatic complaints, suicidal behavior, panic attacks, and behavioral problems. The trauma influences the development of the victim's personality and sexual life if it occurs early in life.<sup>[8]</sup> Sexual assault often increases alcohol and marijuana misuse and reckless behaviors, thereby leading to revictimization.<sup>[9]</sup> An Indian study on rape and trafficking reported that about 45% of victims had some psychiatric problems (depression, mixed depression-anxiety disorder, and somatoform disorder). The study did not find any acute stress reaction or PTSD.<sup>[10]</sup> One-third of women in the age group of 15–49 years experience sexual assault at least once in their lifetime, predisposing them to develop psychiatric disorders.<sup>[11]</sup> An intense feeling of shame and guilt has been reported if there was less family and social support.

It has been observed that early or timely intervention of sexual trauma was associated with less psychological problems including depression, PTSD, and other anxiety disorders.

## APPROACH TO A VICTIM OF SEXUAL VIOLENCE

A survivor may arrive at the healthcare facility under the following circumstances:

- On their own only for treatment of the aftermath of sexual assault,
- with a police request after police complaint by the survivor/family members/other agencies,
- with a court order.<sup>[11]</sup>

The court generally sends the victim to a psychiatrist for assessment of competency as witness in court, their ability to give consent for sexual intercourse, and mental illness including intellectual disability, apart from treatment of psychological distress of the survivor.

The arrival of a victim of assault to the emergency unit should activate the initiation of a system of medical, forensic, and mental health interventions.

The goal should be to support the victim's adjustment to the trauma of sexual assault. In cases of rape, the urgency is placed on the patient's medical requirements before moving on to mental health interventions. Usually, the victim is overwhelmed and requires interventions including triage to a private and quiet area and initiation of psychological support.<sup>[12]</sup>

If a person comes directly to the hospital without police requisition, the hospital is bound to provide treatment and conduct a medical examination with the consent of the survivor or their parent/guardian (depending on the age of the survivor). No police requisition is required for this. In every case of sexual assault, the doctor is bound to inform the police as per law. However, the survivor has the right to refuse to take part in police investigation, but this should be documented clearly.<sup>[11]</sup>

## General principles

- To take informed consent: a clinician must take informed consent for examination, evidence collection, police procedures from the survivor or their guardian (depending on the age or mental status of the survivor)
- Call for family members: if the victim is brought by police or other persons the attending clinician should call her/his family members or friends after taking consent from the victim.
- To respect privacy: examination or interaction with the victim to be carried out maintaining privacy.
- To maintain confidentiality: no discussion of the incident or disclosure of identity of the victim to anyone especially to media.
- A lady must be there during the whole process of examination, sample collection, deposition of statement (where the victim is a woman). In case of a child, his/her parent/legal guardian must be there.<sup>[11]</sup>

## Medicolegal assessment

### *Physical and forensic examination*

Clinicians are legally bound to examine and provide treatment to victims of sexual violence. Timely reporting, examination and collection of forensic evidence, and documentation may help the investigation of such crimes.

Police personnel should not be allowed during the examination. They cannot take away the survivor right after medical examination and evidence collection. They must wait till treatment and care has been provided.

The medical professional must examine the body parts including the mouth, breasts, vagina, thighs, and anus depending on the assault. Examination findings must be documented.

Specimen collection include clothes, scalp and pubic hair, saliva, foreign substances from the body, samples from the

mouth, vagina, anus. The specimens should be kept in the Sexual Assault Forensic Evidence (SAFE) kit.

If survivor is brought by the police for sexual violence examination without any family members, the police should not be asked to sign as witness in the medicolegal form. In such circumstances, a senior medical officer or any health professional should sign as witness in the best interest of the survivor.

*Details of medicolegal examination are available in Guidelines & Protocols: Medico-legal care for survivors/victims of Sexual Violence: Ministry of Health and Family welfare, Govt of India<sup>[11]</sup>*

## PSYCHOLOGICAL INTERVENTION AT EMERGENCY

The World Health Organization (WHO) published clinical guidelines for responding to sexual assault at emergency. Healthcare providers should offer first-line support when women disclose sexual violence. First-line support includes the following:

- **ensure privacy:** Consultation is to be conducted in private.
- **assure confidentiality:** Inform the survivor of the limits of confidentiality.
- To be non-judgmental and supportive, and to validate what she is saying.
- To provide practical care and support that responds to her concerns, but does not encroach.
- To listen carefully while taking history of violence, don't pressurize her to talk (be more careful if interpreter is present). If she is not willing to talk about the incident respect her decision.
- To help her discharge varied emotions.
- To help her access information about legal and other service resources that she might think helpful.
- To support her increase safety and provide or mobilize social support where needed.

If a doctor is unable to provide first-line support, they should confirm that someone else from the health facility is available to provide it. A mental health professional should provide support to the survivor and guide her family members/friends on how to take care of her emotional perturbation.

A survivor may arrive at an emergency department in one of the following survival modes: anxiety (flight), anger (fight), dissociation (freeze), or a mixed state. Establishing psychological safety may often take priority as the patient may not cooperate for medical and forensic examination because of the persistence of survival modes.

The comprehensive five-step emergency intervention described by Osterman and Chemtob<sup>[12]</sup> for acute traumatic stress is effective in sexual violence. The steps can be

adopted for management during emergencies as guideline with modifications:

- Restoration of psychological safety
- Help the patient recognize that she is in the hospital and is safe.
- If she has been brought alone by the police, contact trusted family members/friends with her consent.
- A calm, respectful approach by the clinician will help the patient develop a sense of safety.
- The patient may be brought in a dissociative and stuporous state and may look apparently calm and unaffected by the trauma. These patients need additional interventions, including grounding strategies such as touching items in the hospital and the company of family members.

### Information to be provided to the victim

- Keep the survivor informed about their current medical status and address fears of future health problems, including pregnancy, STDs, and HIV infection.
- Discuss the importance of medical and forensic examinations; assure her that she will not be left alone during examination and can withdraw her consent in any time of examination.
- The clinician must inform her that vaginal and rectal examinations might trigger flashbacks or intrusive memories of the sexual violence. Presence of a trusted family member or friend and psychological support of the clinician will help the patient cope with the examinations.
- Provide information on the legal system, the role of the police, the need for evidence collection, etc.

### Correction of misattributions/beliefs

- The survivor commonly blames herself for what happened, such as her behavior, grooming, or clothing being responsible for such an incident. She often may develop catastrophic beliefs that being out in the dark or out alone is dangerous.<sup>[13]</sup>
- A clinician should help the patient recognize post-rape catastrophic beliefs, correct misattributions, and explain the rape experience more realistically. This might decrease the survivor's anxiety, guilt, and anger and prevent suicidal thoughts/attempts.<sup>[14]</sup>

### Effective coping to be restored and instilled into the victim's psyche:

- A mental health professional should educate the victim about the aftermath of rape. Irritability, sleep disturbance, intrusive thoughts, avoidance, self-blame, embarrassment, numbness etc. are the usual response of rape. They should be educated that rape trauma syndrome is not an abnormal reaction; rather it is a **normal** reaction to an **abnormal** and traumatic event. It helps to restore psychological ability and alleviate possible fears on the part of family, friends, and the patient that she is "crazy" or has "lost control".<sup>[14,15]</sup>

- A discussion of the impact of rape on intimacy is required. Inform the patient that a sexual touch may trigger the response and may prevent her from involving in intimacy. Help them understand that this kind of post-rape responses are common and that the partner should not perceive this as rejection with an angry retort. This important discussion will prevent an escalation of posttraumatic symptoms.<sup>[12]</sup>

#### Ensure family support

- Recovery from sexual violence is dependent on the extent of support received from family, friends, and the community.
- It must be discussed with all caregivers that the survivor should not be held responsible for the assault. Comments such as, “She should have been more careful” and “She should have resisted” make the survivor’s journey toward recovery more difficult.<sup>[16]</sup>

#### Ensure social/medical support

- A referral for crisis intervention should ideally be made; however as no such crisis intervention center is present in our country, a psychiatrist/psychologist needs to be available to maximize adherence to aftercare treatment.<sup>[12]</sup>
- If the patient is having much difficulties managing her emotions, physical symptoms, or post-rape adjustment, she should be advised to visit the psychiatric department/emergency unit any time.

#### Specific therapy

- **Exposure therapy (EP) or brief version of ER:** Exposure to a fearful memory of the event may be effective in preventing PTSD, if started within 72 hours of the traumatic event. However, it is not feasible as most of the victims reach to mental health professional after 72 hours of the traumatic event.<sup>[17]</sup> In India, PTSD after trauma such as sexual violence or rape is rarely reported.

#### Sensitization/training of emergency staff

- Sensitization of staff especially of nurses and junior doctors on how to interact, what to ask, how to provide positive messages (you are bold, very cooperative), etc., during a crisis is very crucial to lessen or to at least not worsen the trauma of the survivors.<sup>[11]</sup>

The psychiatrist in the emergency unit is often required to provide psychological first aid to the survivor, sensitize the staff and family members, look into the competency for consent in case of a person with mental disability.

## SEXUAL VIOLENCE/TRAUMA OF SPECIAL POPULATION

#### Children and adolescents

Victims of CSA can present to the emergency unit in three contexts:

1. referral from agencies when the CSA is already established,
2. parents know of the abuse and do not want to inform the police,
3. when the child presents with physical or psychological symptoms that raise the suspicion of CSA

In the first scenario, medical and psychological support is initiated. In the second and third scenario, the parents and child should be informed about the necessity of mandatorily reporting the abuse as per POCSO Act, 2012, and also preparing them for it. Do not coerce them for reporting. Document all the discussion about reporting.

- Ensure the safety of the child.
- Prepare the child for physical examination and medical tests.
- Discuss about pregnancy and arrangement for medical termination of pregnancy.

The Indian Psychiatric Society Task Force Guideline proposes the following psychosocial interventions<sup>[18]</sup>:

1. first level response to children
  2. depth therapeutic intervention to children
  3. intervention for parents and care givers
- First level response is about alleviating immediate suffering and providing initial relief.

Anxiety may become severe and lead to other psychological and behavioral problems

- ensuring the child’s safety
- rest and recreation
- resumption of daily activities
- Pharmacotherapy may be required along with psychosocial interventions.
- Selective serotonin reuptake inhibitors (SSRIs) are indicated where there is depression, self-harm, suicidal ideas.
- Benzodiazepines are indicated for anxiety and sleep.
- Mood stabilizers are indicated if there is mood dysregulation.

#### LGBTQIA+

- Transgender and intersex people are vulnerable to sexual violence due to discrimination. Survivors belonging to the LGBTQIA+ community may not seek help because of fear of retribution, lack of protection, and concerns about being rejected by family and friends, which cause extra psychological pressure.<sup>[19]</sup>
- Lesbian, gay, bisexual, and transgender people may perceive that their sexual orientation or gender identity may play in making them vulnerable to sexual violence. Medical professionals should listen sympathetically and validate their thoughts and emotions. Information, if available, about referral agencies that provide services to survivors of sexual violence from the community must be provided.

- Signs of “habituated to anal sex” or any signs related to sexual orientation should not be recorded.<sup>[11]</sup>
- They should be assured that they will not be judged and that treatment will not be denied to them based on or due to their sexual orientation or gender identity.
- Confidentiality of their sexual orientation should be maintained.

#### Elderly

- Elder sexual abuse is increasing globally and females are six times more vulnerable than males.<sup>[20]</sup>
- Death of the spouse, separation, financial dependencies, and known perpetrator are major causes of their silence.
- Visual/locomotor problems and memory impairment make them a soft target.
- Common perpetrators include the caregiver, nursing home assistants, family members, and friends.
- Help in discharging their emotion/support/counseling is crucial as very frequently they are dependent on the assailant either financially/physically or both.
- The health professional will have to act as an intermediary with the police and judiciary so that the survivor receives comprehensive care, including a safe environment.

#### Persons with disabilities

- Women and children with disabilities are particularly vulnerable to violence, including repeated sexual violence.<sup>[21]</sup>
- History must be sought independently from the survivor as the caregiver or accompanying person may be the offender.<sup>[11]</sup>
- Arrange an interpreter or special educator if the person has speech/hearing/cognitive disability.
- Informed consent must be obtained from them after providing necessary information about the procedure in a simple and understandable language. They need more time to arrive at a decision to give consent or refuse the same.
- Assistance of a friend/caregiver is often required in making the informed consent decision or communicating with the healthcare professional.
- Adequate and appropriate counseling and emotional support from an expert is required.
- Provision for appropriate care and health support (PWD Act, 2015) for disable persons are available in India, but violence and neglect are still very high.

#### HEALTHCARE RESPONSE TO SEXUAL VIOLENCE BY A DOCTOR IN EMERGENCY

Components of comprehensive health care response to sexual violence that must be carried out with proper documentation in all cases and by every doctor in emergency:<sup>[11]</sup>

- First aid/resuscitation: does not require consent

- Informed consent for examination and treatment and medicolegal purpose, sample collection for clinical and forensic examination, police intimation (if patient/guardian refused – documentation is must)
- History regarding sexual violence, including date, time, duration, no of assailant, substance intake, physical violence
- Examination and evidence collection
  - Injuries, breast, mouth, vagina, anus, rectum
  - Clothing, scalp and pubic hair, foreign body from body surface, saliva, sample from vagina, anus, rectum, blood sample
  - To collect in dry pack (SAKE kit) and seal
- Treatment: care of injuries, post-exposure prophylaxis of HIV, emergency contraception, psychological support/counseling, referral to other services
- Documentation of medicolegal examination, evidence collection and treatment given and hand-over to the police
- Only findings in relation to medical findings should be recorded in the medical report. no opinion that rape had occurred or not
- Discharge and advice for follow-up in appropriate discipline/facility
- One copy of medicolegal examination report must be handed over to the survivor/guardian

#### Psychiatrist should also document

- Whether the survivor is capable of giving consent (in case of person with mental disability)
- Specific psychological therapy has been initiated or medications given at emergency<sup>[11]</sup>

#### CONCLUSION

- Medical examination and evidence collection play a vital role in cases of sexual violence and must be carried out once the survivor is hemodynamically stable in the emergency unit.
- If symptoms of re-experiencing the trauma or psychological distress are noted during examination, psychological support is to be provided to help the patient recognize that she is safe in the hospital and undergoing physical examination for medicolegal purposes.
- After completion of medicolegal examination, the clinician should again assess the patient’s psychological status and provide necessary interventions.
- Depending on patient’s coping style, family/social support a clinician prepares a plan for follow-up treatment and or refers to other discipline accordingly.

Empathic listening, promoting emotional discharge in emergency, and ongoing community and family support might help in best possible and faster recovery of the survivor.

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# Clinical Practice Guidelines for Assessment and Management of Anxiety and Panic Disorders in Emergency Setting

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## INTRODUCTION

Anxiety disorders, primarily characterized by pathological anxiety, are very common in the general population with estimates ranging from 20 to 30 percent, and the lifetime prevalence rate is calculated at 16.6 percent.<sup>[1]</sup> It is to be noted that pathological anxiety is experienced as more intense and exaggerated which arises without any real threat.

The word anxiety was taken from the Latin root “anxieta” meaning disturbance in the mind about an uncertain event, and the Greek root “anxo” meaning to squeeze, strangle, or press tight.<sup>[2]</sup>

Anxiety is an unpleasant emotional state that is associated with psychophysiological changes as a result of an intrapsychic conflict. Anxiety disorder is a disorder in which the most prominent disturbance is anxiety or in which patients experience anxiety when they refuse to give in to their symptoms.<sup>[3]</sup>

Panic is an acute, intense attack of anxiety associated with disorganization in personality. It is characterized by overwhelming anxiety and feelings of impending doom. A panic attack is an acute intense anxiety episode, which occurs in panic disorder (PD), major depression, schizophrenia, and somatization disorder. PD is characterized by acute intense anxiety attacks in the presence or absence of agoraphobia.<sup>[3]</sup>

The onset of panic symptoms is often spontaneous and rapid. Many patients seek help in an emergency department (ED) because of these characteristics, combined with its overwhelming intensity.<sup>[4]</sup>

Anxiety-related complaints are commonly associated with alcohol and substance abuse, which further complicates the emergency physician’s assessment.<sup>[5]</sup>

PDs and exacerbations of previous acute stress symptoms are common patient presentations in the ED for primary anxiety disorders. Individuals with anxiety disorders

may feel debilitated during an anxiety attack and feel embarrassed after the episode. To support the patient both during and after the anxiety episode, it is essential for ED clinicians to be aware of anxiety and PDs.<sup>[6]</sup> Table 1 outlines clinical predictors of anxiety caused by an underlying medical disorder.

## CLINICAL PRESENTATION

In ED, anxiety presentations may be classified into four groups<sup>[5]</sup>:

- A. Primary psychiatric illness, such as generalized anxiety disorder
- B. Response to a stress or stressful event, such as acute stress disorder
- C. Medical conditions or substance abuse that mimic the symptoms of anxiety, such as hyperthyroidism
- D. Anxiety disorder comorbid with another physical or mental illness

Six stages of development have been identified for PD, with stage 1 or stage 2 being the most common for patients. These stages are (1) limited symptom attack, (2) full panic attack, (3) hypochondriasis, (4) limited phobic avoidance, (5) extensive phobic avoidance, and (6) secondary depression. Stage progression is associated with increasing degrees of disability and corresponding treatment implications.<sup>[8]</sup> It is believed that the disorder is less likely to worsen if the diagnosis is made in stage 1 or 2 and treated.<sup>[9]</sup> Table 2 outlines various stages of PD.

The main distinguishing feature of PD is the combination of physical and cognitive symptoms. The onset is rapid,

**Table 1: Predictors of anxiety caused by an underlying medical issue<sup>[7]</sup>**

Onset of anxiety symptoms after age of 35 years
Lack of personal or family history of an anxiety disorder
Lack of childhood history of significant anxiety, phobias, or separation anxiety
Lack of avoidance behavior
Absence of significant life events generating or exacerbating the anxiety symptoms
Poor response to anti-anxiety agents

reaching its peak within 10 min and the attack around 1 h. The typical patient experiences 2–4 attacks per week, commonly accompanied by anticipatory anxiety.<sup>[11]</sup>

### Panic attack

A brief period of intense fear or discomfort in which  $\geq 4$  of the following signs or symptoms occur abruptly and peak within 10 min<sup>[12]</sup>:

- Palpitations, pounding heart, or accelerated heart rate
- Sweating
- Trembling or shaking
- Sensation of shortness of breath or smothering
- Feeling of choking
- Chest pain or discomfort
- Nausea or abdominal distress
- Feeling dizzy, unsteady, light-headed, or faint
- Derealization (feelings of unreality) or depersonalization (being detached from oneself)
- Fear of losing control or going crazy
- Fear of dying
- Parasthesia (numbness or tingling sensations)
- Chills or hot flushes.

Table 3 outlines the typical and atypical symptoms of panic attacks.

PD: Recurrent, sudden panic attacks that are followed by a minimum of 1 month of persistent concern about having another panic attack, worry about the potential implications or consequences of the attacks, or a significant change in behavior related to the attacks.<sup>[11]</sup>

Table 4 outlines the medical conditions that may cause anxiety.

### Management of the PD

#### Assessment

Patients with PD or anxiety usually present to the ED with somatic symptoms of breathlessness, palpitations, chest pain, etc. It is not uncommon for them to be diagnosed as having an acute respiratory or cardiac event or any other physical illness. Even though the patient is having a panic attack, it is highly essential to rule out all acute physical emergencies. A proper history taking along with a careful physical examination of the vital parameters and certain basic investigations help the emergency physician to rule out a physical illness.

These include the measurement of vital data like blood pressure, oxygen saturation, pulse rate and characteristics, and respiratory rate. Hematological investigations like complete blood counts, serum electrolytes, blood glucose levels, arterial blood gas analysis, thyroid function tests, and renal function tests are to be done. Electrolyte abnormalities like reduced ionized calcium and serum phosphate levels are usually seen in patients with hyperventilation. An electrocardiogram to rule out any acute cardiac abnormalities can be done.

**Table 2: Stages of panic disorder<sup>[10]</sup>**

Stage	Name of the stage	Symptomatology
Stages		
I	Limited symptom attack	Patients display fewer than the four symptoms necessary for diagnosis of panic disorder.
II	Panic attack	Patients meet the definition of panic disorders with the appropriate frequency, duration, and four or more of the symptoms.
III	Hypochondrias	Patient becomes preoccupied with concerns about medical illness, despite medical assurances. The panic attacks may become associated with environmental stimuli. This is known as phobic avoidance behavior. Driving and going to stores or shopping malls are the most frequent fears.
IV	Agoraphobia	
V	Extensive phobic avoidance	
VI	Secondary depression	It is believed to result from progressive disability and demoralization.

**Table 3: Typical and atypical symptoms of panic attacks<sup>[4]</sup>**

Typical symptoms	Atypical symptoms
Tachycardia, palpitations	Vice-like/crushing chest pain
“Atypical” chest pain	Pleuritic chest pain
Trembling, shaking	Shaking rigor
Sweating	Diaphoresis (generalized, drenching)
Dyspnea	Stridor
Subjective weakness in arms and legs	Objective muscular weakness
Flushes or chills	Overt lack of coordination
Dry mouth	Fever, generalized erythema, or rash
Choking sensation	Mechanical inability to swallow
Dizziness, lightheaded feeling	True vertigo, syncope
Depersonalization, derealization	Disorientation to person, time, or place
Nausea, abdominal distress	Vomiting (projectile, bilious, or recurrent)
Fear of losing control or other “irrelevant” catastrophe	Bizarre behavior (unrelated to fear of the attack)

Point of care ultrasonography of the lungs, bedside X-ray of the chest, and peak flowmetry to rule out any respiratory abnormalities are advisable. A toxicological screening to rule out any drug abuse is also helpful in an emergency setting. After ruling out the possible physical causes, the patient could be diagnosed with a PD or an anxiety disorder.

Application of DSM-V or ICD-10 guidelines in an emergency setting could be difficult due to the unavailability of a psychiatrist in the ED. This could lead to underdiagnosing or misdiagnosing the PD. Hence, using certain screening tools that can be applied by an emergency physician or any general physician could be useful in diagnosing a patient with panic or anxiety disorders.

#### Screening tools

Following are some of the available screening tools that can be used by physicians or primary care doctors in an emergency setting [Table 5]:



**Table 4: Medical conditions that may cause anxiety<sup>[13]</sup>**

System	Conditions
Cardiovascular diseases	Congestive heart failure, acute chest pain, acute myocardial infarction, angina, anemia, hypotension, hypertension, arrhythmias, hypovolemia
Respiratory	Asthma, acute and chronic bronchitis, COPD, pneumonia, hyperventilation, sleep apnea
Metabolic syndrome	Hypocalcemia, hypokalemia, porphyria, pellagra, uremia
Endocrine disorders	Hyperadrenocorticism, pituitary dysfunction, hyperthyroidism, hypothyroidism, parathyroid dysfunction, pheochromocytoma, hypoglycemia, virilization disorders in females, premenstrual syndrome
Neurologic disorders	Cerebrovascular disease, cerebral neoplasm, encephalitis, migraines, subarachnoid hemorrhage, closed head injuries, multiple sclerosis, Wilson disease, vestibular dysfunctions, dementia, delirium, Huntington's disease, temporal lobe diseases, seizure disorders, psychomotor epilepsy
Inflammatory disorders	Systemic lupus erythematosus, rheumatoid arthritis, temporal arteritis, fibromyalgia, allergic reactions
Toxicity	Caffeine intoxication, amphetamines, heavy metals, vasopressors and sympathomimetic agents, organophosphates, alcohol, opiates, phencyclidines, cocaine, ecstasy
Infectious and other diseases	Septicemia, carcinoid syndrome, infectious mononucleosis, AIDS, systemic malignancies, subacute bacterial endocarditis, gastrointestinal hemorrhage
Miscellaneous	Irritable bowel syndrome, dyspepsia, GERD, shingles (herpes zoster)

AIDS, acquired immunodeficiency syndrome; COPD, chronic obstructive pulmonary disease; GERD, gastroesophageal reflux disease; HIV, human immunodeficiency virus

**Table 5: Screening tools for anxiety/panic disorder**

Anxiety Disorder	Panic Disorder
Anxiety Disorder Diagnostic Questionnaire <sup>[14]</sup>	Panic Disorder Self-Report <sup>[18]</sup>
Generalized Anxiety Disorder 7 <sup>[15]</sup>	Panic Disorder Severity Scale <sup>[19]</sup>
Beck Anxiety Inventory <sup>[16]</sup>	Panic and Agoraphobia Scale <sup>[20]</sup>
Hamilton Anxiety Rating Scale <sup>[17]</sup>	NIMH Panic Questionnaire <sup>[21]</sup>
	Panic associated symptoms scale <sup>[22]</sup>

#### Treatment in an emergency setting

After careful history taking and a careful assessment, patients can be diagnosed with a physical illness or with anxiety or PD. If the patient is found to have a physical illness, he or she can be treated by the emergency physician immediately and later referred to the concerned specialist physician. If the patient is found to have a psychogenic panic attack or an anxiety disorder, he can be treated by the emergency physician to subvert the crisis situation and then referred to a psychiatrist. However, it is not uncommon for patients diagnosed with primary mental illness to have an underlying medical condition, and should be taken into consideration while treating the patient. Patients can be treated using both pharmacological and non-pharmacological measures.

#### Pharmacotherapy

The most important step in the management is to abort the panic attack. A benzodiazepine with rapid onset of action is the choice of pharmacotherapy. Alprazolam, lorazepam, and clonazepam are used to treat anxiety/panic symptoms. Alprazolam is usually started at a low dose of 0.25 mg, three times a day, but doses of 4 mg/day or more may be required.<sup>[23]</sup> The initial starting dose of lorazepam is 2 mg to 3 mg, can repeat the dose 2 to 3 times per day; the maximum dosage is 10 mg per day.<sup>[24]</sup> It can also be administered via intravenous (IV) or intramuscular (IM) injection (2 mg/mL solution, and 4 mg/mL solution). The onset of its action is 1 to 3 min if administered IV and 15 to

30 min if administered IM. Clonazepam is given orally at a starting dose of 0.25 mg and can be used with a maximum dose of 4 mg/day. Abrupt cessation of the benzodiazepines might lead to withdrawal and hence careful tapering of the medication must be done. Caution must be taken with the use of long-term benzodiazepines because of the dependence potential.

In the long-term treatment of anxiety/PD, selective serotonin reuptake inhibitors (SSRIs) are the first-line medications. Examples of SSRIs approved by the FDA to treat the PD include escitalopram, paroxetine, sertraline, and fluoxetine. Even though all of them are equally effective, because of their sedating property, paroxetine is more commonly used.<sup>[25]</sup> These medications must be titrated slowly and take several weeks to be effective. Common side effects of SSRIs include nausea, diarrhea, constipation, headache, tremors, agitation, dizziness, sweating, and sexual dysfunction. Tricyclic antidepressants include imipramine, clomipramine, etc. Serotonin-norepinephrine reuptake inhibitors (SNRIs) like venlafaxine are also used in the treatment of PD. A brief course of alprazolam can be prescribed in conjunction with an SSRI for short-term management of PD and should be slowly titrated when the therapeutic actions of the SSRI become apparent (2–4 weeks). Medications and their dosages used in PD are summarized in Table 6.

#### Non-pharmacological therapy

Most panic attacks spontaneously resolve within half an hour, and patients can sometimes present with the attacks subsiding or with feelings of anticipatory anxiety. Therefore, during such an attack, the treating physician should reassure the patient and explain the brief nature of the illness. Psychoeducation of the patient and the caregivers regarding the course and prognosis of the illness helps in alleviating the anxiety. For further information on psychoeducation in the management of anxiety, refer to Clinical Practice Guidelines for Psychoeducation in Psychiatric Disorders

General Principles of Psychoeducation.<sup>[26]</sup> In the long term, psychotherapies such as cognitive behavioral therapy,<sup>[27]</sup> interpersonal therapy, and mindfulness therapy can be used to treat PD, but also take effect after several weeks. Therefore, healthcare providers in the ED should properly refer and educate on general lifestyle recommendations to reduce and identify any anxiety-related symptoms, such as eliminating stimulants, obtaining adequate sleep, and exercising daily. In addition, relaxation techniques<sup>[17]</sup> can easily be administered in ED settings and have the potential to reduce anxiety. Deep breathing exercises,<sup>[28]</sup> which involve consciously slowing respirations and focusing on taking regular slow deep breaths have been shown to reduce anxiety or panic symptoms. Another strategy may include guided imagery,<sup>[29]</sup> where the emergency physician encourages the patient to imagine a serene location free of stress. Both of these methods may have a profound effect

on the anxiety of patients who present with a panic attack or known PD.

**Role of emergency physicians**

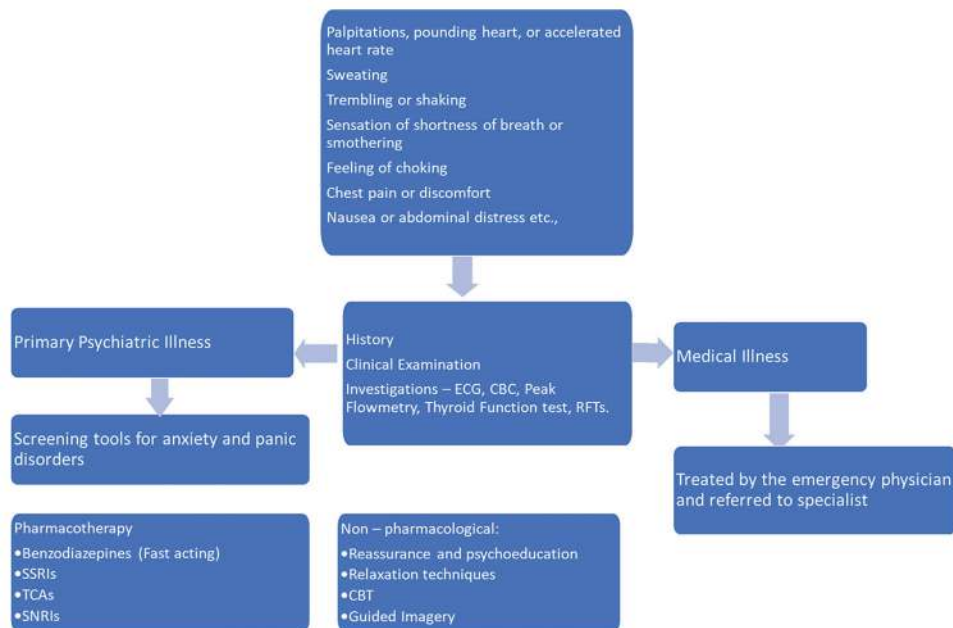
PD is a very common presentation in the primary care setting, especially in an ED. Most of the patients have cardiac, gastrointestinal, ear, nose, and throat (ENT), or neurological comorbidities. As the first point of contact with the patients, emergency physicians have an important role in the management of PDs. A holistic history and clinical assessment are of paramount importance. Early recognition and management help to reduce both morbidity and mortality. The emergency physician should be able to abate the panic attack and put in a referral to a psychiatrist especially if the patient has suicidality or any self-neglect or inadequate response to the primary intervention. Early referral decreases overall cost in the assessment and management of PDs.<sup>[30]</sup> The management of patients presenting to the emergency department has been summarized in Figure 1.

**Table 6: Medications used in anxiety/panic disorder**

Drug	Initial dose	Maintenance dose
<b>Benzodiazepines</b>		
Alprazolam	0.25-0.5 mg tid	0.5-2 mg tid
Lorazepam	1-2 mg bid	1-2 mg tid
Clonazepam	0.25-0.5 mg bid	0.5-2 mg bid
<b>SSRI</b>		
Paroxetine	5-10 mg	20-60 mg
Fluoxetine	20 mg	20-60 mg
Escitalopram	10 mg	10-20 mg
Sertraline	12.5-25 mg	50-200 mg
<b>TCA</b>		
Clomipramine	5-12.5 mg	50-125 mg
Imipramine	10-25 mg	150-500 mg
Desipramine	10-25 mg	150-200 mg
<b>SNRI</b>		
Venlafaxine	6.25-25 mg	50-150 mg

**SUMMARY**

Anxiety/PD is common in the general population and often presents to the ED. The emergency physician must be able to identify the underlying cause for the presentation, which could be either a primary mental illness or an underlying medical condition presenting with the symptoms of anxiety/PD to initiate proper treatment. Basic investigations help in the assessment of the symptoms. If the cause is an underlying medical illness, referral to the concerned specialist would be helpful and if symptoms are purely due to a primary mental illness, the patient can be screened for an anxiety or



**Figure 1:** Algorithm depicting the management of patients presenting to the emergency department with anxiety/panic symptoms

PD. Early and timely recognition of primary anxiety disorder helps in avoiding unnecessary investigations and can be treated with both pharmacological and non-pharmacological options. The main aim is to calm down the patient and abort the panic attack. Benzodiazepines and SSRIs remain the mainstay of treatment. Reassurance and psychoeducation of the patient as well as his caregivers help a long way in the management of the symptoms. Judicious use of medication, patient education, and referral to a physician whenever necessary improve the outcome of patients with this otherwise potentially disabling disorder.

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### Conflicts of interest

There are no conflicts of interest.

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# Clinical Practice Guidelines for Assessment and Management of Dissociative Disorders Presenting as Psychiatric Emergencies

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## INTRODUCTION

Dissociative disorders are quite often present in emergency/casualty. Commonly seen presentations in India include dissociative convulsions, motor symptoms, possession states, at times dissociative amnesia, and dissociative fugue. Dissociative identity disorder is a very rare occurrence in the emergency setting. It is challenging to examine a patient with a dissociative disorder in the emergency setting, consider differential diagnoses, rule them out, and manage the acute symptoms. Lack of privacy and space, time available for assessment, and risk of misdiagnoses are some of the drawbacks of managing dissociative disorders in casualty. A decision about inpatient or outpatient management needs to be made. One must also ensure that the patient follows up for further evaluation and long-term management. There are no standardized practices while dealing with dissociative disorders in an emergency setting.

In 2007, the Indian Psychiatric Society (IPS), published guidelines for the management of dissociative disorders. This was followed by an update on management in the child and adolescent age group in 2019 and one on psychological interventions in dissociative disorders in 2020. The current recommendations are primarily with respect to the management of dissociative disorders presenting as psychiatric emergencies. These will help clinicians in assessing, diagnosing, and treating dissociative disorders in an emergency setting. It is expected that these are tailored to suit the individual needs by the clinicians.

## EPIDEMIOLOGY

In a retrospective study by Naskar *et al.*,<sup>[1]</sup> an analysis of patients being referred to the psychiatry services was done. Patients were referred for “medically unexplained somatic complaints” (47.70%) or with “no physical illness detected” in 38.59%. Out of 1,153 patients seen by psychiatric emergency services, 43.45% received a diagnosis belonging to the ICD 10 category of F40-49, neurotic, stress-related, and somatoform disorders.

A study by Chaturvedi *et al.*,<sup>[2]</sup> reported the prevalence of dissociative disorders in the inpatient setting as 1.5 to 11.6 per 1000 and the outpatient setting as 1.5 to 15 per 1000. The commonest diagnosis among outpatients was dissociative motor disorder 43.3%, followed by dissociative convulsions 23.0% ad trance, and possession disorder 11.5%. Dissociative stupor was diagnosed in 6.6%, dissociative amnesia in 4.1%, mixed dissociative disorder in 4.1%, other dissociative disorders in 2.4%, dissociative fugue in 1.4%, and dissociative anesthesia in 0.8%. Similarly, the commonest diagnoses among inpatients were dissociative motor disorder (37.7%), dissociative convulsions (27.8%) the second most common followed by trance and possession disorders (5.3%), and dissociative stupor (5.3%). The unspecified dissociative disorders were seen in 6.3% of patients.

Another retrospective analysis by Grover *et al.*,<sup>[3]</sup> reported the prevalence of dissociative disorders as 53.9% among anxiety disorders presenting in the emergency services.

In a study conducted by Reddi<sup>[4]</sup> in the emergency psychiatric and acute care service of NIMHANS, the prevalence of dissociative disorders was 11.5 per 1000. The commonest presentation was dissociative motor disorder, dissociative convulsions. and mixed dissociative disorder.

Dissociative disorders have seen an evolution in conceptualization and there are differences in Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) and The International Classification of Diseases, Tenth Revision (ICD-10) in the definition and diagnostic categories of dissociative disorders. Dissociative disorders according to ICD 10 are disorders characterized by having loss of the normal integration (partial or complete) between memories of the past, awareness of identity and immediate sensations, and control of bodily movements.<sup>[5]</sup>

DSM 5 defines dissociative disorders as “a disruption and/or discontinuity in the normal integration of different domains such as consciousness, memory, identity, emotion, perception, body representation, motor control, and behavior”<sup>[6]</sup> Both ICD 10 and DSM 5 recognize the fact that

dissociative disorders have physical as well as psychological symptoms. DSM 5 diagnoses conversion disorder as a part of somatic symptom disorders, whereas ICD 10 includes it in dissociative disorders. We have followed ICD 10 in the current guidelines. The following are the dissociative disorders as per ICD 10 [Table 1].<sup>[6]</sup>

Table 2 enlists the common types of dissociative disorders that are seen in the emergency department (ED).

Concurrent psychiatric and physical illnesses are common in dissociative disorders. In the study by Reddi,<sup>[4]</sup> depressive disorder was seen in 11.2% of patients, adjustment disorder was seen in 3.1%, Cluster B was found in 9%, and Cluster C traits in 2.7% of patients. The risk of suicide was noted in 8% of patients. Epilepsy is known to occur with dissociative convulsions. A careful physical examination, a thorough mental state examination, and investigations to differentiate between medical illnesses and dissociative disorders are essential while managing dissociative disorders in an emergency setting.

## ASSESSMENT

The outline for the assessment of dissociative disorders in the Emergency Department has been displayed in the following flowchart [Figure 1]:

Studies have shown that among all psychiatric referrals in emergency settings, a call for the assessment of suspected dissociative disorder is the most common.<sup>[7]</sup> The tendency of dissociative disorders to emulate physical disorders makes assessment especially tricky. A wide range of medical conditions could mimic symptoms of dissociative disorders, medical conditions may produce and/or exacerbate psychiatric symptoms in patients already suffering from a mental illness, patients with pre-existing medical conditions can develop psychiatric symptoms and occasionally medical conditions and dissociative disorders can arise together. Failure to detect and diagnose underlying medical disorders may result in significant and unnecessary morbidity and mortality.<sup>[8]</sup>

In contrast, many other psychiatric disorders can either present like or be present along with dissociative disorders. The differential diagnosis that needs to be considered is enumerated in Table 3 below.<sup>[9]</sup>

The medical knowledge and skills a psychiatrist possesses are extremely valuable in an emergency, this is especially true for the evaluation of dissociative disorders. The assessment of suspected dissociative disorders in the ED can be guided by the following questions [Table 4]:

### History taking

The importance of detailed questioning about the current and past episode from the patient and an informant and

**Table 1: List of dissociative disorders as per ICD-10**

Dissociative amnesia
Dissociative fugue
Dissociative stupor
Trance and possession disorders
Dissociative motor disorders
Dissociative convulsions
Dissociative anesthesia and sensory loss
Mixed dissociative disorders
Other dissociative disorders
Dissociative disorder, unspecified

**Table 2: Common presentations of dissociative disorders in an emergency department**

Conversion disorder presenting as motor or sensory symptoms
Dissociative convulsions
Hyperventilation
Dissociative amnesia
Dissociative fugue
acute stress reaction
Possession states
Grief reaction presenting as a dissociative symptom

**Table 3: Differential diagnosis of a presentation of an acute dissociative episode**

Non-Psychiatric differentials	Psychiatric differentials
Epilepsy	Posttraumatic stress disorder
Transient global amnesia	Acute stress disorder
Post encephalitic amnesia	Psychotic disorders
Korsakoff amnesic syndrome	Substance-related amnesia
Post-traumatic amnesia due to brain injury	Depressive disorders
Stroke	Anxiety disorders
Multiple sclerosis	Dementia
Systemic lupus erythematosus	Delirium
Movement disorders	Somatoform disorder
Myasthenia gravis	Factitious disorders
Poliomyelitis	
Periodic paralysis	
Other neurocognitive disorders	
Malingering	

**Table 4: Guiding questions for the assessment of dissociative disorders**

Guiding questions for the assessment of dissociative disorders
Does the clinical presentation suggest a differential of dissociative disorders?
What is the specific type of dissociation disorder?
Could a physical disorder explain the set of symptoms?
Could a psychiatric disorder explain the set of symptoms?
Are there any associated psychiatric co-morbidities?

a comprehensive medical, family, personal, and premorbid history cannot be over-emphasized. Yet, focusing on certain specific pointers can act as clues toward making an accurate diagnosis for the patient. These have been discussed below.

### Onset, duration, and progression

The general age of onset of dissociative disorders is believed to be late adolescence to early adulthood, dissociative

identity disorder (DID) is an exception where the symptoms begin in early childhood. An equal number of males and females experience dissociative identity disorder; however, more females experience dissociative amnesia and dissociative movement disorders.<sup>[6]</sup> Various studies report the onset and termination of dissociative states as being sudden, the duration of each episode generally lasts for a few weeks or months, and at times more chronic states, particularly paralyses and anesthetics, may occur if they are associated with insoluble problems or interpersonal difficulties.<sup>[5]</sup>

**Precipitating stressors**

Dissociative disorders are closely associated in time with traumatic events, insoluble, and intolerable problems, or disturbed relationships. As per ICD 10, dissociation disorders can only be diagnosed if there is evidence for a clear association between the occurrence of a stressful event and the onset of dissociation symptoms even if the association is denied by the individual.<sup>[5]</sup> Dissociative amnesia is known to occur after traumatic events such as

war, abuse, rape, accidents, head injuries, natural disasters, and the death of loved ones.<sup>[10]</sup>

**History of childhood trauma**

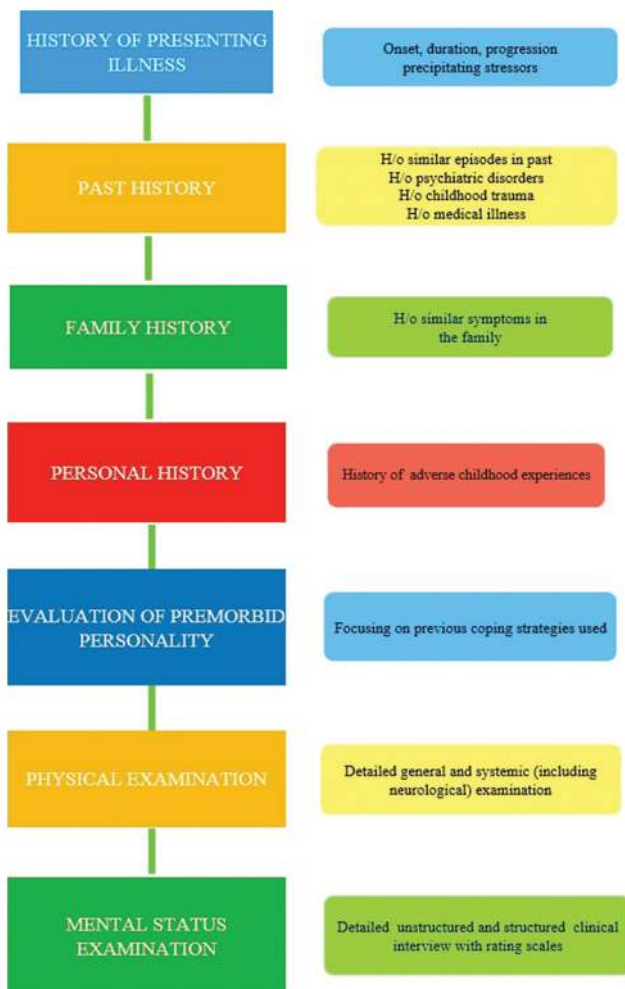
Among all psychiatric conditions, dissociative disorders are associated with the highest frequencies of adverse childhood experiences and hence a history of early-age trauma could be an indicator toward making a diagnosis. According to a meta-analysis of 34 retrospective studies, childhood maltreatment in the form of emotional neglect, sexual abuse, and physical abuse are more common in patients suffering from dissociative disorders of movement and sensation than in the controls.<sup>[11]</sup> Studies have consistently shown an association of DID with childhood abusive experiences typically by an attachment figure.<sup>[12]</sup> Dissociative amnesia is caused by several factors, one of which is traumatic events. These include war, abuse, rape, accidents, head injuries, and natural disasters. Dissociative amnesia is also caused by life stressors, such as abandonment, financial worries, the death of a loved one, or marriage.<sup>[10]</sup>

**Characteristic clinical presentations of dissociative disorders in emergency settings**

*Dissociative Amnesia*

Dissociative amnesia is seen very infrequently in our emergency settings. In the study conducted by Reddi,<sup>[4]</sup> out of 187 patients with dissociative disorder, patients seen in the emergency and acute services only one patient had dissociative amnesia. Dissociative amnesia is characterized by memory loss where a person is unable to recall important information in their personal life. This is usually associated with severe trauma, severe emotional stress, and internal conflict. Usually, there is a history preceding the traumatic event. This memory loss cannot be explained by ordinary forgetfulness. It is not due to substance use or a medical condition [Table 5].<sup>[5]</sup>

Patients present in the casualty with various features including physical symptoms, regression to younger age, depersonalization, derealization, perplexed effect, attention-seeking behavior, and trance states. Patients may have depression and a risk of suicide. There is often a history



**Figure 1:** Outline for the assessment of dissociative disorders presenting as psychiatric emergencies

**Table 5: Types of dissociative amnesia according to DSM 5<sup>[6]</sup>**

Localized amnesia	Loss of memory related to events during a specific period
Selective amnesia	Loss of memory related to some events but not all occurring during a circumscribed period of time
Generalized amnesia	Loss of memory about one’s entire life
Continuous amnesia	Loss of memory of events one after another sequentially
Systematized amnesia	Loss of Memory of certain specific events such as all memories relating to one’s family or a particular person

of trauma in childhood or in the past. Dissociative amnesia is often seen in combat-related trauma. These patients are usually young adults, and it is rarely seen in elderly individuals. A family history of somatoform disorders and dissociative disorders is seen in some patients.<sup>[5,13]</sup>

#### *Dissociative fugue*

It has all the features of dissociative amnesia, along a journey away from home or place of work. This journey characteristically appears purposeful, and the person's self-care is maintained throughout. In some cases, during the period of travel, a new identity may be assumed with a surprising degree of completeness, and the individual's behavior during this time may appear completely normal to independent observers. Organized travel may be to places previously known and of emotional significance.<sup>[5]</sup>

#### *Dissociative motor disorders*

The dissociative motor disorder includes loss of ability to move one or more than one limb, incoordination and/or trembling or shaking of one or more extremities or the whole body. Paralysis may be partial (presenting with weak or slow movements) or complete. Some dissociative motor disorders may be hard to differentiate from various forms of ataxia, apraxia, akinesia, aphonia, dysarthria, dyskinesia, or paralysis.<sup>[5]</sup>

#### *Dissociative anesthesia and sensory loss*

Cases of dissociative anesthesia and sensory loss generally present to the ED with complaints of sudden hemisensory loss or as a sensory loss not conforming to known neuroanatomical distributions, for example, anteriorly at the level of the trunk, without similar posterior involvement. Sensory complaints can be isolated or accompanied by motor weakness and are frequently associated with complaints of paraesthesia.

Cases, commonly in children and adolescent age groups, can also present to the ED with dissociative visual loss (usually in the form of loss of visual acuity, blurring, or visual field restriction such as tunnel vision), and hearing loss.<sup>[14]</sup>

#### *Dissociative convulsions*

Dissociative convulsions are characterized by episodes similar to seizure episodes but do not have any seizure activity on video electroencephalogram (EEG). These episodes are characterized by various symptoms including motor, sensory, autonomic, and/or cognitive signs.<sup>[15]</sup> Dissociative convulsions are one of the commonest presentations in emergency settings in India.<sup>[4]</sup> Dissociative convulsions are not under the patient's voluntary control and represent their involuntary response to emotional stress. Noteworthy points in clinical history include specific emotional triggers such as emotional arousal, pain, patterns such as head-shaking or irregular, asynchronous limb movements, noises, and light.<sup>[16]</sup>

#### **Trance and possessions**

Most cases of trance and possession disorder (commonly referred to as dissociative trance disorder or DTD) present with attacks of possession by culturally known local entities such as deities, the devil, malevolent spirits, deceased relatives or ancestors, and animals. Very frequently, the episodes are associated with visual/auditory hallucinations, fearfulness, and paranoia, making them difficult to differentiate from acute psychotic disorders. The transient alteration in consciousness as a part of DTD can also be associated with self-mutilating behaviors including suicide attempts. Although possessed entities frequently threaten the accompanying family members with violence, physical acts of aggression toward others have been documented less commonly, including ritualistic homicide in rare cases.<sup>[17]</sup>

Table 6 enlists the differentiating clinical features of the types of dissociative disorders.<sup>[5]</sup>

#### **Clinical features differentiating other psychiatric disorders**

Not so infrequently, other psychiatric disorders can themselves present with dissociative symptoms such as dissociative convulsions, depersonalization/derealization episodes. Dissociative symptoms can be observed in PTSD, psychotic disorders, mood disorders, and neurocognitive disorders. Some points that can help differentiate dissociative disorder from other psychiatric disorders are mentioned in Table 7.<sup>[15]</sup>

#### **Clinical features differentiating from intentional production of symptoms**

Considering the absence of organic etiopathogenesis and its associated investigative markers is a feature of dissociation, factitious, and malingering, differentiating between the three can be challenging and relies on history taking and clinical features. According to the model of compensation neurosis, conversion disorders, factitious disorders, and malingering lie on a spectrum where the latter two are said to be intentionally produced, whereas the former is not. In factitious disorder, deceptive behavior has an internal motivation and is evident even in the absence of external rewards, whereas malingering is motivated by external incentives, such as an attempt to avoid working, obtain financial benefits, evade criminal charges, or procure drugs. Detailed past history often identifies the signs of simulation in childhood and adolescence. Careful examination of previous medical records shows an unusually large number of childhood illnesses along with signs of psychiatric disorders such as substance abuse, mood, and personality disorder. Another sign is the patient resisting access to information from other sources.<sup>[18]</sup>

#### **Clinical features to differentiate from medical disorders**

Ruling out medical disorders based on history is challenging; however, certain questions could indicate an

**Table 6: Differentiating clinical features between various types of dissociative disorders**

Dissociative amnesia	Dissociative Fugue	Dissociative Motor disorders	Dissociative anesthesia Sensory loss	Dissociative stupor	Dissociative convulsions	Trans and possession
Inability to recall recent events, Usually that of personal importance	An apparently purposeful journey away from home or workplace along with loss of memory of the event	A complete or partial loss of ability to move one or more than one limb	A complete or partial Sensory loss in one or more modalities	A decrease or absence of voluntary movement and responsiveness to external stimuli.	Movements that resemble epileptic seizures	A partial or complete loss of sense of awareness of one's surroundings along with loss of one's identity.

**Table 7: Differentiating dissociative disorder from other psychiatric disorders**

Symptom/ Disorder	Differentiating features
Forgetfulness	Unrelated to trauma or stress, memory loss is less extensive
Delirium	Disturbances in sensorium, disorientation, perceptual disturbances, medical etiology.
Dementia	Many cognitive domains are affected. Autobiographical memory was affected late in the course. Psychobehavioral symptoms present
Substance use disorder	History of substance use present, amnesia, and/or travel is associated with the time of abuse of the substance.
Acute stress disorder and PTSD	May coexist with dissociative amnesia. Other features of ASD and PTSD are seen.
Schizophrenia	Memory loss may occur during an acute episode However, delusions and hallucinations and usually present. Wandering and travel may also occur. Often the person calls attention to himself or her self-owing to inappropriate behavior.
Somatiform disorders	Can present with sensory motor symptoms similar to dissociative disorders; however, the former is a chronic illness that begins early in life and includes symptoms in many other organ systems

organic pathology. Epilepsy is an important differential of dissociative disorders, clinical features differentiating dissociative convulsions and epilepsy is as mentioned below in Table 8.<sup>[19]</sup>

Amnesia can also follow an episode of seizure. Complex partial seizures may occur along with automatisms. Transient global amnesia is seen in older individuals, cerebrovascular risk factors are present along with the sudden onset of anterograde amnesia, loss of new learning capacity, autobiographical memory intact, insight into memory loss present and there is complete recovery.<sup>[13]</sup>

### Clinical interview

Interview of the patient can be done in an unstructured manner in the form of asking questions pertaining to the symptoms of dissociative disorders, some of the questions are outlined in Table 9 below. It can also be done in a structured manner in the form of scales [Table 10]. It is important to note that along with these questions, the importance of a comprehensive mental status examination should not be de-emphasized.<sup>[15]</sup>

### Clinical examination

A thorough head-to-toe examination is as important as a good clinical history while evaluating a suspected case of dissociative disorder in the ED. The examination should focus on ruling out the primary medical causes enlisted above as well as gathering information in support of a dissociative etiology.

The bedside neurological exam is the core element used to make a diagnosis of dissociative disorders, especially those of dissociative motor and/or sensory symptoms. Examination findings can often be subtle and warrant practice to avoid misdiagnosis; thus, the specificity of signs may be reduced in individuals showing “marginally” positive signs or when performed by clinicians who have more limited expertise. A systematic and narrative review by Daum *et al.*<sup>[20]</sup> evaluated many signs for functional neurological symptoms, they found that 14 have been validated, these tend to have low sensitivity but a high specificity value that suggests that even though they are not always present in patients with functional symptoms when positive they help into “RULE IN” dissociative disorders. These along with their descriptions are mentioned in Table 11.

### Investigations

Because a large number of medical disorders can present with dissociative symptoms, the investigations that can be done on an emergency basis are limited, they are alluded to in Table 12 presented below.<sup>[15]</sup>

## MANAGEMENT

Generally, the main goal of treatment in dissociative/conversion disorders is improvement in the patient's adaptive functioning via psychotherapy techniques focusing on the stressors rather than the dissociative episodes. However, an acute dissociative episode, especially in those with a hitherto undiagnosed illness, can be an extremely harrowing experience for the patient as well as their family members. Apart from this, certain cases can also present a considerable risk of harm to self or others. Hence, in emergency settings, the most important goals for management are safety and symptom reduction. Table 13 outlines the key principles to be remembered for the same:

A flow chart for the management of dissociative disorders presenting in the ED has been summarized in Figure 2.



**Table 8: Differentiating between epileptic seizures and dissociative convulsions**

Favoring epilepsy	Favouring dissociative convulsions
Pre-ictal	
Unrelated to stressful events	Precipitated by stressful events
Sleep: occurs in physiological sleep	Usually, occurs while awake
Occur even when alone	Mostly around people
Frequently preceded by the presence of an aura	Not preceded by an aura
Ictal	
Gradual occurrence	Sudden occurrence >2 min, frequently variable.
Duration: <2 min, generally fixed	The patient's speech is coherent and the tone is usually sad
Patients speech is incoherent and consists of monotonous, meaningless phrases, or sounds (epileptic cry)	Present
Head rotation movements: Absent	Pupils appear normal
Pupils are dilated with altered reaction time	Inconsistent increase in heart rate
Consistent increased heart rate	Urinary incontinence is extremely rare
Urinary incontinence commonly occurs	Tongue bite is usually on tip of the tongue
Tongue bites usually on the lateral side	Eyes closed usually
Eyes mostly open	Focal neurological deficits do not occur
Focal neurological deficits can occur	Rug burns or excoriations due to vigors movement are more common
Fractures or ecchymoses due to falls are seen	
Post Ictal	
Recovery is gradual with postictal amnesia and headache common	Recovery is sudden with postictal amnesia and headache not seen.

**Table 9: Important interview questions to elicit dissociative symptoms**

Interview questions
Do you ever experience blackouts, blank spells, or memory lapses?
Have you found yourself to have lost time that you cannot explain?
Do people tell you about the behavior you exhibited that you are unable to remember?
Do you ever find yourself far away from your home or workplace and not know how you got there?
Do you find objects in your possession that you do not remember ever having?
Do you find that your objects are missing or not in their usual place?
Do you have thoughts or feelings that are not in your control or not yours? Do they come from inside or outside you?

### *Establishing safety*

The foremost task when a dissociative disorder presents acutely to the ED is to establish the safety of the patient and/or surrounding people, followed by symptom reduction.<sup>[21]</sup> Table 14 covers the points to be ensured for the same.

### *Establishing a therapeutic alliance*

The establishment of a good rapport and therapeutic alliance with both the patient and family members is fundamental for successful treatment. This makes it easier for the family members to understand the doctor's point of view, particularly in cases where their behaviors and interactions with the patient have a contributory role in the disorder. Similarly, a compassionate understanding of patients' and their caregivers' perceptions of the symptoms is also important.

### *Employing relaxation techniques*

In patients who present with acute conversion symptoms such as hyperventilation or a dissociative convulsion attack, relaxation techniques targeting the anxiety such as slow, deep breathing can help in reducing the intensity of the attack and thereby help in early termination. Calm

and precise instructions along with verbal suggestions to the patient go a long way over medications in causing a reduction of the symptoms.

### *Using grounding techniques*

Patients with dissociative disorders and a history of trauma often experience acute dissociative episodes characterized by a subjective feeling of emotional numbing, depersonalization, and flashbacks of the traumatic past secondary to ongoing stress or anxiety. Sometimes, a patient may present to the ED in such a state, even if the present situation no longer poses any kind of danger.

Grounding techniques are designed to connect the patient back to reality and the present moment, thereby reducing the intensity of the dissociative (trance, depersonalization, etc.) episode. With practice, it also helps in preventing such spontaneous episodes, including the switches in dissociative identity disorder (DID). The techniques employ simple instructions to improve the patient's sensory awareness (awareness of the body's position using any of the five senses) or cognitive awareness (awareness of themselves and the place/people around them) of the present moment.<sup>[22]</sup> The details are mentioned in Table 15.

### *Talking through*

At times when dissociative trance/possession disorders are in an acute spell or patients with multiple personality (dissociative identity) disorder present switches, they can present to the ED in a state of acute excitement/agitation. In such cases, instead of resorting to the more aggressive methods of physical or chemical restraining, it is possible to tide through the acute situation merely by compassionate listening and talking directly to the possessing entity/personality system. This involves acknowledging the personality system, directly addressing

**Table 10: Various assessment tools available for screening dissociative disorders<sup>[15]</sup>**

Scales	Type	No. of questions
Dissociative Experience Scale	Self-report	28 items
Somatoform Dissociation Questionnaire	Self-report	20 items
Somatoform Dissociation Questionnaire-5	Self-report	5 items
Peritraumatic Dissociative Experiences Questionnaire (PDEQ)	Self-report	10 items
Cambridge Depersonalization Scale (CDS)	Self-report	29 items
Clinician-Administered Dissociative States Scale	Clinician administered	28 items
Multidimensional Inventory of Dissociation	Self-report	218 items

**Table 11: Clinical signs during neurological examination to 'rule in' dissociative disorders**

Functional disorder	Test	Description
Motor symptoms	Hoover sign	After the patient lies in a supine position, the examiner puts his hand under the heel of the non-paralyzed leg and instructs the patient to try lifting the paralyzed leg. Sign (-) ve if downward pressure is exerted by the non-paralyzed leg on the examiner's hand Sign (+) ve no pressure is exerted by the non-paralyzed leg on the examiner's hand. Sign (+) ve indicated a dissociative cause
	Abductor sign	After the patient lies in a supine position, the examiner puts both hands on the lateral side of the patient's legs and puts adducting pressure equally with both hands. The patient is told to abduct the non-paralyzed leg while the examiner observes the movement of the paralyzed leg. Sign is (-) ve if the paralyzed leg moves towards the midline Sign is (+) ve if the paralyzed leg stays in the Same position Sign (+) vs indicates dissociative etiology
	Abductor finger sign	The patient sits on a chair resting both forearms on board and suspending hands in the air. The patient is instructed to abduct the fingers of the non-paralytic hand for 2 min against the resistance provided by the examiner's hand. Sign (-) ve if the paralytic hand remains in the same position Sign (+) vs if the paralytic hand also abducts due to synergy. Sign (+) ve indicates dissociative etiology
	Spinal injury test	After the patient lies in the supine position, the examiner lifts the patient's knees on the bed and then releases the knees gently Sign (-) ve if the legs become straight Sign (+) ve if the knees remain lifted Sign (+) vs indicates dissociative etiology
	Collapsing/give-away weakness	In dissociative motor disorders, the limb initially provides resistance to light touch but then suddenly gives away and collapses.
	Co-contraction	Observation during muscle strength testing (or with surface electromyogram) Sign(+) ve if simultaneous contraction of agonist and antagonist results in no/little movement
	Motor inconsistency	In dissociative disorders, some moments of a muscle group are possible, whereas other movements of the same muscle group are impaired
Sensory Symptoms	Midline splitting	Dissociative cause is more likely if there is an exact splitting of sensation in the midline
	Splitting of vibration	Dissociative disorder is more likely if a difference is found in the sensation of a tuning fork placed over the left compared to the right side of the sternum or frontal bone
	Nonanatomical sensory loss	Dissociative disorder is more likely if the Diminished sensation fits a 'non-dermatomal pattern' distribution
Gait symptoms	Inconsistency/changing pattern of sensory loss	In dissociative disorders, the sensory loss is generally inconsistent and non-reproducible on repeated sensory testing
	Dragging monoplegic gait	In dissociative disorders, during walking, the paralyzed leg instead of performing a circumduction is dragged at the hip behind the body.
	Chair test	If the patient is able to propel a swivel chair better than walking then a dissociative cause is more likely.

**Table 12: Advisable investigations in emergency settings while evaluating dissociative disorders**

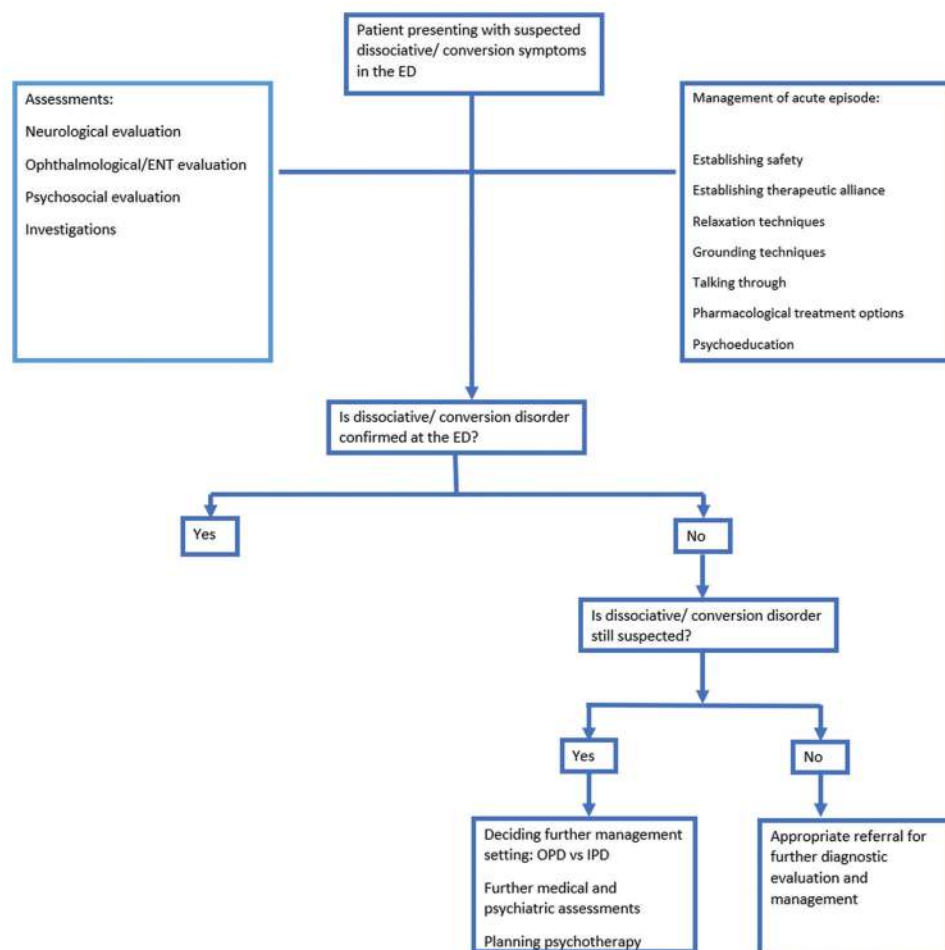
EEG-to rule out seizure disorders
CT scan of head/MRI brain-to rule out structural lesions of the brain
Drug urine screening to rule out substance use disorder
Serum prolactin to rule out seizure disorder
Complete blood count, blood sugar levels, and serum electrolytes to rule out physical disorders

the internal conflict, and emphasizing the need of working together to ensure good adaptive functioning. Similarly, in the

case of the possession spell, a balance of modern techniques and culture-specific traditional approaches frequently may be required. This involves acknowledging the 'entity,' listening to its needs and then persuading it to leave the body. For this, a non-judgmental acceptance of the patient's/caregiver's perception of the symptoms is paramount.

#### *Pharmacological management*

Due to varied clinical presentations frequently overlapping with medical conditions and a tendency of patients/



**Figure 2:** Outline of management of acute dissociative episode presenting in emergency settings

**Table 13: Key principles of management of psychiatric emergencies in dissociative disorders**

Key principles of management of psychiatric emergencies in dissociative disorders

- Ensure the safety of the patient, the bystanders as well as your own
- Avoid confronting patients in the ED with the opinion that the symptom is of psychological origin as this is likely to hinder the formation of a therapeutic alliance.
- Judicious but thorough investigative workup and referral to rule out a primary medical cause of presenting symptoms.
- Avoid unnecessary evaluation of symptoms as it can lead to fixation on symptoms and hinder treatment
- Remember that diagnosis of dissociative/conversion disorder is not based on negative medical workup since both can co-exist not so infrequently.

caregivers to resort to more traditional methods of treatment (e.g., faith healers, shamans), very few studies have been able to systematically investigate the pharmacological management of dissociative disorders in an acute setting. Apart from this, no psychotropic medications have been specifically recommended or have been found to be useful for the management of dissociative disorders, unless there is a presence of comorbid psychiatric conditions such as depression or anxiety disorder.

For the management of dissociative disorders in emergency settings, benzodiazepines and antipsychotics have been the most used psychotropic agents based on data available from case series and open-label studies.<sup>[23]</sup>

For treatment of acute anxiety associated with a dissociative/conversion episode, benzodiazepines (BZDs) such as lorazepam (2 mg) and clonazepam (0.5 mg) can be administered per orally (PO). In cases where immediate action is warranted, as in the case of acute agitation, lorazepam 2 mg can be administered intramuscularly (IM) or intravenously (IV), with repeat dosing in 30 min if required.

In cases of severe psychotic agitation/excitement, particularly when the distinction between a primary psychotic disorder and dissociative disorder may be unclear, IM haloperidol up to a dose of 5 mg can be administered along with promethazine 25 mg can be administered. If required, the dose may be repeated after 1 to 2 hours.

Coadministration of IM haloperidol 5 mg with lorazepam 2 mg may have an additive calming effect, but with a higher chance of sedation.

Unless the diagnosis of dissociative convulsion is unclear, empirical antiepileptics are not recommended after an acute non-epileptic seizure attack.

Importantly, it must be noted that excessive reliance on PO benzodiazepine preparations (such as sublingual formulations) for managing every acute episode can promote a secondary gain in the patient. Similarly, in cases of patients with established/clear diagnoses of dissociative disorders who come to emergency services in an acute attack, the family members should be tactfully explained that medications are neither required nor approved for dissociative symptoms. Otherwise, the caregivers may perceive that the doctor is unable to diagnose/treat the presenting illness. Moreover, unnecessary reliance on medications may lead to the patient/family members losing their focus on the non-pharmacological modalities of treatment due to the belief that the medications will cure the dissociative/conversion symptoms.

However, in some cases, administration of a placebo with verbal suggestions may also be required to ensure proper follow-up of the patient and caregivers for further sessions, particularly in those with poor psychological awareness, poor support system, and in those insisting on medications.

**Table 14: Important points while establishing safety in an acute presentation of dissociative disorder**

Establishing safety during an acute presentation of dissociative disorder in the ED

- Always remain calm and reassuring.
- Isolate the patient, preferably in a separate quiet room.
- Ask the family members and/or the bystanders to leave the room unless their presence is specifically warranted.
- Ensure that the environment is free of sharps or any potentially harmful substances
- Monitor airway, breathing, and circulation (in case of an acute dissociative convulsion attack).
- Avoid administering noxious stimuli (such as ether inhalation or sternal pressure) in case of a stuporous/unresponsive patient.
- In case of marked excitation/agitation with risk of harm to self/others, use verbal de-escalation techniques to calm down the patient. However, keep nursing staff on standby for physical/chemical restraining in case verbal de-escalation fails.
- Always ensure your own safety as well as that of others.
- Stay with the patient till the symptoms begin to improve.

**Table 15: Important grounding techniques that can be used in emergency settings**

Grounding techniques that can be used in the ED

Improving sensory awareness:

- Asking the patient to focus on the sound of a clock or the doctor’s voice (auditory)
- Asking the patient to identify 10 colors in the room (visual)
- Making the patient hold an easily accessible palm-sized object in their hand (touch)

Improving cognitive awareness:

- Orienting the patient to name, age, day, date, and location

*Psychoeducation*

Psychoeducation of family members forms a crucial part of the management even in acute settings. Efficient communication about the nature of the disorder and its symptoms and the role of establishing trust and ensuring follow-up for treatment. Key points have been mentioned in Table 16.<sup>[24]</sup>

*Determination of further management plan*

Once the acute symptoms have subsided in the ED, a plan for further management can then be formulated. For detailed evaluation, planning further psychotherapeutic approaches, and managing interpersonal conflicts, the choice of treatment setting between OPD and indoor management has to be decided upon. Hospitalization is recommended in certain situations as mentioned in Table 17.<sup>[25]</sup> Otherwise, the patient can be asked to follow up on an OPD basis for further treatment.

**Table 16: Key points to be conveyed to caregivers during psychoeducation regarding dissociative disorders**

Key points to be conveyed during psychoeducation

- Acknowledging and reinforcing the genuineness of the presenting symptoms.
- Explaining that the presence of symptoms in the absence of a physical illness is common.
- Using metaphors to describe the functional/psychological nature of symptoms, for example, similar to a “software rather than a hardware problem” and that the symptoms occur when the “computer crashes” can be helpful in conveying the nature of the illness.
- Explaining the relationship between the mind and body and how stress and emotions can lead to physical manifestations, for example, physical manifestations of anxiety
- Reassuring that the symptoms are not dangerous or life-threatening (except in cases involving self-harm or harm to others)
- Instructing family members to avoid promoting secondary gain during an acute episode
- Highlighting the importance of psychological treatment focusing on stressors in reducing the frequency/intensity of dissociative symptoms, managing stress, and improving the adaptive functioning of the patient.
- Conveying the role of medical treatment as only for comorbid depression or anxiety.
- Promoting a hopeful sentiment of improvement with proper treatment using available approaches

**Table 17: Indications for hospitalization in dissociative disorder presenting as a psychiatric emergency**

Indications for indoor treatment of dissociative disorder presenting as a psychiatric emergency

- Unclear diagnosis (possibility of an underlying primary medical cause for symptoms or clarification of complex psychopathology)
- Risk of harm to self (self-mutilation or persistent suicidal ideations) or others
- Presence of overwhelming dissociative/conversion symptoms causing significant disability
- Severe perceived disability by family members
- Presence of medical co-morbidities requiring intensive monitoring and treatment
- Progressive worsening of the clinical picture due to poor adherence to treatment or a recent crisis in patient’s life

## CONCLUSION

This CPG explores the variety of ways in which dissociative disorders can present in an emergency setting and provides approaches toward their diagnosis and acute management. There may be a significant overlap between the presentation of dissociative disorders and medical illnesses (especially neurological) in emergency settings. A detailed history exploring the semiology of the episodes, temporal relation with stressful events, comorbid psychiatric illnesses, and a thorough clinical examination is important to differentiate the same. In many cases, certain investigations may be required before reaching a clear diagnosis. Due to the presence of co-morbid psychiatric illnesses and the associated psychosocial stressors, a holistic management plan that includes psychotropics, as well as psychosocial interventions, may be required.

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### Conflicts of interest

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# Clinical Practice Guidelines for Assessment and Management of Patients with Substance Intoxication Presenting to the Emergency Department

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## INTRODUCTION

The International Statistical Classification of Diseases and Related Health Problems, revision 10 (ICD-10) describes intoxication as “a transient condition following the administration of alcohol or other psychoactive substance, resulting in disturbances in level of consciousness, cognition, perception, affect or behavior, or other psychophysiological functions and responses.”<sup>[1]</sup> Intoxication is generally an acute phenomenon, the intensity and effects of which wear off with time and disappear completely in the absence of further use of the substance.

While most episodes of intoxication do not need medical attention, intoxicated patients may sometimes present to the emergency department.<sup>[1]</sup> The reasons for seeking medical attention may either be due to the substance use itself (e.g., extreme agitation or violent behavior that may endanger the patient or others around them) or due to an adverse consequence of substance use (e.g., head injury in a road traffic accident that occurred due to driving while intoxicated).

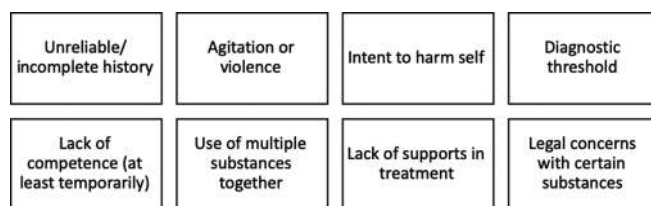
Common substances of intoxication encountered in the emergency setting in India are alcohol, cannabis, opioids, and benzodiazepines. Cases of intoxication from other substances like inhalants, stimulants, hallucinogens, and newer psychoactive substances including synthetic cannabinoids and club drugs may also present to the emergency unit. Often the substance of intoxication may be unknown or falsely reported due to fear of legal ramifications or there may be use of more than one intoxicating substance, thereby complicating the clinical picture. Patients may present with decreased levels of consciousness, vomiting, seizures, or other symptoms that may resemble other medical or surgical emergencies. It is, thus, imperative that psychiatrists attending to patients in the emergency department be well-versed with identification, assessment, and management of patients with substance intoxication.<sup>[2]</sup>

Caring for intoxicated patients in the emergency department comes with various other issues that require

a psychiatrist's time and effort. These patients may be brought into the emergency department against their wishes and refuse medical care. They may also be brought in for medical attention by law enforcement authorities with no available identification details and reliable history or even in association with an alleged crime or illegal activity, making it essential for the emergency care provider to be competent in dealing with the medicolegal aspects of intoxication and providing optimum medical services to the patient along with safeguarding the legal procedures. The present clinical practice guidelines deal with the assessment and management of patients with substance intoxication presenting to the emergency department. The guidelines present the general considerations while attending to a substance intoxicated patient, followed by general signs of intoxication. Thereafter, details of intoxication with specific substances are discussed, namely, alcohol, cannabis, opioids, benzodiazepines, and other substances. Features of intoxication, assessment, and management are discussed for each of these substances. Multiple substance intoxication is also discussed in the guidelines. Special populations are referred to in the guidelines, including children and adolescents, women, and the elderly population. The guidelines do not cover nicotine or caffeine intoxication (these are unlikely to be encountered in a clinical setting). Accidental ingestion of substances of use is not catered to in these guidelines. We also do not go into details of intoxication presenting with additional psychiatric and/or medical illnesses and each such case is likely to be unique with its own specific constraints and challenges in management.

### General considerations while attending to a substance intoxicated patient

Patients with intoxication with a substance of abuse present several challenges during assessment and management [Figure 1]. One of the foremost concerns is the potential unreliability of history. Patients with substance intoxication may give inaccurate or unreliable history. This may be partly attributable to patients trying to minimize their substance use, not recollecting details adequately



**Figure 1:** Challenges in assessment and management of patients with substance intoxication

due to cognitive impact of the substance, concealment of the details of substance use from the family, or avoiding sharing details to prevent legal ramifications. Thus, multiple sources of information can be referred to obtain a more comprehensive account of the patient's condition. Friends, family, and previous treatment records can be useful sources of collateral information about the patient. In some circumstances, physical examination and mental status examination of an uncooperative patient can be helpful to get a clearer clinical picture of the patient (e.g., injection track marks can hint at opioid overdose in an otherwise comatose patient).

Another challenge that comes across in patients with intoxication is the occurrence of agitation or violence. Some of the intoxications with substances like alcohol and stimulants like cocaine may be associated to aggression. Aggression may be due to disinhibition and impaired judgement associated with substance use. Furthermore, substance use disorder may be associated with other psychiatric or medical illnesses that may individually contribute to the state of agitation or aggression. Addressing aggression promptly is required to prevent harm to the self and others. Other relevant guidelines of the Indian Psychiatric Society may be referred to while addressing aggression and violence when patients with substance intoxication present to the emergency department.

A related issue is the consumption of substances or presentation with substance intoxication when the patient intends to kill themselves. This may be a presenting feature in patients with overdose of opioids or sedative-hypnotics. Sometimes, patients may also consume large amounts of alcohol when they have an intent to die. Thus, self-harm should be considered as a possibility when patients present with substance intoxication, and suitable assessment measures should ascertain risk to self and the presence of concurrent psychiatric disorder. If required, additional treatment should be instituted for the patient.

A relevant aspect of consideration is to determine the line between simply the use of a substance or substance intoxication. Description in the ICD-11 mentions substance intoxication as occurrence of "clinically significant disturbances in consciousness, cognition, perception, affect, behavior, or coordination that develop during or

shortly after the consumption or administration."<sup>[3]</sup> Hence there is a leeway for the clinician to determine what is considered as "clinically significant". One way to simply operationalize is to consider any clinical encounter with a patient having a recent history of substance use which has resulted in the abovementioned mental or neuropsychiatric disturbances and are brought to the emergency/clinical setting as "clinically significant" (those situations where these disturbances are expected by the person and are found to be pleasurable would be considered simply as use). The disturbances are described as transient and reversible, and hence they are expected to abate with time.

Patients with substance intoxication may have an issue related to their mental competence. Substance use may result in impairment of judgement or consciousness. This may result in impairment of competence, that is, the ability of the person to comprehend choices, decide a course of action, and communicate their choice back. This lack of competence has a bearing on treatment choices that should be instituted and promulgation of coerced treatment. It is generally accepted that when a person is not found to be competent, the nominated representative can be the proxy decisionmaker for the person. The treatment providers can also institute emergency treatment in the best interests of the patient. Furthermore, substance intoxication is a reversible process, so if emergency treatment is not required, then one can wait for the patient to re-attain competence as the substance intoxication wanes.

A clinical consideration for patients with substance use disorders is the concurrent use of many substances together. This may lead to the clinical picture being altered or complicated by features of intoxication or withdrawal from different substances. For example, a patient with opioid dependence may experience sedation during intoxication. If benzodiazepines or alcohol are used concurrently with opioids, then the sedation may be accentuated. In such a patient, reversal using naloxone may offset the features of intoxication from opioids, but not reverse the effects of benzodiazepines. Similarly, intoxication from cocaine and other stimulants may lead to paranoia, which may be accentuated by the consumption of higher than usual amounts of cannabis. Thus, a clinician needs to be open to the idea of multiple substance consumption in a patient with substance intoxication.

Another issue in the clinical management of patients with substance intoxication in the emergency setting is the potential lack of social support in the treatment process. Patients may be consuming substances alone, or it is possible that casual acquaintances do not intend to help or are not in a position to help (due to their own intoxication as well). Family and friends may be disinclined or burnt out due to the substance use disorder and hence may not be forthcoming in engaging with the care process. Thus, the ancillary supports

available in the treatment process of patients with substance intoxication may be few. Sometimes, police or other bystanders may bring a patient with substance intoxication to the emergency unit and the identity of the patient may be unknown to them. Thus, clinicians may have to work with limited information on occasions.

There may be legal concerns with the consumption of certain substances considered illegal under the Narcotic Drugs and Psychotropic Substances Act, 1985. This may make patients hesitant to disclose use of some of the substances; for example, heroin. Treating psychiatrists might also be apprehensive about documentation. However, it should be reiterated that clinicians can help patients better if they are able to get a reliable history of the patient. Thus, it would be preferable to gather detailed information and document suitably while ensuring confidentiality of the treatment records and providing reassurance about this to the patient. It might also be prudent to perform urine or blood testing for substance abuse, ensuring a safe chain of custody of the sample. It is unlikely that such treatment records are referred to by the legal process, but a psychiatrist may need to present the relevant information to courts when requested through due processing.

#### General signs of intoxication

As specified in the ICD-11,<sup>[3]</sup> intoxication from one or more psychoactive substances may be suspected in cases where the following features are present:

1. Transient, but clinically significant disturbances occur in consciousness, coordination, perception, cognition, affect, or behavior that develop during or shortly after the consumption/administration of the substance(s)
2. The symptoms are in accordance with the known pharmacological effects of the substance. The intensity of the symptoms is closely related to the amount of substance consumed/administered.

3. The symptoms are time-limited and subside as the substance is cleared away from the body.
4. The symptoms cannot be better explained by another medical condition or another psychiatric disorder.

Table 1 enumerates signs and symptoms of intoxication with different substances.

#### General management of intoxicated patients in the emergency setting

As mentioned earlier, patients presenting with intoxication may prove challenging to manage. Intoxicated behavior may often be confused with other disease conditions and vice versa. A brief outline on general management of a patient presenting with intoxication is given in Figure 2.

#### ALCOHOL INTOXICATION IN THE EMERGENCY SETTING

Alcohol (primarily) is a widely used psychoactive substance globally and in India. In people aged 20–39 years, approximately 13.5% of global deaths are attributable to alcohol. More than 200 disease and injury conditions are related to alcohol use. Data from the National Syndromic Surveillance Program of United States, which included non-fatal emergency department visits from facilities in 49 states and Washington, DC, indicated that in 2020 1.8% of the total annual emergency visits were related to alcohol use.

Of the many alcohol related disorders presenting to the emergency department in India, a vast majority presents with road traffic accidents due to driving under intoxication followed by acute alcohol poisoning, which is defined as ingestion of a large amount of alcohol in a short duration of time.<sup>[4]</sup>

**Table 1: Features of intoxication with common psychoactive substances**

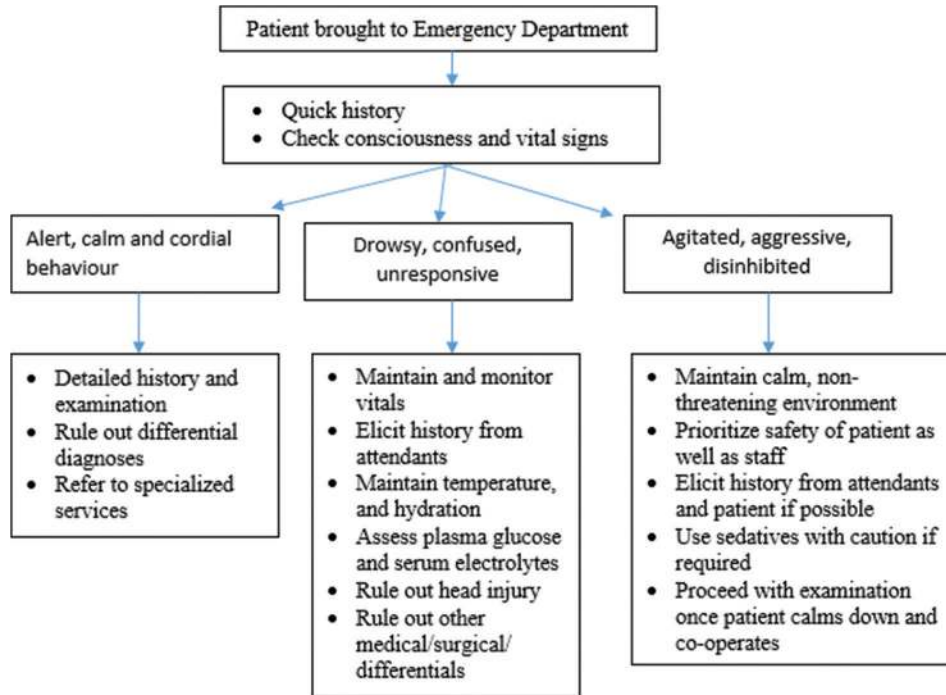
Substance	Signs	Dysfunctional Behaviors
Alcohol	Unsteady gait, slurred speech, nystagmus, flushed face, conjunctival injection, decreased levels of consciousness	Disinhibition, argumentativeness, aggression, inattention, lability of mood, impaired judgement and functioning
Cannabis	Increased appetite (munchies), dry mouth, tachycardia, conjunctival injection	Euphoria, disinhibition, suspiciousness, anxiety, agitation, sense of slowing of time, rapid flow of ideas, inattention, slow reaction time, hallucinations and illusions, impaired judgement
Opioids	Slurred speech, drowsiness, constricted pupils, decreased levels of consciousness	Sedation, apathy, disinhibition, psychomotor retardation, inattention, impaired judgement and functioning
Benzodiazepines	Unsteady gait, slurred speech, nystagmus, flushed face, conjunctival injection, decreased levels of consciousness, erythematous skin lesions or blisters, hypothermia, hypotension, depressed gag reflex	Euphoria, apathy, disinhibition, sedation, lability of mood, aggression, inattention, anterograde amnesia, impaired psychomotor functioning
Stimulants (including cocaine)	Tachycardia, arrhythmias, hypertension, sweating and chills, nausea, vomiting, psychomotor agitation, dilated pupils, chest pain, muscle weakness, convulsions	Euphoria, increased energy, hypervigilance, ideas of grandiosity, aggression, lability of mood, suspiciousness, hallucinations and illusions
Hallucinogens	Tachycardia, sweating and chills, palpitations, tremors, blurring of vision, pupillary dilatation, incoordination	Anxiety, fearfulness, illusions and hallucinations, suspiciousness, lability of mood, hyperactivity, impulsivity, inattention
Volatile solvents	Unsteady gait, nystagmus, slurred speech, decreased levels of consciousness, muscle weakness, blurred vision, diplopia	Apathy, lethargy, aggression, lability of mood, impaired attention and memory, psychomotor retardation



**Clinical features of alcohol intoxication**

Alcohol is a global central nervous system (CNS) depressant. Acute ingestion generally results in elevation of mood, disinhibition, and increased confidence, leading to argumentative or combative behavior. In addition to those

mentioned in Table 1, some features of alcohol intoxication seen with increasing blood alcohol concentration (BAC) are discussed in Table 2. In naïve drinkers, BAC of 150–250 mg per 100 ml result in clinically apparent intoxication; BAC of 350 mg per 100 ml cause stupor and coma; while levels



**Figure 2:** General management of intoxicated patients in an emergency setting

Table 2: Effects of increasing blood alcohol concentration		
Stage	BAC (mg per 100 ml)	Clinical Features
Reduced awareness, information processing and visual acuity	10-100	Higher self confidence Shortened attention span Poor judgment Impulsiveness
Reduced muscle coordination	100-180	Poor judgment Delayed reaction time Incoordination Lack of concentration, impaired recent memory Blurry vision, delayed glare recovery Reduction in perceived sensation (hearing, tasting, feeling, seeing)
Confusion	180-250	Incoordination or staggered gait Slurred speech Confusion, disorientation to time and place Emotional lability Sedation
Stupor	250-350	Difficulty in moving Weak response to stimuli, if at all Nausea, vomiting May lapse in and out of consciousness
Coma	350-450	Unconscious Reflexes depressed Fixed pupils Hypothermia Breathing is slower and more shallow Bradycardia Arrhythmias may be precipitated (holiday heart syndrome) May result in death

more than 450 mg per 100 ml can be fatal. Regular users of alcohol often develop tolerance and are significantly less likely to manifest symptoms/signs of intoxication at the same BAC than non-regular drinkers.<sup>[5]</sup> Effects can last from 2 to 3 hours after a few drinks to up to 24 hours after heavy drinking.

### Assessment of alcohol intoxication

An assessment of a patient presenting with alcohol intoxication aims at identifying the immediate risks to the patient and attendants and uncovering maladaptive patterns of alcohol use that may require specialized management and care. Acute alcohol intoxication may result in several metabolic abnormalities, like hypoglycemia, lactic acidosis, hypokalemia, hypomagnesemia, hypophosphatemia, and hypocalcemia. Thus, these may be required on an urgent basis. Alcohol can cause acute effects on the cardiovascular system, such as atrial and ventricular tachy-dysrhythmias. Hence, an urgent electrocardiogram (ECG) may be required. Further discussed are the assessment measures for alcohol intoxication:

#### 1. Clinical history

- a. Elicit details of current episode of alcohol use: amount, preparation, duration, mixing with other substances, etc.
- b. Ask for similar details about previous drinking episodes.
- c. Elicit, wherever possible, events of high-risk behavior under intoxication: driving, operating heavy machinery, self-harm, or violence toward others.
- d. Attempt should be made, wherever possible, to identify alcohol dependence or harmful use pattern.

#### 2. Physical Examination

- a. Assess levels of consciousness (the Glasgow Coma Scale may be used), cardiac and respiratory parameters (heart rate, blood pressure, cardiac rhythm, respiratory rate), and urine output, if possible, with hourly intervals until parameters begin to normalize.
- b. Unresponsive patients may suffer from an occult head injury that may be identified from increased intracranial pressure. It is thus advised to perform a direct ophthalmoscopy looking for papilledema, which is a clinical sign for increased intracranial pressure. Papilledema without increased intracranial pressure may also be seen in methyl alcohol poisoning. Thus, imaging (CT/MRI) may be required to determine definitive management.
- c. In responsive patients, rule out diplopia and assess eye movements in all cardinal positions, any muscle weakness, and sensory deficits.
- d. Observe for any abnormal or involuntary movements.
- e. Check for other physical injuries and bleeding from the ear, nose, or mouth.

#### 3. Mental status examination

- a. Assess for speech and behavioral abnormalities; pay special attention to aggressive behaviors, and ensure patient and staff safety.
- b. Assess thought and perceptual disturbances.
- c. Assess orientation to time and place: immediate, recent, and remote memory, insight, and reality testing.

Rule out other causes of altered sensorium:

1. Metabolic causes such as hypoglycemia, electrolyte imbalance, hyperosmolar hypoglycemic state, diabetic ketoacidosis, and metabolic acidosis may be detected by laboratory investigations including blood glucose, renal function tests, and arterial blood gases.
2. Cerebral trauma, cerebrovascular events, and meningitis may be identified by computed tomography (CT), magnetic resonance imaging (MRI), and cerebrospinal fluid (CSF) analysis.
3. Encephalopathies and toxicity from other substances (methanol, lithium, barbiturates, benzodiazepines, and isoniazid) may be identified through laboratory investigations for serum ammonia, and levels of suspected agents in the blood. Higher serum levels than the therapeutic window indicates toxicity.

The abovementioned assessments and investigations are based on individual case considerations and clinical suspicion.

### MANAGEMENT OF ALCOHOL INTOXICATION IN THE EMERGENCY SETTING

Individuals with some symptoms of alcohol intoxication (mild and moderate cases, i.e., without impairment of consciousness or significant medical issues) can be managed in relatively simple surroundings without much medical intervention. Those who are severely intoxicated should be admitted and further managed in a setting where high-dependency or intensive care can be provided.<sup>[4,6]</sup>

Treatment for acute alcohol toxicity is largely supportive. The first priority is airway protection and maintenance of breathing as respiratory depression due to alcohol intoxication may result in death. Alcohol acts as a diuretic; thus, patients with signs of dehydration (dry lips and mucosae and poor urine output) may be provided with intravenous fluids. Checking glucose is important, as many individuals with alcohol use disorder may have depleted glycogen stores. Hypoglycemia needs to be corrected with 5% dextrose intravenously.

Routine use of vitamins is not necessary for all cases of alcohol intoxication. However, thiamine supplementation is needed for patients with alcohol dependence to prevent the occurrence of Wernicke encephalopathy. Thus, prophylactic

thiamine may be administered to patients who appear at risk of developing thiamine deficiency (prolonged use of alcohol, poor nutritional status, confused mental state, gait abnormalities, and ophthalmoplegia).<sup>[7]</sup> Usual dose should be at least 250 mg of thiamine daily intramuscularly for 3–5 days, followed by oral thiamine 100 mg daily.<sup>[8]</sup> It is important to remember that in an emergency setting, thiamine is to be administered before glucose replenishment so that the glucose is utilized in ATP generation (which utilizes thiamine as a co-factor), preventing sequestration of the already limited thiamine which may precipitate Wernicke’s encephalopathy.

A brief schematic flowchart for management of alcohol intoxication in the emergency setting is presented in Figure 3.

1. General management

- a. Maintain airway, breathing, and circulation.
- b. Provide intravenous fluids to counter dehydration and maintain urine output.

- c. Hypoglycemia should be corrected with oral glucose, if conscious level permits, or else with 5% or 10% intravenous (IV) dextrose.
- d. Maintain ambient room temperature, with quiet surroundings and minimal disturbance.
- e. At least one electrocardiogram (ECG) should be obtained for all heavily intoxicated patients and for those with known cardiovascular conditions. “Holiday heart syndrome” characterized by new-onset arrhythmias/atrial fibrillation can occur following alcohol ingestion. Serial ECG monitoring should be done if arrhythmia is detected. As intoxication abates, ECG changes should resolve, but if the changes persist an alternate cause should be considered.
- f. In the case of altered mental status, when a full history cannot be elucidated from the patient, a CT scan of the head can be considered for detecting intracranial pathology contributing to the patients’

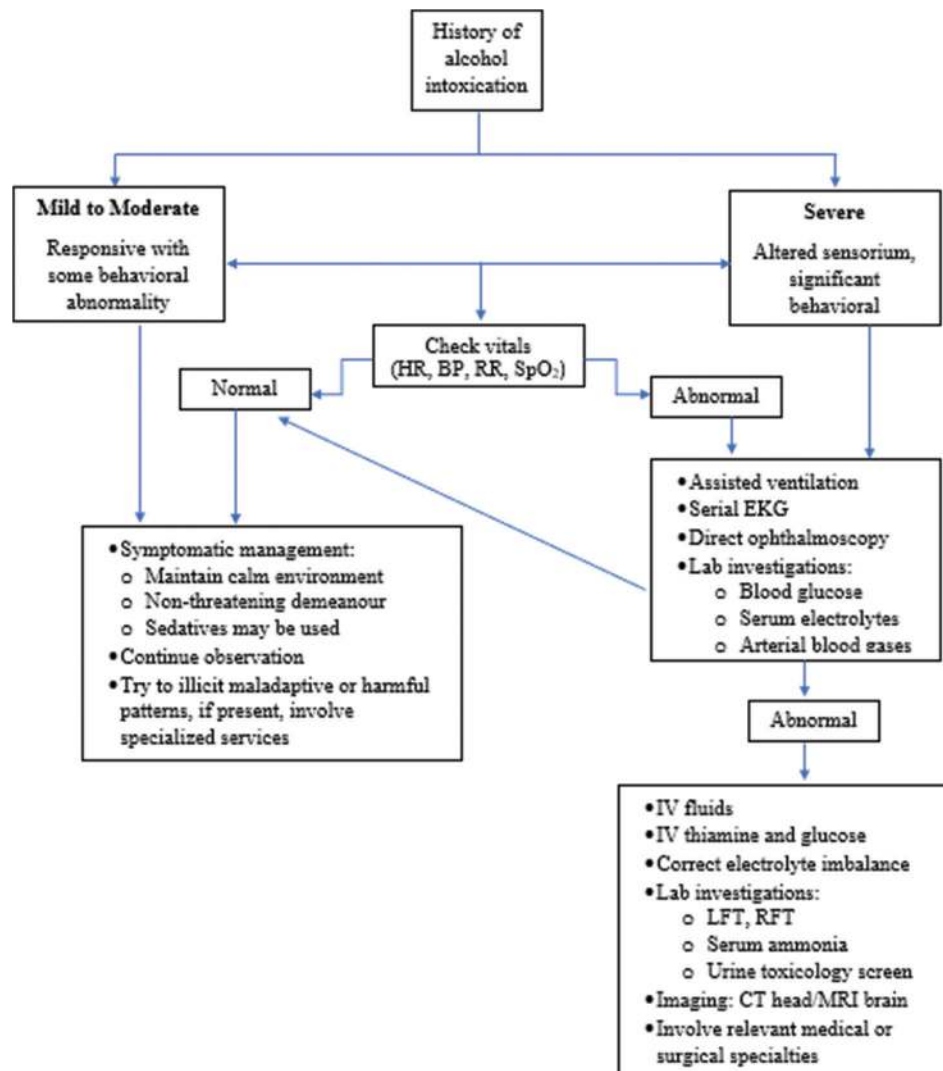


Figure 3: Management of alcohol intoxication in an emergency setting

mental status (e.g., subdural hematoma). MRI can also be considered for select cases.

- g. If suicidality is expressed, then psychiatric evaluation should be considered.
2. *Laboratory investigations*
  - a. Blood glucose, plasma electrolytes, and blood gases should be measured as frequently as possible in patients with altered sensorium until recovery is assured.
  - b. Urine toxicology may be performed, if needed, to check for presence of narcotics and sedatives, if suspected.
  - c. Complete blood counts can be done to detect megaloblastic anemia.
  - d. Liver function tests should be done when prolonged harmful pattern of alcohol use is suspected.
  - e. Renal function tests should be done in cases of altered sensorium, poor urine output, or if behavioral features are out of proportion to the amount of alcohol consumed.
  - f. Blood alcohol levels may be required in medicolegal cases when reliable history is not available or when behavioral features are out of proportion to the amount of alcohol consumed.
  - g. Whole blood thiamine levels may be measured in patients at risk of or suspected to develop Wernicke's encephalopathy.
3. *Symptomatic management*
  - a. Control aggression by adopting a concerned and non-threatening demeanor.
  - b. Sedatives should be used judiciously to avoid over-sedation.
  - c. Metadoxine (given as a single IV/intramuscular [IM] injection of 300–600 mg) may be used to accelerate the elimination of alcohol in adults leading to faster recovery from intoxication.
  - d. In cases of agitation or violence, antipsychotics (haloperidol 5 mg with promethazine 50 mg) should be considered.

In-patient admission of a patient with alcohol intoxication can be considered when there is severe intoxication, medical complications such as Wernicke's encephalopathy, alcoholic hepatitis, dysrhythmias or convulsions, persistent disorientation, continued abnormality in cardiopulmonary parameters, known chronic systemic illnesses that require medical attention independently, prolonged aggressive behavior, or perceptual abnormalities. The specialty under which the patient needs to be admitted can be determined according to the indication for admission.

### **CANNABIS INTOXICATION IN THE EMERGENCY SETTING**

Cannabis is the most common illicit substance of abuse in India. Cannabis intoxication sometimes presents to the

emergency setting after consumption (either inhalational or oral) of high amounts of cannabis. It usually presents in those who have never tried cannabis before and experience severe psychiatric or medical manifestation of cannabis consumption. Sometimes, regular cannabis users may also experience symptoms and signs of cannabis intoxication when they are introduced to a cannabis product of higher potency.

Cannabis intoxication manifests with several symptoms as mentioned in Table 3.<sup>[9]</sup> There can be several physical symptoms of cannabis intoxication. These include tachycardia, tachypnea, increased blood pressure, dry mouth, nystagmus, increased appetite, and, rarely, precipitation of arrhythmias, angina, or myocardial infarction. Rarely, deep inhalation or breath holding may lead to pneumomediastinum or pneumothorax. Marked perceptual and mental status changes can be observed in cases of cannabis intoxication. These can include alteration in perception of time, with the perceived time being faster than clock time. Music is perceived as more engrossing and colors may appear brighter. There may be hallucinations, primarily auditory ones. There can be a sense of depersonalization. One may become more self-conscious, and may manifest paranoid thinking or delusions (persecutory, referential, or grandiose). Cannabis intoxication affects cognition and psychomotor performance as well. There may be motor incoordination and impaired attention and concentration. Judgment may be impaired due to cannabis intoxication.

The cognitive and psychomotor features of intoxication may not be immediately apparent and may manifest up to three hours after consumption of the cannabis product. This may lead novice users to consume higher amounts and experience dysphoria, anxiety, perceptual alterations, and

**Table 3: Features of cannabis intoxication**

Tachycardia
Increased blood pressure, or rarely, orthostatic hypotension
Conjunctival injection (reddening of eyes)
Dry mouth
Increased appetite
Nystagmus
Increased respiratory rate
Rarely arrhythmias, angina, or myocardial infarction
Rarely pneumomediastinum and pneumothorax caused by deep inhalation or holding the breath
Changes in mood: euphoria, dysphoria or anxiety
Perceptual changes: color and music perception altered
Time perception may be distorted
Distorted spatial perception
Hallucinations
Depersonalization
Delusions or paranoid thinking
Impaired attention and concentration
Slowed reaction time
Impaired motor coordination
Impaired judgement

cognitive changes to a higher than anticipated extent. These features of intoxication may last even for 12 to 24 hours after the consumption of cannabis due to accumulation in the adipose tissue and gradual release afterwards.

#### **Assessment of patients with cannabis intoxication**

The assessment of cannabis intoxication is through elaboration of the history and conduct of the examination, supplemented with urine drug screening. Patients presenting to the emergency department with panic attacks or psychotic symptoms after cannabis usage can describe their psychopathology. Attempts should be made to assess the consumption of cannabis products prior to occurrence of such symptoms. Sometimes, friends and family members can provide corollary information. A physical examination that reveals bilateral conjunctival injection without itchiness or pain may indicate cannabis intoxication. A high degree of suspicion may be necessary as the patient may not be forthcoming with proper history, fearing legal or social repercussions.

Urine enzyme-linked immunosorbent assay (ELISA) tests might provide objective information about consumption of cannabis, as cannabis remains in the body and is excreted in the urine for at least three days in infrequent consumers and for an even longer duration for regular users. One has to be cautious about urine false positives for cannabis due to efavirenz and non-steroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen and naproxen.

Differential diagnosis of cannabis intoxication may include intoxication with other substances of use like cocaine, lysergic acid diethylamide (LSD), MDMA (ecstasy), amphetamines, and synthetic cannabinoids. When a patient presents with psychiatric symptoms like hallucinations, delusions, or panic attacks, one should evaluate for the exacerbation of a preexisting psychiatric illness like schizophrenia, acute and transient psychotic disorder, or panic disorder.

#### **Management of cannabis intoxication in the emergency setting**

Management of cannabis intoxication in the emergency setting can be initiated with placing the patient in a dimly lit space, reassuring them, and decreasing stimulation. In most cases, the intoxication would fade in a few hours. The patient may be given benzodiazepine orally if the patient is accepting the medication orally. Clonazepam 0.5 mg or lorazepam 1 mg can be given in such a situation.

If the patient is agitated or violent, then appropriate measures should be taken for the management of agitation or violence. This may include use of antipsychotics (like haloperidol 5 mg with promethazine (Phenergan) 25 mg, given intravenously or intramuscularly), or cautious and limited use of restraints.

In cases of chest pain, the patient should be evaluated for cardiac or pulmonary etiological causes. These may focus on myocardial infarction, angina, arrhythmia, pneumothorax, or pneumomediastinum, or evaluation of exacerbation of asthma. ECG or X-rays coupled with referral to cardiologists/pulmonologists or medicine specialists would be useful.

Once the patient recovers from cannabis intoxication, they should be debriefed and offered counseling, providing information about harms associated with cannabis use. If a cannabis use disorder is identified (harmful use or dependence), then the patient should be suitably referred for further treatment of substance use disorder.

### **OPIOID INTOXICATION IN THE EMERGENCY SETTING**

Opioids are highly dependence-producing substances. Opioids used commonly include both pharmaceutical ones (used generally in the form of medications such as methadone, buprenorphine, tramadol, and pentazocine), and non-pharmaceutical ones (generally used for recreational purposes like heroin and raw opium). Intoxication with opioids can be intentional (a patient may be taking increased amounts of opioids to experience a more intense high or as an attempt to harm oneself) or unintentional (a patient may be unable to know the potency of street heroin and hence may inject higher doses of it).

There are several risk factors for opioid intoxication or overdose that have been reported in the literature.<sup>[10]</sup> These include escalating doses of opioids, combination of opioids and sedative drugs, use of opioids after a period of cessation, and presence of comorbid conditions like HIV, depression, and liver disease.

Opioid intoxication is defined as a condition of transient and clinically significant disturbances in consciousness, perception, behavior, cognition, affect, or coordination that develop during or shortly after the consumption or administration of opioids. Presenting features include somnolence, stupor, psychomotor retardation, slurred speech, mood changes (euphoria followed by dysphoria), respiratory depression, and impaired memory and attention. Pupillary constriction is generally present. The intensity of these symptoms is related to the amount of opioids consumed, and in severe intoxication, coma may occur. These symptoms are not better accounted by the presence of another medical condition or presence of intoxication or withdrawal of another substance. Opioid intoxication can be classified as mild, moderate, or severe on the basis of the level of psychophysiological changes due to the opioids (e.g., impairment in judgement or attention), and impairment of the level of consciousness [Table 4]. Opioid overdose is a related life-threatening condition induced

**Table 4: Features of opioid intoxication and opioid overdose**

Opioid intoxication
Sedation/somnolence
Psychomotor retardation
Slurred speech
Euphoria, followed by dysphoria
Impaired memory and attention
Respiratory depression
Stupor
Coma
Pupillary constriction (sometimes dilatation due to severe anoxia)
Severity of opioid intoxication
Mild: Changes in psychophysiological functions and responses are apparent, with little/no disturbances in the level of consciousness.
Moderate: Changes in psychophysiological functions and responses are marked, with some changes in the level of consciousness.
Severe: Changes in psychophysiological functions are obvious, with marked changes in the level of consciousness.
Opioid overdose
Coma
Respiratory depression
Pinpoint pupils

by consumption of excess amounts of opioids, which is characterized by pinpoint pupils, unconsciousness, and respiratory depression. The features of opioid intoxication and opioid overdose are presented in Table 4. Severe opioid intoxication and opioid overdose may be clinically indistinguishable, and the clinical label of “opioid overdose” may be more suitable when dealing with patients who present to the emergency unit with respiratory depression, unconsciousness, and pinpoint pupils after recent consumption/administration of large doses of opioids. Furthermore, though generally opioid intoxication presents as euphoria followed by dysphoria, other psychological manifestations of opioid intoxications may be anxiety, agitation, depression, hallucinations, and paranoia. Some of the opioids are known to reduce the seizure threshold (like dextropropoxyphene and tramadol), and the patient may present with an episode of seizure.

#### Assessment for opioid intoxication

The assessment of patients with opioid intoxication aims at ensuring safety of the patient and prevention of irreversible harm to the patient. In cases of opioid intoxication/overdose, information is generally obtained from friends or family members of the patients. Information on the presence of pills or injection paraphernalia where the patient was found can be a helpful guide to understanding the consumption of opioids by the patient. The onset, duration, and the intensity of the symptoms of intoxication would vary according to the potency of the opioid and the route of administration; for example, the same doses of fentanyl, buprenorphine, and heroin are likely to present differently (symptoms are likely to be more intense for fentanyl and duration of action may be much longer for buprenorphine). Attempts should also be made to discern the use of sedative hypnotics

along with opioids for a given patient. Concurrently with the assessment of the patient, emergency measures would need to be instituted for the patient (including attention to the airway, breathing, and circulation).

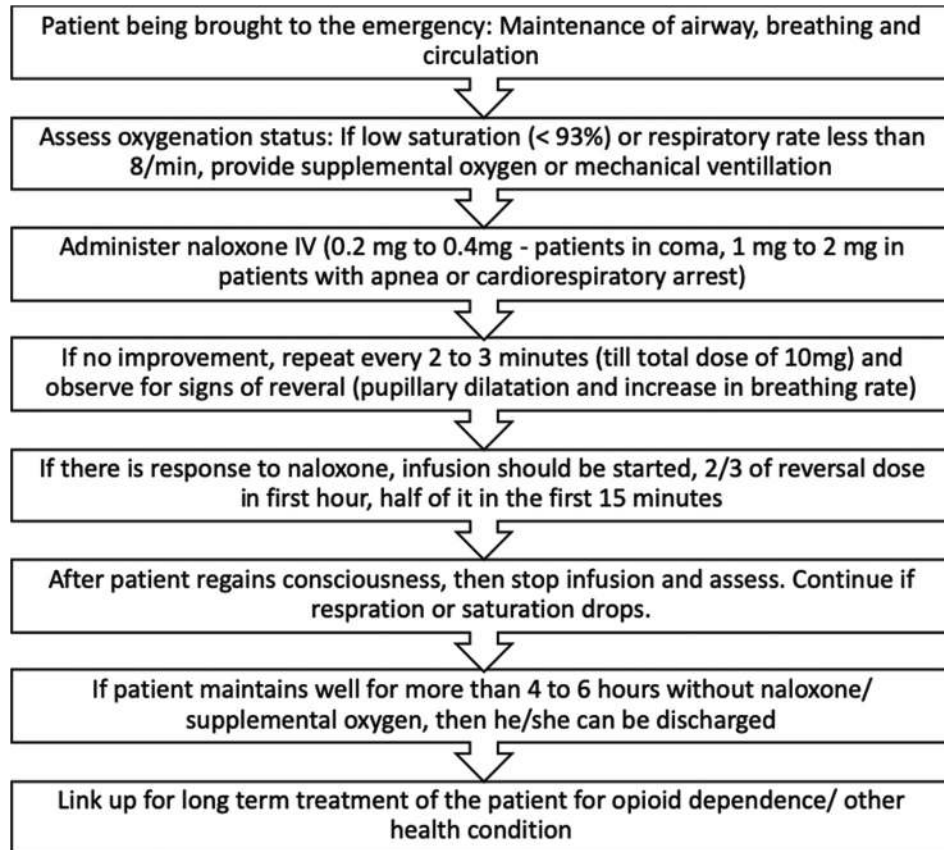
There are some differential diagnoses that may be considered in patients who present with features of opioid dependence. These include head injury, meningitis or encephalitis, systemic infections, hepatic or other metabolic encephalopathies, diabetic ketoacidosis or hypoglycemia, electrolyte disturbances, and hypoxia/hypercapnia due to preexisting respiratory conditions. Clinical assessment and laboratory investigations, as necessary, should be used to include or rule out other conditions.

#### Management of opioid intoxication in the emergency setting

Opioid intoxication presents as a medical emergency and can be fatal if the patient is not treated appropriately. The risk of death is primarily due to respiratory depression. The flowchart in Figure 4 describes the usual management of patients with opioid intoxication. It must be remarked that effective treatment options are available for the treatment of opioid intoxication in the emergency setting.<sup>[11]</sup>

The ABC of management in the emergency setting should be instituted for the patient. Airway should be made patent, and the patient may need to be intubated if they are unable to maintain the airway and saturation. Supplemental oxygen or mechanical ventilation through bag and mask may be required if the patient has low oxygen saturation (<93%) or respiratory rate is less than 8 breaths per minute. Many places have a routine practice of assessing glucose if a patient is unconscious (to detect hypoglycemia) and that may be done as per protocol.

Naloxone is a full opioid antagonist that is an important treatment agent for opioid intoxication. By acting on  $\mu$ -opioid receptors, it displaces the opioid agonist and reverses the signs and symptoms of opioid intoxication. It has a short duration of action (about 60 to 90 minutes). Generally, it is administered intravenously, but for some patients, when accessing the veins is difficult, it can be administered subcutaneously, intramuscularly, endotracheally, or intranasally. It is administered in doses of 0.2 to 0.4 mg (and higher doses of 1 to 2 mg in cases of patients presenting with apnea or cardiorespiratory arrest). When patients show improvement with naloxone, the improvement occurs within two to three minutes in the form of pupillary dilatation and increase in the respiratory rate. Some patients may require higher doses to show reversal of opioid intoxication. Doses of naloxone can be repeated every two to three minutes to a maximal dose of 10 mg. After reaching reversal, higher doses should be avoided as naloxone may be associated with vomiting.



**Figure 4:** Management of opioid intoxication

In case of response to naloxone, intravenous infusion should be considered in patients with overdose from longer acting opioids (e.g., buprenorphine) because the patient can fall back into coma as the effect of naloxone decreases. For naloxone infusion, two-thirds of the reversal dose should be given hourly. Half of this dose should be administered over the first 15 minutes and the remaining over the next 45 minutes; for example, if the reversal dose was 1.2 mg, then the first hour dose would be 0.8 mg, and 0.4 mg would be administered through infusion in the first 15 minutes. Naloxone can be repeated intramuscularly or subcutaneously if the veins are inaccessible. After reversal and when the patient is clinically better, it is useful to observe the patient for 4 to 6 hours after naloxone infusion is stopped and before the patient is discharged.

There is a high risk of overdose again if a patient has overdosed once. Patients who have overdosed on opioids should be offered pharmacological and non-pharmacological treatment for opioid dependence. It has been seen that opioid substitution treatment with buprenorphine or methadone is associated with lower overdose-related mortality.<sup>[12]</sup> The reader is referred to the other Indian Psychiatric Society guidelines on the management of opioid dependence in the clinical population.<sup>[13]</sup>

## BENZODIAZEPINE INTOXICATION IN THE EMERGENCY SETTING

Benzodiazepines are commonly prescribed medications in the clinical setting. Drugs in this group are classified as short acting (etizolam, alprazolam, and lorazepam) and long acting (diazepam, nitrazepam, and clonazepam). Benzodiazepines have several clinical applications including treatment of sleep and anxiety disorders. Benzodiazepines have been implicated in 31% of all fatal poisonings reported in the United States over the last two decades.<sup>[14]</sup> Thus, it is important that emergency care providers learn to identify and manage benzodiazepine overdose, which is defined as ingestion of any drug in the class of benzodiazepines in quantities greater than recommended.

The largest vulnerable groups to present with benzodiazepine intoxication are children, who may ingest it accidentally, and elderly, who commonly complain of insomnia and are prescribed benzodiazepines. Deteriorating metabolism and cognitive functioning may become factors responsible for accidental benzodiazepine overdose. Deliberate overdose with an intent to self-harm may also be a possibility that cannot be ignored.

### Clinical features of benzodiazepine intoxication

The clinical features of benzodiazepine intoxication are dose-dependent and wear off spontaneously with small doses of shorter acting agents. Symptoms of benzodiazepine intoxication are presented in Table 5.

### Assessment for benzodiazepine intoxication

Many patients with benzodiazepine intoxication are arousable and can provide information regarding their ingestion. In those patients with severe benzodiazepine intoxication who cannot provide an adequate history, a general approach should be undertaken to stabilize the patient. The aims of assessment include definitive identification of benzodiazepine intoxication along with anticipation and prevention of life-threatening risks.

#### 1. History

Elicit details on the use of the drug from family members/friends and the patient, if responsive: name, dose, duration, mode of overdose, and whether the benzodiazepines were mixed with other psychoactive substances like alcohol, cannabis, opioids, barbiturates, tricyclic antidepressants, anticonvulsants, sedating antipsychotics, or antihistamines. Attempts must be made to elicit any prior episodes of benzodiazepine intoxication, in addition to identification of tolerance, craving, withdrawal, salience, and any physical or psychological harms caused by benzodiazepines. Also ask about high-risk behaviors like driving or operating heavy machinery and a history of falls or accidents under intoxication.

#### 2. Physical Examination

Assess vital signs including pulse, respiratory rate, blood pressure, temperature, and oxygen saturation. Assess level of consciousness, preferably using the Glasgow Coma Scale. Ataxia may be present in cases of benzodiazepine intoxication.

#### 3. Mental status examination

1. General behavior: Patients usually appear sedated but responsive. Occasionally, paradoxical reaction may occur, characterized by agitation, anxiety, disinhibition, and aggressiveness.
2. Slurring of speech, mumbling, or irrelevant talk may be present.
3. Perceptual and thought abnormalities are rare.
4. A detailed CNS examination is warranted, especially in elderly patients and those with known liver or

renal disease, history of chronic illness, and poor general health condition.

Rule out other causes of acute respiratory depression like head injury, encephalitis, hypoglycemia, hypernatremia, systemic infection, respiratory tract infection, acute cardiac event, and stroke.

### Management of benzodiazepine intoxication in the emergency setting

Treatment of benzodiazepine overdose is mainly supportive. Most effects wear off in a few hours for short-acting and in 24–48 hours for long-acting benzodiazepines. However, CNS complication and cardiac and respiratory compromise may contribute to patient mortality unless managed effectively. Hence respiratory distress should be addressed first. Mechanical ventilation may be required to address respiratory compromise. The suggested management here should be considered in conjunction with other Indian Psychiatric Society Clinical Practice Guidelines (IPS CPGs) on the topic.<sup>[15]</sup>

#### General management

1. Maintain airway, breathing, and circulation.
2. Measures to prevent aspiration should be instituted (lateral position, suction equipment).
3. An ECG should be considered.
4. Volume expansion may be required for hypotension.
5. Correct hypothermia.
6. Repeated evaluation of neurological status and respiratory functions may be needed.

#### Investigations

1. Glucose testing may be considered to rule out hypoglycemia.
2. Urine toxicology screening should be carried out for benzodiazepines and other psychoactive substances.
3. Monitoring cardiac activity using ECG may be needed in many cases. ECG- abnormality of QRS or QT<sub>c</sub> intervals should suggest co-ingestion of cardiotoxic agents.
4. A chest X-ray may be considered for comatose patients or those with respiratory compromise to rule out aspiration pneumonia.

#### Prevention of absorption of benzodiazepines

1. Consider gastrointestinal decontamination using a single tablet of activated charcoal via nasogastric tube in cases of heavy ingestion with intended self-harm, co-ingestion with other substances like antidepressants, and if the patient is brought less than one hour after ingestion.
2. Invasive procedures like induced emesis, gastric lavage, and bowel irrigation should be avoided.

**Table 5: Features of intoxication with benzodiazepines**

Initial feeling of relaxation, mild euphoria, and sexual enhancement and sedation

Large doses produce impaired judgement, motor incoordination, blurred vision, slurred speech, slowed reflexes, impaired perception of time and space, slowed breathing, and reduced pain sensitivity

Still higher doses cause confusion, unconsciousness, coma, and death



### *Antidote administration*

Flumazenil (a benzodiazepine receptor competitive antagonist) can reverse benzodiazepine-induced CNS impairment.<sup>[16]</sup> The dose of administration is 0.1–0.2 mg/minute intravenously over 30 seconds, which may be repeated as 0.1 mg after one-minute intervals till the patient is alert and respiration is appropriate. A maximum dose of 1–2 mg can be used. Arousal of the patient generally occurs 30–60 seconds after intravenous administration. The effect peaks after 5–10 minutes and lasts for 1–2 hours. Continuous infusion (usually 0.5–2 mg/hour) may be needed to maintain the effect and prevent re-sedation.

Slow injection (0.2 mg over 15 seconds) is recommended to avert the adverse effects associated with sudden arousal, including seizures, cardiac arrhythmias (particularly paroxysmal supraventricular tachycardia), anxiety, palpitations, nausea, and vomiting. Flumazenil is expensive and has limited availability in India and is thus not recommended for routine use. Flumazenil can be safely administered to non-habituated users of benzodiazepines but should be avoided in patients with history of seizure disorders, benzodiazepine dependence, and head injury. Use of flumazenil may be constrained by its availability.

## **INTOXICATION WITH OTHER SUBSTANCES**

### **Cocaine and other stimulants**

Though cocaine and other stimulants have traditionally not been commonly abused in India, their use is gradually rising, especially in bigger cities. Presentation of cocaine intoxication is in the form of euphoric mood, increased psychomotor activity, severe agitation, impaired attention, auditory hallucinations, paranoid ideation, confusion, anxiety, and hypervigilance. Some patients may manifest picking of the skin (formication). Cocaine has sympathomimetic effects and may result in hypertension, tachycardia, hyperthermia, diaphoresis, and mydriasis. Similar actions are also produced by other stimulants (like amphetamine and methamphetamine) and these last till the action of the stimulant subsides. Some patients may experience seizures or chest pain due to cardiac ischemic changes. An ECG or troponin T test can be done to find out changes in the cardiac functioning.

Management of cocaine or stimulant intoxication is generally symptomatic.<sup>[17]</sup> Patients can be placed in a quiet room/area, if possible. Patients can be given benzodiazepines for sympathomimetic symptoms and agitation or seizure. Benzodiazepines like lorazepam 2 mg can be given orally, intramuscularly, or intravenously, and repeated as necessary. For acute agitation and paranoia, the patient may need injectable antipsychotic on a short-term basis (though antipsychotics are not required in the absence of a concurrent psychotic disorder or stimulant/cocaine-induced psychotic disorder). Very rarely, patients

may need restraints. Patients may be given IV fluids for dehydration. Aspirin and nitroglycerine are given for chest pain related to cocaine. Patients with cocaine or stimulant intoxication become asymptomatic over a period of hours to within a day. After resolution of the intoxication, the patient may be referred for treatment of the cocaine/stimulant use disorder, if present.

### **Hallucinogens**

Several hallucinogens may cause features of intoxication, and these include LSD and phencyclidine. Symptoms of hallucinogen intoxication includes hallucinations, perceptual changes such as depersonalization and derealization, illusions, synesthesia, affective changes like anxiety or dysphoria, paranoid ideation, impaired judgment, sweating, palpitations, blurred vision, tremors, and lack of coordination. Patients may experience elevated blood pressure, tachycardia, and pupillary dilatation.

Treatment of hallucinogen intoxication is symptomatic.<sup>[18]</sup> The effects generally wear off within a day or so. Management relies on placing the patient in a quiet room with minimal stimulation. The patient should be reassured. Sometimes, benzodiazepines like clonazepam or lorazepam can be used. If the patient is amenable to oral medications, then these can be used, or else injectable medications can be resorted to. Rarely, injectable antipsychotics and physical restraints would need to be used for such patients. After resolution of the intoxication, the patient should be counseled and advised to seek treatment if hallucinogen-related disorders are identified.

### **Volatile solvents**

There are a variety of volatile solvents that are used by individuals. These include glue, gasoline, spray paints, paint thinners, ink-eraser fluids, nitric oxide, and poppers (alkyl nitrites). Psychiatric effects of poppers are typically temporary and last for minutes. In India, glue, petrol, and ink-eraser fluids are used commonly. Volatile solvents are generally used by children and adolescents, though many adults also consume these substances. The features of volatile solvent intoxication include euphoria, aggression, dizziness, impaired judgment, lethargy and apathy, somnolence, stupor or coma, tremor, slurred speech, incoordination, unsteady gait, psychomotor retardation, and visual disturbance. Patients may experience muscle weakness and diplopia. Volatile solvents may also result in agitation and psychosis (pseudo-hallucinations, hallucinations, and ideas of grandiosity).

Some patients may have arrhythmias after intoxication with inhalants, and hence an ECG may be useful for such patients. Management of patients with inhalant intoxication is largely symptomatic.<sup>[18]</sup> Monitoring of oxygenation and ventilation is needed, along with maintaining the airway. Supplementary oxygen and intravenous fluids can be used

for some of the patients as needed. Benzodiazepines like lorazepam 1–2 mg can be used for agitation or psychosis. The intoxication generally abates after a short period of time, and the patient improves. Regular users of inhalants should be further referred for treatment.

#### Polysubstance use

Sometimes healthcare providers working in emergency settings may encounter patients with a history of polysubstance use, which means consumption of more than one drug at once. The substances involved could be illicit, prescription drugs or a combination of both. Alcohol, benzodiazepines, and cannabis are common substances used in combination with other psychoactive substances. Multiple substances are generally mixed together with the aim of enhancing the psychoactive effect, off-setting the adverse effects, and alleviating the withdrawal symptoms.

Risk of intoxication and overdose is heightened when multiple substances are consumed together. This could be either due to mutual potentiation of individual drugs' effects or due to inadvertent consumption of greater amounts of substances in an intoxicated state. Thus, intoxication with multiple substances may sometimes present with a complicated clinical picture and may pose diagnostic challenges.<sup>[16]</sup>

Common symptoms of polysubstance intoxication can include the following:

1. drowsiness, sleepiness, and inability to wake up
2. chest pain and heart palpitations (especially when multiple stimulants have been mixed)
3. stomach pain, nausea, vomiting, and diarrhea
4. feeling overly hot or cold and having skin that is sweaty or very dry
5. slurred speech and inability to complete normal tasks

#### Management of intoxication with multiple substances in an emergency setting

There are no fixed guidelines for the treatment of intoxication with multiple substances, and the healthcare professional is required to employ careful observation, thorough assessment, and early intervention in order to prevent complications.<sup>[19]</sup>

Details of consumed substances, if available, should be elicited from the patient, if responsive, and attendants. It is advisable to refer to medical records, if available, for relevant information on history of substance use and prescription details. Any past episodes of overdose or seizures should be noted. Physical examination may offer clues to substance use; for example, pupil size to detect pin point pupils, characteristic odors emanating from nose or mouth, needle track marks, or any other tell-tale signs that may help identify the substances consumed. Additionally, a complete systemic examination with special attention

to CNS and cardiopulmonary systems is often necessary. A drug panel test may be useful to ascertain the substances being used.<sup>[20]</sup>

Management of polysubstance use in the emergency department aims at preventing and managing life-threatening complications of consumption of multiple psychoactive substances. While definitive management varies from case to case (based on the combination of substances), some standard practices are enumerated as follows:

1. Monitor vital signs and cardiac parameters with serial ECG monitoring.
2. Prevent aspiration by placing the patient in left lateral position.
3. Provide ventilator support when required.
4. Correct hyper- or hypothermia.
5. Intravenous fluids may be required.
6. Definitive management depends on confirmed report of the nature of substances consumed.
7. Sedatives may be used judiciously to avoid worsening respiratory depression.
8. Antidotes like naloxone and flumazenil may be used with caution to avoid unmasking effects of substances with opposing psychoactive effects.
9. Observation for at least 24–48 hours may be advised for any residual effects and detailed assessments.

It is desirable to involve specialized services, such as addiction psychiatry or psychiatry for detailed assessment once the patient is conscious and responsive. This may provide a good opportunity for intervention and long-term engagement with treatment services.

#### Substance intoxication in special populations

Substance use has now emerged as a universal phenomenon with no population group immune to its effects. Certain population groups require unique considerations while managing substance intoxication in emergency settings and in specialized treatment services due to their unique physiological and psychosocial needs. In this section, we will discuss three special groups of such populations: children and adolescents (aged less than 18 years), pregnant women, and elderly (aged 65+ years).

##### *Children and adolescents*

Children and adolescents form a special group in the context of substance use due to the fact that physiologically they have smaller body volumes, making a small amount of substance exert significant psychoactive effects, and a developing brain, which may be at risk of serious long-lasting adverse effects when exposed to psychoactive substances.

Experimental substance use is common in this adolescent group; substances commonly consumed out of curiosity are tobacco, alcohol, cannabis, volatile solvents, and opioids.<sup>[21]</sup> Children and young adolescents may present

with intoxication symptoms similar to those seen in adults with much smaller amounts of substances consumed, posing a higher risk of mortality. The essential principles of treatment are similar to those with adults.<sup>[22]</sup> Table 6 presents some of the elements to be taken into consideration in the management of children and adolescents with substance intoxication. One can also refer to the IPS CPG related to substance use among children and adolescents.<sup>[23]</sup>

#### *Pregnant women*

Illicit substances, tobacco, alcohol, and prescription drugs are especially harmful during pregnancy due to potential harm to both the mother and the fetus. Physiological changes in pregnancy often lead to unpredictable variations in the pharmacokinetics of drugs, making most medications and psychoactive substances risky. Despite this knowledge, global prevalence of substance use among pregnant women is about 6%, maximal among young pregnant women (18.3% among pregnant women aged 15–17 years). Pregnant women with intoxication present a challenging situation for the emergency department, as both the mother and the fetus are in need of medical attention, and medications need to be used with great caution. General considerations for management of an intoxicated pregnant woman in the emergency setting are presented in Table 7.

#### *Elderly population*

The elderly population has some unique risk factors for substance intoxication. They have a lower volume of distribution, leading to increased systemic concentration of consumed psychoactive substances. Often, compromised renal function causes reduced elimination of drugs from the systemic circulation. These factors lead to development of intoxication at relatively lower doses of the substances. Some prescription medications sometimes have a high risk of dependence (opioids and benzodiazepines). One may need to differentiate from symptoms of frailty syndrome, which manifests as memory problems, incontinence, falls, and limitations of functioning. Sometimes, interactions of the medications may also result in features of substance intoxication.<sup>[24]</sup> A few points to consider while managing elderly patients with substance intoxication in emergency settings are presented in Table 8.

#### *Dual diagnosis*

Dual diagnosis refers to the co-occurrence of a substance use disorder along with a psychiatric condition. Studies report that comorbid substance use disorders are substantially related to increased visits to the emergency department across multiple samples of patients with psychiatric disorders (e.g., schizophrenia, depression, anxiety, etc.). Schizophrenia, anxiety, depression, and dementia are common disorders associated with substance use. Presentation to the emergency unit may be required due to accidental overdose or overdose with a desire for self-harm. Pharmacokinetic interaction between substances

**Table 6: General considerations in the management of children and adolescents with substance intoxication**

Nature of the substance ingested and its dosage per kilo body weight should be identified as accurately as possible.  
In cases where substance use is suspected but cannot be confirmed by clinical history, a detailed physical examination including a neurological assessment can be helpful in substance identification.  
Administration of emetics, gastric lavage, and activated charcoal should be generally avoided.  
Forced diuresis may lead to fluid overload and should be avoided.  
There is limited evidence for safety and effectiveness of antidotes to specific substances, and the decision to use them depends on risk-benefit analysis.  
A period of at least 24 hours for observation after stabilization of the patient is advised.

**Table 7: General considerations for management of an intoxicated pregnant woman in emergency**

Monitoring of vital signs is essential for both the mother (heart rate, pulse, blood pressure, SpO<sub>2</sub>, temperature) and the fetus (fetal heart rate, non-stress test). In case of signs of fetal distress, close involvement of obstetrician and/or neonatologist may become important.  
Reduced fetal movements may indicate fetal sedation and/or hypoxia while increased fetal movements may indicate the fetus experiencing withdrawal symptoms.  
Pharmacotherapeutic agents should be avoided as far as possible, and if prescribed, agents with reliable evidence for safety should be given in the lowest possible effective dose.  
As intoxication effects wear off, uterine contractions may increase, sometimes precipitating premature rupture of membranes, preterm labor, miscarriage or placental abruption.  
In cases of overdose with opioids and benzodiazepines, antidotes may be given after careful risk-benefit assessment. Precipitating withdrawals should be avoided as far as possible.  
After stabilization, it is advised that the woman be referred to specialized treatment services for management of harmful patterns of substance use.

**Table 8: Considerations for the management of elderly patients with substance intoxication in the emergency setting**

Aggressive initial treatment is necessary because the elderly patients are generally more susceptible to life-threatening complications of drug overdose and have lower body reserves to handle health issues.  
A pre-existing physical illness can often confuse the clinical picture. Initial examination should focus on the symptoms and physical findings likely to be attributed to the drug involved while attempts should be made to differentiate the symptom etiology based on temporality and presentation. Essential elements of history include the name and amount of the drug involved, route of exposure, time since exposure, whether the exposure was acute or chronic, symptoms or physical findings, underlying medical or psychiatric illnesses, concurrent medications, and any previously administered medical treatment.  
A laboratory analysis of blood or urine may be helpful in confirming a drug-related problem.  
Most patients need symptomatic care for intoxication. When specific antidotes are indicated, these should be given in the same doses as those administered to younger patients.  
Forced diuresis is risky in patients with congestive heart failure and may lead to fluid overload and pulmonary edema.  
Hemodialysis or hemoperfusion may be required at lower plasma drug concentrations of drugs like barbiturates in older patients (though clinical use of barbiturates is very infrequent now).

and psycho-pharmaceutical agents may lead to alterations in metabolism of both and present with symptoms of overdose/intoxication.

Dual diagnosis often complicates the clinical picture in an emergency setting. Detailed history along with access to the patient's medical records with details of the prescription may help to clarify the scenario. Quantitative analyses of intoxicating drugs and medications are helpful in deciding the course of treatment. Specialized psychiatric services along with critical care services, if required, must be referred to in such a scenario at the earliest.

## NEW PSYCHOACTIVE SUBSTANCES

The term “new psychoactive substances” (NPS) is used for a broad range of chemical compounds that are consumed for their psychoactive properties but that are not controlled under the United Nations drug control conventions. New psychoactive substances may pose similar risks to those associated with better-known controlled substances and often appear in the same broad classes of drugs (opioids, benzodiazepines, stimulants, etc.). Yet they are chemically different, so the risks they present to health may differ or simply be unknown.

Emergencies associated with NPS may result from trying an unknown agent or a substance with unknown potency or unknown drug interactions. In an emergency associated with NPS use, history becomes of utmost importance. Urine drug screening may not detect these agents and blood assays may not have been developed for them either. While the emergency management procedure remains essentially the same, care must be taken to gather as much information about the NPS as possible for an effective detoxification. Specialized psychiatric services along with critical care services, if required, must be involved.

## CONCLUSION

Substance intoxication is often a reason for seeking emergency care. Some substance intoxications (like opioid, alcohol, or benzodiazepine intoxications) can be life-threatening. A certain degree of clinical suspicion is required to identify substance intoxication, especially when the patient is not spontaneously forthcoming with information. Substance intoxication needs to be managed based on the type(s) of substance(s) consumed, current medical and psychiatric status of the patient, history available and examination findings, and available resources. Intoxication may occur in both naïve and regular substance users. The principles of management include ensuring the safety of the patient, managing their vitals (especially if they are in a life-threatening state), letting the symptoms and signs of intoxication abate, handling the concurrent medical or psychiatric condition, and link up to further

services as required. For unmotivated individuals, brief interventions may be helpful in the emergency setting as well.<sup>[25]</sup> Psychiatrists have an important role to play in the management of patients with substance intoxication, and close collaboration with emergency physicians in the care of patients may lead to better patient outcomes.

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# Clinical Practice Guidelines for Assessment and Management of Patients Presenting with Psychosocial Crisis

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## INTRODUCTION

Traumatic and crisis inducing events are increasing in the world. The spectrum of crisis events includes both public events that have a significant social impact, such natural catastrophes that affect entire communities, airplane crashes, or terrorist attacks, and private events, including interpersonal domestic violence, suicide attempts, the loss of a loved one, or the start of serious physical or mental illness. A person's life can change dramatically as a result of exposure to a crisis situations and incidents. Crisis situations and natural disasters, which disrupt daily life, can affect every community. A crisis frequently involves adversity, which are defined by a very distressing state of uncertainty, a perceived threat to core beliefs, and disruptions to daily routines. Crisis can be a challenge or an opportunity for efficient problem solving and growth, or it can be a crippling event that results in sudden disequilibrium, unsuccessful coping mechanisms, and dysfunctional behavioral patterns.<sup>[1]</sup> Crisis are also distinguished in two main ways. A one-time, acute single event crisis or more chronic state of crisis also sometimes called as complex trauma. Terr also used the term type 1 and 2 crisis for the above subtypes, respectively.<sup>[2]</sup>

Crises may have a significant impact on a person's health, functioning, and general well-being. Stress, worry, uncertainty, physical discomfort, and trauma-related mental health issues are typical outcomes. Health effects due to exposure to crisis have been studied extensively, and in recent decades there has been an emphasis on various mental health consequences including post-traumatic stress disorder (PTSD). Several other psychiatric disorder like major depression, anxiety disorders, dissociative disorders, substance use disorders, personality disorders, etc., are reported to be having higher prevalence in people exposed to traumatic events of different kind in various phases of the life. However, the disorders specifically related to exposure to crisis, trauma, and stress are grouped separately both in ICD-11 and DSM-5. For these disorders, exposure to stressor is necessary for making a diagnosis. The details are given in following Table 1.

The crisis interventions have a very long and rich history. The evidence for successful application of psychotherapeutic interventions in military settings were reported since long.<sup>[3]</sup> The politicians, administrators, other policymakers, at the society and local community level, should better understand psychosocial difficulties and problems encountered after traumatic events exposure for facilitation of service provisions and health force training and supervision.

This clinical practice guideline aims to integrates psychosocial principles of crisis intervention. The model of psychosocial crisis management (PCM) describes how the tasks of crisis managers or crisis intervention workers (CIW) can be guided by principles of psychosocial support. Crisis management insights and psychosocial support principles originated from different several different disciplines and research. Currently, integrating strategies from various models helps in formulating better guidelines and strategies.

Several different models of early interventions were tried in forms of disaster mental health programs, crime crisis intervention, or community mental health-based crisis intervention for early identification and help of the individuals suffering from the effect of crisis. Experts have cautioned, nonetheless, that even if a great desire and willingness to assist is not based on factual and scientific strategies, it may be ineffective or even detrimental to the clients.<sup>[4]</sup>

Crises are disruptions with a potential psychosocial impact [Table 2]. The psychosocial dimension of crisis management, and can, therefore, strengthen crisis management in general. Crisis often refers to normal stresses and strain. Each crisis has a continuum, from negative to positive, and the resultant outcome depends upon a balance between the two opposing forces. Crisis in the context of current context is defined in specific terms. The following are important terms in context of crisis intervention.

Roberts defines a crisis as "a period of psychological disequilibrium, experienced as a result of a hazardous

event or situation that constitutes a significant problem that cannot be remedied by using familiar coping strategies [Figure 1].<sup>[1]</sup> An intensely stressful, traumatic, or serious event combined with the person's faulty perception resulting into psychological disruption and the individual's inability to resolve it are the primary factors requiring crisis intervention. Coping mechanisms that could have helped the person cope are either insufficient or not used at all. Later, James and Gilliland define crises as events or situations perceived as intolerably difficult that exceed an individual's available resources and coping mechanisms.<sup>[5]</sup>

Critical incident is a term which refers to an event which is exceptional and outside the individual's usual range of experience and challenges one's ability to cope successfully. The critical incident has the potential to cause a crisis condition by overwhelming one's usual psychological defenses and coping mechanisms [Table 3].

Coping behaviors are active efforts to resolve stress and create new solutions to the challenges of the situation. Coping involves the ability to gain and process new information; the ability to maintain control of one's emotional state; and the ability to move freely within one's environment. Coping behaviors are the source of new, original, unique, and creative solutions or behaviors. In this process, one develops adaptive ego functions that provide resources for coping in the subsequent stages or situations. If a crisis is not resolved in a positive manner, it can lead to destructive forces and psychopathology.

**Few examples of crises**

- An accident,
- Natural disaster,
- Death/loss of a loved one,
- Onset or deterioration of Physical illness,
- Financial difficulties,
- Divorce/separation,
- Unexpected pregnancy,
- Employment loss.

Clinicians need to address the level of distress, impairment, and instability in a rational and methodical way while confronted with a person in crisis.<sup>[5]</sup> Although, many clinicians may be aware about the best approaches for the crisis intervention, being in stressful situations, they may revert to strategies that are less than effective. Hence, it is important to have a quick and useful reference guide for do's and don'ts for crisis intervention workers [Tables 4-6].

Immediate aftermath of acute crisis event, there are factors that help in long-term recovery and prevention of adverse sequelae over a period of time.

Several practice models have been developed to help in assessment and intervention during crisis intervention over the years.

**MODELS OF CRISIS ASSESSMENT AND INTERVENTION**

**Models of assessment**

Triage Assessment System: it was developed by Myer,<sup>[6]</sup> who proposed to assess crisis reactions in three domains:

- a. Affective (emotional) reactions: include three pairs of emotions anger/hostility, anxiety/fear, and sadness/

**Table 1: Disorders related to stress in ICD-11 and DSM-5**

ICD-11	DSM-5
Category name- Disorder specifically associated with the stress	Category name- Trauma- and Stressor-Related Disorders
Post-traumatic stress disorders	Reactive attachment disorders
Complex Post-traumatic stress disorders	Disinhibited social attachment disorder
Prolonged grief reaction	Post-traumatic stress disorders
Adjustment disorders	Acute stress disorder
Reactive attachment disorders	Adjustment disorders
Disinhibited social attachment disorder	

**Table 2: Components of crisis**

Precipitating event- An intensely stressful, traumatic, or serious event; occasionally anticipated aversive situations may bring similar response  
 Vulnerability- The same crisis event doesn't produce similar effect in all the individuals. Hence, a role of inherent vulnerability is there. It can be a personality trait or even context dependent vulnerability in absence of long-standing issues  
 Perception- Dysfunctional, catastrophic or irrational thinking about causes, impact or consequences of event, and psychosocial conditions  
 Psychological symptoms- Strong emotions/feelings like vulnerability, anxiety, hopelessness, and powerlessness  
 Poor/faulty coping- One's usual coping mechanisms have failed to bring homeostasis  
 Functioning impairment or distress

**Table 3: Factors influencing reactions to the crisis**

Nature and severity of the adversity  
 Early life experiences  
 Age, sex, disabilities (if any), marginalized populations, minorities, etc.  
 Premorbid physical and mental health  
 Available social support and resources to deal with the adversity  
 Cultural background and traditions



**Figure 1: Core conceptualization of crisis**

**Table 4: Characteristics of the crisis intervention**

Time of intervention	Early intervention is recommended
Proximity	Intervention is to be offered in close physical proximity to the acute crisis management
Expectancy	It is expected by the recipient that intervention is focused on issues largely related to current crisis
Brief interventions	The interventions are typically brief and focused
Simple	The interventions are often more directive and supportive. Complex interventions are usually avoided at this stage

**Table 5: Primary aims of the crisis interventions**

The primary aims of the crisis interventions are as follows

- Establish a rapport and provide reassurance and support
- Evaluating the nature of the problem and evaluating medical, psychiatric (including suicidal, homicidal, and substance use-related issues), social, and legal needs
- Ensuring the safety of the client and relevant others
- Assisting the client in developing an action plan which minimizes distress, encourages successful and healthy coping, and improves functioning.
- Discussing strategies for successful implementation of these plans
- Following up with the clients to monitor progress, provide additional support, and necessary referrals or long-term therapy as per the needs and resources available

**Table 6: Factors influencing long term recovery**

- Feeling of safety
- Management of emotions-calm, hopeful
- Access to Social Support-Connected to others
- Feeling able to help themselves and community (if relevant)

melancholy. If more than one pair of emotions are present, it is rated as primary, secondary, and tertiary. Accurate assessment of primary emotion provides an opportunity to deal with the feeling and providing appropriate support.

- b. Cognitive (thinking) reactions: client's perception of how the crisis has affected, is affecting or will affect his or her physical, psychological, social, and moral/spiritual life. The perceptions may include transgression, threat, and loss.
- c. Behavioral (actions) reactions: include approach/avoidance and immobility. It may be constructive or maladaptive.

Each domain is rated on a scale of 1 (no impairment) to 10 (Severe impairment). The score of all the domains is added together to give an overall severity. The higher is the severity, the more is the impairment.

In addition to this, the client assessment includes assessment for suicidality, lethality, risk of harm to others, etc., based on the clinical situation. The details of these aspects are not included in this guideline and can be seen at other relevant places.

**MODELS OF MANAGEMENT**

- 1. Gilliland's Six-Step Model: it was developed by James

and Gilliland<sup>[5]</sup> and is a useful crisis intervention model. It includes three listening and three action steps.

- i) Listening: focuses on:
  - a. defining the problem,
  - b. ensuring client safety,
  - c. providing support,
- ii) Action: focuses on:
  - a. examining alternatives,
  - b. making plans,
  - c. obtaining commitment.

A few important components of listening are observing, understanding, empathetically responding, respect for the client, acceptance, non-judgmental attitude, and caring. Action denotes those steps done in a nondirective and collaborative manner. It is also important to assess the needs of the client and the environmental supports available to him.

- 2. Seven-Stage Model of Crisis Intervention: It was developed by Roberts<sup>[1]</sup> and it contains the following seven stages:

- i. Conducting a thorough biopsychosocial and crisis assessment (including assessment of suicidal and homicidal risk, need for medical attention, drug, and alcohol use, etc.).

The crisis worker should assess the lethality first and confirm whether the client has initiated say, for example, a suicidal attempt. If not, the crisis worker should assess the client's intent for self-harm. It is recommended to get that information from the client through an artful interviewing style rather than by direct questioning.

- ii. Making psychological contact and establishing rapport.

A therapeutic relationship with the client can be established through the counselor offered conditions like genuineness, respect, and acceptance of the client. To instill trust and confidence in the client, the crisis worker should practice good eye-to-eye contact, a non-judgmental attitude, creativity, flexibility, a positive attitude, and resilience.

- iii. Examining and defining the dimensions of the problem or crisis (including Identification of the precipitant to the crisis).

Crisis workers should focus on the client's current problems, usually, that precipitated the crisis. It will also help to understand how the situation escalated to a crisis and how the client tried to cope with the crisis. This will help the crisis workers to plan and suggest necessary modifications to the client to resolve the current crisis and prevent future crises.

- iv. Exploration of feelings and emotions mainly by actively listening and responding with encouraging statements.

The crisis workers should allow the client to vent his or her distress/feelings. Active listening skills like paraphrasing, reflecting feelings, and probing are



useful in this stage. In this stage, the crisis workers should work challenging responses (providing information, reframing, and interpretation) into the crisis-counseling dialogue that may help to undo the client's maladaptive beliefs.

- v. Exploration of past positive coping strategies of client and alternatives if any.

Crisis workers need to be creative and flexible in resolving crises. The crisis worker and client can discuss the available options on the table (e.g., a no-suicide contract) for ensuring the client's safety. Some authors recommended integrating solution-focused therapy techniques viz., "Amplifying Solution Talk" in this stage.

- vi. Implementation of the action plan. It is important to identify supportive individuals and contact referral sources

The action plans (e.g., entering a 12-step treatment program, joining a support group, etc.) implemented at this stage are important for restoring the client's equilibrium and psychological balance. Roberts highlighted the importance of the cognitive dimension of the client at this stage that will help to gain mastery over the crisis and to cope with similar situations in the future.<sup>[1]</sup>

- vii. Follow-up plan with clients to ensure that the crisis has been resolved

Also, the post-crisis evaluation of the client is to be done that may include the client's physical condition, overall functioning, cognitive mastery of the precipitating event, the progress of the treatment, and need for any referral (e.g., legal, medical, etc.). In this stage, it is recommended to have a "booster session" with the client (usually after a month of termination of the crisis) to assess treatment gains and potential problems.

### Location

Location of crisis intervention strategies is dependent on the crisis intervention program, target population, and available resources. Crisis intervention is offered in clinical settings including emergency settings, makeshift offices in disaster sites, military settings, workplace, schools, and in community outreach centers or at homes. Additional factors influencing location might be local norms, culture, stigma of mental health, and administrative support, etc.

## MANAGEMENT

### Pharmacological treatment

The choice of treatment is determined by several factors. Availability of treatment options, time and resources available, and choice of treatment by the patient are some of the important considerations. Although, psychological interventions remain the treatment of choice, unavailability of therapist, unwillingness, or inability of the clients to

undertake psychological interventions are important reasons for choosing pharmacological treatment options. In practice, most patients with sufficiently severe psychopathology receive a combination of pharmacological and non-pharmacological interventions. The pharmacological treatment options available have following important caveats that all medications have some potential for adverse reactions and the empirical base for effectiveness of pharmacological treatment options is limited.<sup>[7]</sup> Hence, the treatment approach remains symptom based and empirical. SSRIs are considered the first line agents. However, SDAs, mood stabilizers, sedative/hypnotics, and antihypertensives are commonly used for the management of symptoms. Best practice prescribing strategies are followed for drug treatment. It primarily includes information prior to commencement, regular monitoring of response, adverse effects, and suicidal risk. Minimum number of medications is used, and polypharmacy is avoided as far as possible. Appropriate discontinuation and withdrawal practices are followed [Table 7].

### Psychological interventions

The crisis intervention strategies are offered in various settings including outpatient psychiatric clinics, community mental health centers, counseling centers, or crisis intervention settings.

Crisis theory is developed over a period of time using inputs from a variety of disciplines and schools of thought. The commonly used crisis intervention models nowadays are often eclectic mixtures of psychoanalytic, existential, humanistic, cognitive-behavioral, and family system theories.<sup>[8]</sup>

Crisis interventions (CI) are problem-focused, brief mental health interventions that are typically used within 4 to

**Table 7: Commonly used medications for psychiatric conditions related to stress**

Medications	Description
SSRIs	SSRIs are considered first line medications for such conditions. There is insufficient evidence to compare relative effectiveness of agents among each other's. Paroxetine, sertraline, and escitalopram are commonly used.
Other antidepressants	Mirtazapine and amitriptyline are other commonly used medications. Trazodone may be used as a medication to promote sleep.
SDA	Olanzapine, risperidone, and quetiapine have been used for irritability, anger, severe agitation, and uncooperativeness.
Mood stabilizers	Lithium carbonate, Valproate, Carbamazepine/ Oxcarbazepine. Usual indications include violent behavior and irritability.
Sedative/hypnotics	Benzodiazepines and Non-Benzodiazepine medications can be used for insomnia, anxiety, and agitation. Lowest dose for shortest period should be used. Client should be informed about potential for dependence.
Propranolol	Propranolol can be used for increased arousal, palpitation, and anxiety.

6 weeks of exposure to a stressor or crisis. It is one of the most commonly used time-limited treatment modalities in the world.<sup>[9]</sup> This clinical practice guidelines outline broader model and approaches useful in crisis situations. The crisis intervention worker can adapt it appropriately according to the local cultural and contextual issues. An earlier clinical practice guidelines of Indian psychiatric society has been developed for supportive psychotherapy which deals with a related topic.<sup>[10]</sup> It can also be referred for additional information and further details.

The mental health needs of the people exposed to a significant stressor or crisis are different and distinctive. Several different models of interventions are available. This article doesn't aim to comprehensively elaborate and enlist all the available models. Although each situation and client's needs are different, a few common steps can be applied across the situations. It is aimed to discuss common components of these models and essential strategies found successful across different models.

Crisis intervention can be offered in multiple settings to a variety of individuals or groups including primary and secondary victims. The deceased, the injured, and their family and friends are examples of primary victims because they were directly involved in the critical event. The term "secondary victims" refers to anyone who is somehow witnesses to the immediate traumatic consequences on the initial victims, such as eyewitnesses, rescuers, and converging rescuers. Accordingly, the strategies can be for individual or group settings. A broad range of possible crisis and individual reactions, the severity of distress, and the use of coping strategies call for a reasonable individualization in approaches for every situation [Table 5]. A variety of professionals can conduct crisis intervention (CI). A psychiatrist, a clinical psychologist, psychiatric social worker, or psychiatric nurse can learn to use these skills and can conduct successful crisis intervention. For this document, for the brevity of writing, any professional conducting CI is referred to as crisis intervention worker (CIW).

The important steps of crisis intervention are discussed below [Figure 2].

#### Establishing a rapport

There are certain general strategies for establishing and strengthening rapport with the client. Many clients have limited attention span, feel distracted, have difficulty at focusing, or are extremely anxious owing to emotional upheaval after experiencing a psychosocial crisis. The crisis

intervention worker should be vigilant about these issues and make appropriate alterations in the interview style for the same. Initial success in crisis intervention is largely dependent on the crisis intervention workers' ability to put the client at ease and alleviate these emotional reactions. Asking small questions, and frequently checking if the client can understand and appreciate what is being said is important.

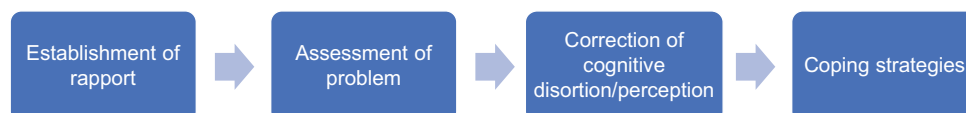
At the beginning of the interview, crisis intervention worker has to introduce himself/herself and need to inform the reasons for speaking to the client. Unless the reason for the consultation is implicit (the client himself/herself has come to the crisis intervention workers), crisis intervention workers should take consent for further proceeding. The crisis intervention workers should also inform about the nature of the interview and the approximate amount of time needed. The client is informed that they are free to make suggestions regarding the intervention format and they will not be pushed to talk or cooperate against their wishes.

The information regarding privacy and confidentiality is also provided to the client. The information is shared with others only if there is a serious concern related to the safety and security of the client or relevant others (e.g., suicidal or homicidal intent).

A respectful, non-judgmental, and considerate environment is created during the interaction. Clients are often going through considerable distress, emotional pain, and feeling vulnerable and uncertain about several things. It must be acknowledged, and due consideration is given during the interaction. This respectful and considerate environment significantly contributes to the development of rapport.

Few key clinical skills are discussed in this regard

- I. Active listening- The most basic yet most important skill in psychological therapeutic interventions remains active listening. Active listening is paying attention to the verbal and non-verbal speech of the client and ongoing reactions to it so that clients know that they are being heard and understood. The components of active listening include adequate eye contact, attentive, and encouraging body language like appropriate head nodding, slight leaning toward the client while talking, appropriate facial/hand gestures, and vocal style showing concern.
- II. Questioning techniques- A combination of open-ended and closed-ended questions is used during the interview. As usual, it is better to start with open-ended questions and gather information. Close needed questions are useful in completing important areas which are missed



**Figure 2:** Core conceptualization of crisis intervention

like the further elaboration of the information provided till now and evaluating the risk of suicide/homicide or other risky behaviors. Certain interviewing techniques are also useful.

1. **Clarifying:** It aims at clearly understanding what is being said. The crisis intervention workers may ask questions to clarify and to also show that he/she is actively listening.
2. **Paraphrasing:** Crisis intervention workers restate what clients have already spoken in simpler words emphasizing factual and cognitive aspects.
3. **Summarizing:** Summarizing is used to bring focus to the most important aspects of crisis intervention workers' understanding. Feedback is taken from the client so that both mutually agree on the extent of the problems and difficulties.
4. **Reflection:** Reflection is a statement that emphasizes the affective or emotional part of verbal or nonverbal speech of the client, e.g., *sounds like you are angry with your boss, you seem to undergo humiliation while living with xxx*. Reflection is a powerful technique to express empathy. Expressing empathy means letting the client know that crisis intervention worker understands the emotions and feelings being experienced by the client.
5. **Matching and mirroring nonverbal communication:** Consciously matching and mirroring the postures, gestures, and facial expressions in subtle way improves rapport and communication.

It is also important to note that crisis intervention workers should avoid confrontation, getting into debates and argument with the client. It should be accepted that every client's situation, needs, and context are different and "clients" are expert in their situation. Whenever appropriate, taking "one-down position" to client is useful to foster better therapeutic relationship in many situations.

### Evaluating the problem

Crisis intervention workers need to evaluate several aspects of the crisis. The areas of inquiry include precipitating event, client's perceptions of meaning and reasons of the event, amount of subjective distress, and identifying different emotions being experienced by the client, as well as functioning in various areas of life like personal, familial, social, academic, and occupational, etc. The client's level of comfort and amount of distress is monitored while talking about the event. It is important to know that the clinician does not have to know everything about client's difficulty and the goals in order to successfully provide crisis intervention effectively. Exact and minute details of the event are *not* important and even maybe counterproductive to ask.

### Therapeutic strategies

Assessment of the client's perception is one of the most important tasks in crisis intervention. This aspect is

often the most important target for intervention in crisis intervention. It is the perception of the client and his/her ability to cope with the event that led to the current problem. Once the cognitions, perceptions, meaning of the event, and frame of reference regarding various aspects of the event are assessed, crisis intervention worker aims at addressing them to identify the thinking errors made by clients and alter these cognitions into more adaptable and helpful cognitions. This strategy of cognitive restructuring is an essential aspect of crisis intervention. Once this has been achieved, it leads to a reduction of the accompanying emotional distress. Usually, the dysfunction and distress originate from the following areas.

- a) Loss of control,
- b) Loss of self-esteem,
- c) Loss of support,
- d) Difficulty in adjustment to change in life or a role.

The subjective distress and functioning levels of the client need to be independently assessed. It is helpful for the client if they can ventilate their difficult emotions, distressing feelings, and other associated behavioral and somatic symptoms. Functioning should be assessed in each area as improving functioning early during the treatment process is an important goal of therapy.

Identifying and evaluating medical, psychiatric (including suicidal, homicidal, and substance use-related issues), social, and legal needs are other important tasks. These needs may be contributing to the effective application of healthy coping strategies. Appropriate referrals must be made once a client needs help in an important area that falls outside the expertise area of crisis intervention worker.

**Solution focused approach-** The emphasis is on finding solutions rather than solving problems. The therapeutic skills are asking questions that achieve solutions through "solution talk or change talk" in comparison with "problem talk." It is assessed that what has not worked till now. It is conveyed to the client that there are several approaches to feel better and improve in the current context. Emphasis is placed on the setting goals for future. It is important that goals are set by the client themselves and these are SMART (specific, measurable, achievable, realistic, and time limited) as far as possible. Goals should be stated in positive rather than negatives, i.e., rather than "*I want to stop feeling depressed*" or "*I don't want to keep laying all the day*" it can be "*I want to feel peaceful and safe*" and "*I want to start visiting markets and shops for my daily needs.*"

During next part of the intervention, a few other strategies are also used as therapeutic interaction in crisis intervention.

- I. **Education:** It is important to educate the clients about the universalities of crisis in human life as well as

perceptions and emotional reactions of other people who have experienced similar events, e.g., although unfortunate, about 30% of women have experienced intimate partner violence in marriage. It is common to experience sadness, anger, and helplessness during this time. However, there is a lot that can be done to improve the present situation and future risk of violence by your spouse. This educational information may lead to a reduction in the feeling of loneliness as well as empower the clients to take appropriate action. Many clients suffer due to a lack of reliable information and a tendency to unreasonably blame themselves. Educational statements may include information related to statistics, frequency, psychological impact, social perspective as well as scientific understanding of the issues related to crisis events.

- II. Empowerment: The process of becoming stronger and more confident, especially in controlling one's life and claiming one's rights. These statements are offered as a part of enabling the application of appropriate coping skills and healthy behaviors as part of recovery. Many clients believe that they have failed in anticipating or stopping the event hence they are unable to do so in the future also. They may also blame themselves or consider themselves weak, wrongful, or wicked. It is important to bring change in this perspective. Clients are presented with various choices and strategies to respond better presently. Crisis intervention worker who offers advice to and generate solution may sometimes quicken the crisis resolution; however, it may not lead to client empowerment. Concept of empowerment is helpful in improving resilience hence is helpful for current crisis as well as enable clients to deal with similar situations in the future more effectively.
- III. Validation: Validation is defined as recognition or affirmation that a person or their feelings or opinions are valid or worthwhile. During the treatment process, crisis intervention worker reassures and supports the clients often that the emotional experiences and distress experienced are normal after experiencing such a crisis and it will get better. The aim is also to encourage adaptive and helpful coping strategies for the clients. However, the validation and support statements are not the ones that may be perceived as false or empty. The clients often listen from well-meaning friends and family members that "Don't worry," "Everything will be okay," and "You are strong and get through this." Crisis intervention workers are experts in dealing with such situations hence validation and support come from a deeper understanding of the client's unique difficulties as well as a scientific understanding of the recovery process.
- IV. Reframe: The clients often have cognitive errors and may have a wrong frame of reference while interpreting crisis events. The clients are encouraged to adopt a realistic frame of reference.

### Coping

At the end of the crisis intervention, crisis intervention worker should aim to summarize the formulation of the client's problem from the medical point of view, address cognitive re-structuring related to events and discussions focus on successful coping strategies.

As the rapport with the client is established, the client starts becoming more comfortable due to a reduction in distress levels; he/she is encouraged to take a more active part during the interaction. The client is encouraged to enlist what they have been trying to do to cope with the event till now. Crisis intervention workers should focus on identifying and working with the client's strengths. Emphasizing strengths rather than deficits can help in facilitating better engagement and success of intervention. Earlier research has found that clients want therapist to think positive about them. Making hostile, rejecting, critical, or blaming comments elicit negative reactions toward therapy and therapist. The impact of coping strategies used so far is jointly evaluated. It is attempted to distinguish healthy/adaptive coping strategies from unhealthy/maladaptive coping strategies [Table 8].

The client is asked to suggest a list of healthy/adaptive coping strategies that they can use in the present and future to deal with the undergoing crisis. Once the client has exhausted their ideas about coping strategies, the crisis intervention workers can also suggest some of the coping strategies which the client is not able to think of or is unaware of so that it can be discussed if these are practical strategies and can be of use to the client. Joint decision-making is encouraged at this stage. However, if the client is not able to focus, unable to come up with possible coping strategies, or is indecisive regarding the practical utility of the strategy, they may be encouraged to try the technique and discuss its impact with the crisis intervention workers. Possible hurdles to the implementation of the strategies discussed are also inquired about. Once the list of hurdles, e.g., *not having the motivation to go for a walk, feeling fatigued at the end of the day so that could not engage in my favorite hobby, not having the courage to make a call to my old friends as I have not connected with them for quite some time,* etc., have been gathered, both crisis intervention workers

**Table 8: Few examples of coping strategies which can be useful after facing a crisis**

<b>Problem focused coping strategies</b>	<b>Emotion focused coping strategies</b>
Behavioral strategies employed to actively handle distressing situations. E.g., Collecting information, decision-making, conflict resolution, acquisition of knowledge, skills, or abilities	This involves reappraisal of situations differently, handling emotions and learning and utilizing activities for managing somatic manifestations and neurovegetative functioning, e.g., Journaling, meditation, relaxation exercises, and cognitive reappraisal

and clients can jointly find out the plan to handle important issues. This activity significantly increases the chances of successful implantation of the discussion that happened in the session.

Some other approaches found useful

- I. **Support groups:** The client may be encouraged to get in touch with local support groups. It might be more comfortable for the clients to receive support from a natural support group like peer groups, relatives, friends, religious groups, or co-workers if any such possibility is available to the client. There can be few organized peer support groups in certain parts of the country. The client is encouraged to try seeking the help of such groups.
- II. **Journaling:** Clients may find it helpful to keep a journal. Crisis intervention worker may encourage clients to maintain a secret/personal journal. Writing once thoughts, emotions, and other experiences allows the person to evaluate these more objectively. This is helpful in the recovery process for several individuals.
- III. **Bibliography:** There are several good books/websites/reading materials available for dealing with different kinds of crises. Advising quality reading material to interested clients is often helpful to people who like to read. Such resources are often developed both by experts and first-person accounts of persons who have gone through a similar crisis are available. Keeping a list of such resources and advising capable clients to use is helpful in several instances.
- IV. **Medical and legal referrals:** Many clients may require medical and legal referrals but may be avoiding the same due to several reasons. The crisis intervention worker can direct them to seek appropriate referrals and can help in making some provisions in this regard with any other helping agency, if available.

There are several specific models for crisis intervention that are developed over a period of time for different situations. A few of the important models are summarized below.

**Psychological First Aid (PFA):**<sup>[11]</sup> PFA is defined as a “humane, supportive response to a fellow human being who is suffering and who may need support.” PFA is aimed offered to the people who have immediately experienced extremely stressful events. This model of care takes into account both psychological and social aspects of care needed for persons during the early course of exposure to stressors. Special attention is given to focusing on the preservation of the dignity, culture, or abilities of the person to whom the intervention is being offered. The evidence of PFA has been compared with psychological debriefing and it was found that PFA is superior to psychological debriefing in crises. The strategies of PFA have evidence of successful application in low and middle-income countries and these can be

offered even by non-professional people also. PFA can be used by non-professionals and professional both. Booklet of PFA is available for free download from <https://www.who.int/publications/i/item/9789241548205> (Last accessed 22 June, 2022).

**Critical Incident Stress Management (CISM):**<sup>[12]</sup>

CISM is evolved from earlier CI programs and group psychological debriefing techniques. CISM was originally developed for emergency service personals like fire department, first line police, rescue or disaster teams and military settings. It is defined as an integrated, multicomponent, and comprehensive intervention program useful for both the primary and secondary victims. The strategies are included for pre-crisis preparation, acute crisis intervention, and post-crisis management. Both individual and group strategies are incorporated usually lasting from 4-12 sessions. Pre-crisis preparation may be thought of as a form of “psychological immunization.” The aim of this phase is to strengthen potential psychological vulnerabilities and enhance resilience in individuals specifically who are at risk of developing crisis reactions. It includes providing information so as to have realistic expectations about the stress responses. It also incorporates stress response management, behavioral regulation, improved coping, and practical strategies to help and support each other for people involved.

## CONCLUSION

Crises are common human experiences and a subset of vulnerable people develops clinically significant difficulties necessitating intervention. Evidence-based clinical interventions are available that can be offered to persons in need. Typically, therapeutic interventions needed for crises are offered as early as possible, is problem focused, simple and brief. Therapeutic strategies used in crises are often derived from an eclectic mix of strategies from various psychological intervention models. The major clinical issues are assessed in domains of cognitive, emotional, and behavioral domains. Interventions are focused on handling psychological reactions as well as providing help, information, and support regarding social issues, if feasible.

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## Conflicts of interest


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# Clinical Practice Guidelines for Assessment and Management of Patients with Borderline Personality Disorder

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## INTRODUCTION

### Delimitation of the topic and target group

This guideline uses the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) diagnosis of “borderline personality disorder”.<sup>[1]</sup> The guideline is intended to be applied to specialised psychiatric and general/primary healthcare settings.

### Personality disorders in the current classificatory systems

Research on personality disorders (PDs) has progressed significantly. Classificatory descriptions of PD have been changing from categorical to more acceptable dimensional ones. However, for this guideline, we have followed DSM-5, as most of the existing good quality evidence is based on DSM-5 or DSM-IV-TR criteria. Present-day scientific research primarily emphasizes the BPD categorical diagnosis and so does this guideline. International Classification of Diseases 10(ICD-10) emotionally unstable PD: borderline type is similar to the DSM-5 borderline PD diagnosis [Table 1].<sup>[1,2]</sup> ICD-11 and DSM-5 describe personality disorders differently; in ICD-11, the equivalent to ‘borderline personality disorder’ would be the diagnosis of personality disorder (usually moderate or severe) with a specifier ‘borderline pattern.’

## BASIC CONCEPTS

### Personality and temperament

The term “Personality” encompasses a dynamic set of functions and traits. Personality can be described on four levels:

- Personality traits (e.g., temperament, Panel 1).
- Characteristic means of adaptation and individual goals.
- Narrative self (e.g., identity).
- Dynamics of interaction relationships.

“Temperament” refers to individual, biologically based skills in regulating emotions that can be recognized already in infancy. DSM-5 defines personality traits as persistent ways of perceiving, relating to others, and understanding oneself and the environment.<sup>[1]</sup> Among the personality traits, (i) emotional stability, (ii) conscientiousness, and (iii) social dominance continue to increase until the age of 30–

### Panel 1: The five-factor model of the personality disorders

The five-factor model is the most widely studied temperament model, and the most systematic research data is available on it. Temperament traits corresponding to it have been described in many different cultures.<sup>[12]</sup>

#### Five factors with subsections (and ICD-11 pathological equivalents<sup>#</sup>)

##### Extroversion/positive emotionality

Warmth, generosity, assertiveness, activity, excitement seeking, positive emotions

ICD-11 (pathological equivalent): Detachment

##### Neuroticism/negative emotionality

Anxiety, hostility, depression, self-consciousness, impulsivity, vulnerability

ICD-11 (equivalent): Negative affectivity

##### Openness to experiences

Imagination, aesthetics, feelings, action, ideas, values

ICD-11: No equivalent

##### Agreeableness

Trust, honesty, altruism, adaptability, modesty, tenderness

ICD-11 (pathological equivalent): Dissociality

##### Conscientiousness

Competence, orderliness, sense of duty, goal orientation, self-discipline, judgment

ICD-11 (pathological equivalent): Anankastia

<sup>#</sup>The ICD-11 trait domain of Disinhibition would map partly into dissociality and (low) conscientiousness in the Five Factor model of personality

40 years.<sup>[3,4]</sup> Traits of healthy and disturbed personalities seem to form a continuum.

### Personality disorder

Borderline personality disorder (BPD) is associated with a limited, rigid, or unstable experience of the established self and self-concept and difficulties in interpersonal relationships. Accentuated negative emotionality is a hallmark of borderline personality but the condition is also associated with acute symptoms.<sup>[1,5]</sup>

When managing BPD, it is important to remember that the diagnostic criteria for borderline personality describe a heterogeneous group of patients.<sup>[6]</sup> And also that the disease burden of PD patients is comparable to severe physical diseases.<sup>[7]</sup>

## EPIDEMIOLOGY

### Global prevalence

PD have been found at varying rates all over the world. The

**Table 1: Diagnostic criteria/guidelines for borderline personality disorder**

ICD-10 guidelines	DSM-5 criteria
<p><b>F60.3 Emotionally unstable personality disorder</b> A personality disorder in which there is a marked tendency to act impulsively without consideration of the consequences, together with affective instability. The ability to plan ahead may be minimal, and outbursts of intense anger may often lead to violence or “behavioural explosions”; these are easily precipitated when impulsive acts are criticised or thwarted by others. Two variants of this personality disorder are specified, and both share this general theme of impulsiveness and lack of self-control.</p> <p><b>F60.30 Impulsive type</b> The predominant characteristics are emotional instability and lack of impulse control. Outbursts of violence or threatening behaviour are common, particularly in response to criticism by others. Includes: explosive and aggressive personality (disorder). Excludes: dissocial personality disorder (F60.2)</p> <p><b>F60.31 Borderline type</b> Several of the characteristics of emotional instability are present; in addition, the patient’s own self-image, aims, and internal preferences (including sexual) are often unclear or disturbed. There are usually chronic feelings of emptiness. A liability to become involved in intense and borderline relationships may cause repeated emotional crises and may be associated with excessive efforts to avoid abandonment and a series of suicidal threats or acts of self-harm (although these may occur without obvious precipitants). Includes: borderline personality (disorder)</p> <p><b>ICD-11 Diagnostic requirements</b> (<a href="https://icd.who.int/browse11/l-m/en#/http%3a%2f%2fid.who.int%2f%2fid%2f%2f2f37291724">https://icd.who.int/browse11/l-m/en#/http%3a%2f%2fid.who.int%2f%2fid%2f%2f2f37291724</a>)</p> <p><b>Personality Disorder 6D10</b> Personality refers to an individual’s characteristic way of behaving, experiencing life, and perceiving and interpreting themselves, other people, events, and situations. Personality Disorder is a marked disturbance in personality functioning, which is nearly always associated with considerable personal and social disruption. The central manifestations of Personality Disorder are impairments in the functioning of aspects of the self (e.g., identity, self-worth, capacity for self-direction) and/or problems in interpersonal functioning (e.g., developing and maintaining close and mutually satisfying relationships, understanding others’ perspectives, managing conflict in relationships). Impairments in self-functioning and/or interpersonal functioning are manifested in maladaptive (e.g., inflexible or poorly regulated) patterns of cognition, emotional experience, emotional expression, and behaviour. The diagnostic requirements for Personality Disorder present a set of Essential Features, all of which must be present to diagnose a Personality Disorder. Once the diagnosis of a Personality Disorder has been established, it should be described in terms of its level of severity: 6D10.0 Mild Personality Disorder 6D10.1 Moderate Personality Disorder 6D10.2 Severe Personality Disorder A category relevant to this grouping is: QE50.7 Personality Difficulty Personality Difficulty is not classified as a mental disorder, but rather is listed in the grouping of Problems associated with Interpersonal Interactions in the chapter on Factors Influencing Health Status or Contact with Health Services. Personality Difficulty refers to pronounced personality characteristics that may affect treatment or health services but do not rise to the level of severity to merit a diagnosis of Personality Disorder. Personality Disorder and Personality Difficulty can be further described using five trait domain specifiers. These trait domains describe the characteristics of the individual’s personality that are most prominent and that contribute to personality disturbance. As many as necessary to describe personality functioning should be applied. Trait domain specifiers that may be recorded include the following: 6D11.0 Negative Affectivity 6D11.1 Detachment 6D11.2 Dissociality 6D11.3 Disinhibition 6D11.4 Anankastia Clinicians may also wish to add an additional specifier for ‘Borderline pattern’: 6D11.5 Borderline pattern The Borderline pattern specifier has been included to enhance the clinical utility of the classification of Personality Disorders. Specifically, the use of this specifier may facilitate the identification of individuals who may respond to certain psychotherapeutic treatments. The Borderline pattern descriptor may be applied to individuals whose pattern of personality disturbance is characterised by: A pervasive pattern of instability of interpersonal relationships, self-image, and affects, and marked impulsivity, as indicated by many of the following (<a href="https://www.bpdfoundation.org.au/diagnostic-criteria.php#ICD11">https://www.bpdfoundation.org.au/diagnostic-criteria.php#ICD11</a>): Frantic efforts to avoid real or imagined abandonment A pattern of borderline and intense interpersonal relationships Identity disturbance manifested in markedly and persistently borderline self-image or sense of self A tendency to act rashly in states of high negative affect, leading to potentially self-damaging behaviours Recurrent episodes of self-harm Emotional instability due to marked reactivity of mood</p>	<p><b>301.83 Borderline personality disorder</b> Frantic attempts to avoid real or imagined rejection. Note Do not take into account suicidal behaviour or self-injury, etc., (criterion 5) Borderline and intense interpersonal relationships, characterised by alternating between extreme idealisation and belittling Identity disorder: significantly and continuously borderline self-image or experience of self Impulsivity in at least two areas of potential self-harm (e.g., spending, sex, use of substances, reckless driving, binge eating). Note do not consider self-destructive behaviour or self-injury, etc., (criterion 5) Repeated self-destructive behaviour, gestures or threats suggesting it, self-cutting etc. Affective instability due to significant mood reactivity (e.g., intense episodic dysphoria, irritability, or anxiety, usually lasting a few hours and rarely longer than a few days) Chronic feelings of emptiness Inappropriate, intense anger or difficulty controlling anger (e.g., frequent sudden or constant anger, frequent fighting) Transitory stress-related paranoid thinking or severe dissociative symptoms</p>

Contd...



**Table 1: Contd...**

ICD-10 guidelines	DSM-5 criteria
Chronic feelings of emptiness	
Inappropriate, intense anger or difficulty controlling anger	
Transient dissociative symptoms or psychotic-like features in situations of high affective arousal	
A complete description of a particular case of Personality Disorder includes the rating of the severity level and the assignment of the applicable trait domain specifiers (e.g., Mild Personality Disorder with Negative Affectivity and Anankastia; Severe Personality Disorder with Dissociality and Disinhibition.)	
The Borderline pattern specifier is considered optional but, if used, should ideally be used in combination with the trait domain specifiers (e.g., Moderate Personality Disorder with Negative Affectivity, Dissociality, and Disinhibition, Borderline pattern).	

prevalence of PD (as per DSM-5) in the general population is about 6%. Cluster-B PD, which includes borderline, antisocial, histrionic, and narcissistic PD, have an overall global prevalence of 1.5%.<sup>[8]</sup> PD is clearly more common in young adulthood than later.<sup>[9,10]</sup> In high-quality European population studies, the prevalence of borderline personality was reported to be 0.7%.<sup>[11]</sup> As per estimates, BPDs occur in 6% of primary care patients but the proportion of identified cases is probably much lower.<sup>[12,13]</sup> Western studies suggest that almost 60% of people with BPD may be in contact with primary healthcare services during the year, usually due to somatic symptoms and illnesses. The prevalence is relatively higher among young adults, women, and people with little education and low income.<sup>[14]</sup> There is no research evidence of an increase in the prevalence of BPD.

### Indian prevalence

Systemic studies from India and other developing countries assessing the prevalence of PD are lacking. Early studies (from the late 1980s) reported the prevalence of PD in the general population ranging from 0% to 2.8%, with a weighted mean prevalence of 0.6%. Male gender was significantly associated with PD.<sup>[15]</sup> Most epidemiological studies conducted in India have systematically under-reported the prevalence because of sampling bias and other methodological flaws. The prevalence of PD among treatment-seeking Indian populations (0.3%-1.6%) is lower than that of western data (25%-50%). However, this difference is likely due to under-recognition.<sup>[15]</sup> A retrospective chart review (1996–2006) among North Indian patients seeking treatment in psychiatric outpatient settings reported a prevalence of 1.07% for ICD-10 PDs. The most common PD documented in the study were anxious-avoidant and borderline.<sup>[16]</sup> The reported rates are higher in special populations such as individuals in conflict with the law (7.3%-33.3%), individuals with substance use disorder(s) (20%-55%), and those who had ever attempted suicide (47.8%-62.2%).<sup>[15]</sup> A recent study on patients (N = 100) visiting the emergency department of a private hospital in eastern India using translated scales to screen for ICD-10 diagnosis of PDs found 24% of participants met the cut-off criterion.<sup>[17]</sup>

### RISK FACTORS

#### Childhood antecedents

BPD is thought to arise either from the interaction of predisposing factors or from the worsening of a childhood or adolescent

psychiatric disorder. As per the so-called exposure model, BPD results from an interaction between predisposing factors. As per the so-called complication model, it is primarily the result of another psychiatric disorder. Support for both models has been found in longitudinal research because the age of onset and gender seem to lead to different developmental curves.<sup>[10]</sup> In girls, internalising symptoms in early adolescence, such as anxiety and depression, may predict BPD in late adolescence (complication model), while externalising symptoms, such as defiance and conduct symptoms in adolescence, may predict BPD in adulthood (exposure model).<sup>[18,19]</sup>

#### Predisposing factors

Factors that increase the risk of BPD are also associated with other psychiatric disorders and physical illnesses. The accumulation of several factors suggests a higher probability of a disorder. Hereditary factors are known to be associated with personality traits and BPD.<sup>[20]</sup> In some patients, the emergence of the disorder may be related to organic and neurocognitive factors, such as encephalitis (inflammation), epilepsy, learning disorders, and childhood attention deficit hyperactivity disorder. Risk factors during pregnancy, such as maternal smoking, medical complications, and complications during childbirth, seem to increase the risk of BPD.<sup>[21]</sup> Those suffering from BPD report more difficult, traumatic childhood experiences than healthy controls.<sup>[22]</sup> Anxiety sensitivity and aggressiveness or hostility related to the temperament trait of negative emotionality and severe emotional abuse are independently associated with the risk and severity of BPD. Heightened rejection sensitivity may be related to emotional neglect.<sup>[23,24]</sup> Sexual abuse as a single factor apparently increases the risk of BPD little or not at all.<sup>[25]</sup> There is conflicting evidence about the association between dissociation symptoms and traumatic anamnesis in BPD. Dissociation can manifest as forgetfulness, a feeling that the self (depersonalisation) or the world (derealisation) has become alien, or as short-term hallucinations. BPD is significantly but weakly related to accumulating parenting problems. The parent's mental disorder and lower socioeconomic status may be background factors for abuse and emotional neglect. Prolonged separations from parents in the preschool years are linked to symptoms of BPD in adulthood.<sup>[24]</sup>

Abnormalities of brain function have been observed in neurophysiological studies (EEG and arousal response

studies).<sup>[26]</sup> BPD is associated with disruption of the functioning of the serotonin system in the fronto-limbic areas of the brain.<sup>[27]</sup> Brain changes that occur in patients with BPD, such as a decrease in the volume of the hippocampus and amygdala, are possibly related to childhood maltreatment, the severity of the disorder, and comorbidity.<sup>[28]</sup>

## PRIMARY PREVENTION

There has been no research on the primary prevention of BPD. A BPD exposes children to problems in parenting; so, good treatment of the disorder is likely to be promoted by good parenting. Parental guidance has a positive effect on the parenting patterns of at-risk families and children's behaviour problems. A wide-ranging program including nutrition, education, and exercise implemented in kindergartens may reduce disruptive behaviour and psychotic symptoms in young adulthood. Parental guidance reduces behavioural disorders in children and may reduce the costs caused by the continuation of behavioural disorders later.<sup>[29]</sup>

## CLINICAL FEATURES

### Core features of BPD

The core features of BPD are marked affective dysregulation, marked disturbances in self-image, unpredictable interpersonal relationships, and marked impulsivity. A model by Sanislow *et al.*, 2022<sup>[30]</sup> summarised the features of BPD into the following three dimensions:

- Impaired relatedness—Chronic emptiness, unstable relationships with others, and identity disturbance.
- Affective dysregulation—Affective lability, excessive anger, and violent efforts to avoid abandonment.
- Behaviour dysregulation—Impulsivity, suicidality, and self-injurious behaviour.

Affective instability was shown to be the most sensitive and specific single manifestation of BPD in a sizeable psychiatric OPD sample evaluated using a semi-structured interview.<sup>[31]</sup> All symptoms of BPD are associated with psychosocial impairment and poor quality of life. Chronic feeling of emptiness was found to be associated with the highest morbidity, including suicidality.

### Other important presenting features of BPD

#### *Suicidality*

Suicidal threats, gestures, and attempts are common manifestations of BPD. Data on rates of suicidal ideas, attempts, and suicide deaths have varied markedly. In retrospective studies, the rate of death by suicide is between 8% and 12% among individuals with BPD.<sup>[32]</sup> Years of suicide threats and self-injurious behaviour may precede a completed suicide and therefore predicting a suicide outcome may be difficult. All reported suicide ideations or attempts should be taken seriously in patients with

BPD. Suicide risk assessment is described later. Chronic feelings of emptiness, impulsivity, negative affectivity, and poor psychosocial function are commonly replicated chronic risk factors of suicide. More acute risk factors for suicide attempts in BPD include recent depressive episode, substance intoxication, adverse life event, and recent loss.<sup>[33]</sup>

#### *Interpersonal difficulties*

Patients with BPD usually have volatile relationships, especially with persons in close association.<sup>[34]</sup> A phenomenon called “splitting” often characterises the stormy relationship patterns where a support person (friend or romantic partner) is viewed as “all good”, loving and ideal when the patient's needs are met, and at other times the same support person may be viewed as “all bad”, mean, or cruel. A feeling of abandonment drives the behaviour of anger, clingy demands, depressed mood, hopelessness, and suicidal thoughts and acts when the support person leaves (or is unable to meet the patient's needs), even if for a short period. This alternating pattern of view may shift very rapidly, often with episodes of crisis in between. Patients with BPD often interpret neutral events, words, or faces as “negative”. Thus, the patient is prone to misinterpret relatively minor disagreements or adverse events as a sign that the caretaker or the therapist wants to terminate the relationship. This inclination to “split” can impact the relationship with the therapist and the treatment outcome.

#### *Affective instability*

Rapid and distressing intense changes in the affective state is a common presenting complaint in BPD. Changes in the emotional states can vary between happiness, intense anger, anxiety, panic attacks, dysphoria, sadness, and crying spells with interposing periods of euthymia. These mood shifts can happen within the span of a few hours and are frequently cued by environmental stress (e.g., fear of abandonment). However, affective dysregulation in BPD can also happen without any identifiable external factor. All efforts should be made not to miss a comorbid cyclothymia or more severe mood disorder.

#### *Impulsivity*

Impulsive and potentially self-damaging behaviour are common in BPD, with minimal regard for possible negative consequences. Impulsivity can manifest in many forms: substance abuse, binge eating, engaging in unsafe sex, spending money irresponsibly, involvement in physical fights, and reckless driving. The loss of control in sudden decisions or acts may manifest in damaging ways, for example, suddenly quitting a job that the person needs or ending a relationship that has the potential to last, thereby sabotaging their own success. Impulsivity can also manifest with immature and regressive behaviour and often takes the form of sexually acting out. Although the patient may regret their behaviour afterwards and may even appreciate its potential dangerousness, they may find it difficult, if not

impossible, to resist the urge to repeat the behaviour. From a management perspective, impulsivity should be manifested in at least two areas of life to be clinically significant.

#### *Deficits in the cognitive functioning*

Neuropsychologic functioning in patients with BPD is impaired in many domains. BPD patients perform significantly worse on tests of attention, cognitive flexibility, learning and memory, planning, processing speed, and visuospatial ability.<sup>[35]</sup>

#### *Nonsuicidal self-injury (NSSI)*

Patients with BPD may hurt themselves. Patients may typically recognise the activity as a compulsive act to calm down “inner tension.” It helps them to relieve stress and avoid suicidal thoughts or behaviours. NSSI is often associated with acute substance intoxication and recent rejections and may lead to frequent emergency visits. Although NSSI is often not driven by a wish to die, it is crucial to assess for suicidal ideas or intent.

### **Presentation of BPD in different age groups**

#### *Adolescence*

Although features of personality disorder in adolescence usually ameliorate with age, severe PD symptoms in adolescence seem to predict adult PD. Features of PD can be observed in some cases as early as six years of age when they can remain stable for several years. BPD can be reliably diagnosed in adolescence. Clinically significant features of BPD occur in 10% of young people. Diverse mood symptoms often accompany the condition. By the age of 16 years, 1.3% of young people can be diagnosed as suffering from a BPD. The variation in the comorbidity of the disorders is similar to that in adult patients except for suicide attempts, which are more common in BPD in youth. For some patients, the criteria for diagnosis are only met in young adulthood. It is recommended that BPD should be diagnosed correctly in adolescence, as it enables the timely mobilisation of the necessary social and clinical support measures. The use of mental health services is as common in adolescents with BPD as in adults in western countries. Understandably systematic data from India are limited.

#### *Old age*

The prevalence of BPD in public healthcare patients aged more than 80 years has been estimated at 0.3%. The clinical assessment of personality disorders is complicated by changes in personality and cognitive functions with age: chronic depression, cognitive changes related to ageing, and behavioural changes related to organic brain and systemic diseases. Symptoms of frontal and temporal lobe degenerative disease may resemble symptoms of BPD.

### **Presentations of BPD in different clinical settings**

#### *Emergency department (ED)*

An individual with BPD may present to the emergency department (ED) with deliberate self-harm (DSH), nonsuicidal

self-injury (NSSI), panic attack, stress-induced dissociative/psychotic episode, or physical aggression leading to conflict with the law (thus brought to the hospital by police). While in the busy ED, it is challenging to ascertain a BPD diagnosis for several reasons (including heightened emotional response, poor rapport, biased answering, lack of reliable informant, need for more emergent physical healthcare, and legal proceedings). However, the liaising psychiatry team should provide the option of further psychiatric services utilisation for in-depth assessment and care, especially because these individuals need more structured mental healthcare. A reliable informant, if available, may help in informed decision-making and shared responsibility in the continuation of care. In case a patient visits ED repeatedly, the attending mental health professional may need to address the immediate psychosocial issue and establish rapport so that the patient follows up for more regular outpatient care.

#### *Outpatient department (OPD)*

Individuals with BPD may consider visiting OPD in acute crisis (suicidal ideas, acute stress reaction, dissociative episodes), marital/family relationship conflicts, comorbid psychiatric illness (depressive disorder, anxiety disorder, problematic substance use), or being asked by competent authority (school/college authority, employer, court of law). A thorough assessment of premorbid personality, preferably from different sources with careful evaluation of the pattern of emotional responses and behaviour, helps the clinician diagnose BPD. A structured assessment using a prevalidated tool may help the clinician to achieve a diagnosis of BPD with higher confidence.

#### *Inpatient department (IPD)*

A thorough personality assessment should be done in all the patients using psychiatric inpatient services considering the high burden of BPD (~20%) in this group of patients. This is even more relevant in patients with treatment resistance, poor adherence to pharmacological treatment, and multiple comorbidities. A comorbid diagnosis of BPD may help therapists make a more comprehensive management plan, including long-term therapeutic approaches, addressing the issues of future crisis management and improving the overall quality of life.

## **ASSESSMENT**

### **Structured clinical assessment**

Usually, a single unstructured interview is inadequate to make a diagnosis of personality disorders. Hence, in clinical diagnostics, it is good to use a structured interview (e.g., International Personality Disorder Examination [IPDE]–Hindi translation is available) or assessment scales (IPDE Screen, Personality Disorder Questionnaire–Version 4 [PDQ-4]) and supplement the findings with comprehensive clinical observations. Various semi-structured interviews and

self-assessment methods have been developed for the diagnosis of personality disorders, which are presented in Table 2. Internationally, the Semistructured Clinical Interview for DSM personality disorders (SCID-II/SCID-5-PD) is most commonly used in clinical practice and research settings to increase the diagnostic accuracy of personality disorders. The information received from a third party (e.g., informants) does not necessarily increase the reliability of the diagnostic assessment.

There are several confounders in the diagnosis of personality disorder. Issues related to culture, ethnic background, age of onset of the disorder, gender, developmental changes in personality, and current psychiatric symptoms may impact the presentation of personality traits. In diagnostics, attention should be paid to the duration of the symptoms because, in personality disorders, the symptoms should be recognisable at the end of adolescence or young adulthood and should describe the patient's functioning in the long term. When making a diagnosis, it is necessary to ensure that the general criteria for a personality disorder are met. When evaluating the diagnosis, each symptom criterion must be evaluated in the light of whether the feature is clearly pathological, long-term, and manifested in different contexts.

Implementing good diagnostics in general/primary healthcare is not simple. A proper assessment can be supported by a psychiatric consultation. Ways to deal with challenging patient behaviour are described in the "Clinical management" section and in Panel 2.

**Psychological assessment**

BPD is often accompanied by neuropsychological changes, especially related to executive functions. A lower ability to regulate information may evoke negative emotions related to emotional volatility. Disturbances in executive control may increase self-injurious behaviour.

Tests used for personality assessment can provide additional information about the person's ability to function and ways of processing information. A widely used method is the Rorschach inkblot test. Exner's Comprehensive System helps in scoring and interpreting its results. The Rorschach inkblot test should not be used to diagnose BPD; it is mainly useful for assessing thinking, quality of object relationships, emotional instability, and suicidality.

**Panel 2: Borderline personality disorder in general/primary healthcare**

Tips for patient interaction

- Familiarise yourself with the symptoms of the disorder and the common causes of inappropriate behaviour.
- Treating a borderline personality disorder patient can be demanding, even for an experienced clinician. You should not set your goals too high.
- There is no quick fix for non-life-threatening self-injurious behaviour.
- Hospitalisation may not always be beneficial.
- Take the patient's experiences seriously and understand that they have their own reasons for experiencing things the way they do. Name the feelings you think the patient has, such as rejection, anger, and shame, before focusing on the 'facts'. Identify the real stress experienced by the patient.
- Avoid being provoked by the patient's disturbing behaviour.
- Give the patient regular, time-limited appointments, and make exceptions for new onset illness.
- Work within the limits you set at the beginning of the treatment and deviate from them only in an emergency.
- Good treatment can only be based on an agreement on the possibility of open communication with other parties treating the patient.
- Avoid polypharmacy and prescribing large quantities of potentially toxic drugs, for example, tricyclic antidepressants and benzodiazepines.
- Avoid prescribing potentially addictive drugs such as benzodiazepines, sleeping pills, and pain relievers that affect the central nervous system.
- Set limits on histrionic and pushy behaviour without judging the patient and their actions.
- The patient is always responsible for his actions (if it is not due to psychosis)
- Do not reward disruptive behaviour by giving increased attention, manage them by offering regular appointments that do not depend on the patient's harmful activity.

**Table 2: Structured methods for diagnosing personality disorders and borderline personality**

Method name and abbreviation	International Personality Disorder Examination (IPDE)	Structured Clinical Interview for DSM IV Personality Disorders (SCID-II)	Structured interview for DSM-IV Personality Disorders (SIDP-IV)	Zanarini Rating Scale for Borderline Personality Disorder (ZAN-BDP)	Borderline Personality Disorder Severity Index (BPDSI)	Diagnostic Interview for Borderlines (Revised) (DIB-R)
Coverage of personality disorders	All	All	All	Specific	Specific	Specific
Criteria						
DSM-IV/5	X	X	X	X		X
ICD-10	X					
Psychometric properties						
Internal consistency (Cronbach's alpha)	-	0.53-0.94	-	0.85	0.82-0.93	0.87
Inter-rater reliability	0.71-0.92	0.48 to 0.98	0.32 to 1.00	0.66-0.97	0.92-0.93	0.55 to 0.94
Test-retest reliability	0.62 to 1.00	0.38-0.63	0.16-0.84	0.59-0.96	0.72 to 0.77	0.57-0.73
Sensitivity	0.94	0.12 to 1.00	0.39	-	0.92 to 0.95	0.81-0.96
Specificity	1.00	0.72-0.97	-	-	0.90 to 0.95	0.88-0.94
Items and use						
Number of questions	157	120	160	-	70	125
Response time (min)	90-120	30-60	30-90	-	-	60
Research use (R) or clinical use (C)	R/C	R/C	R/C	R/C	R/C	R/C

### Assessment of comorbidities

Other comorbid disorders occur in 70% of those suffering from BPD. BPD patients may have multiple psychiatric disorders at the same time. It is also associated with higher physical morbidity than the rest of the population, which further increases the risk of suicide attempts. Common psychiatric comorbidities with BPD and tools to assess these comorbidities have been described in Table 3.

### Assessment of medicolegal aspects

Self-harm and physical or sexual abuse may lead to legal involvement in individuals with BPD. Comorbid dissociative traits and illicit substance use can also lead to conflicts with the law. Understanding the local and central legal standards on these aspects may be necessary while deciding the locus and modus of treatment. While underlying legal issues should not limit access to treatment, thorough record keeping and maintaining high standards of care is very important. All efforts should be made toward frequent monitoring and staff members should be well informed to avoid any abuse during patient care.

### Assessment of functional capacity

Impaired functioning related to BPD is corrected more slowly than symptoms of BPD. The social functioning, physical health,

and financial situation of a person suffering from BPD should be comprehensively evaluated when planning treatment and rehabilitation. Cognitive rehabilitation, psychoeducation, and dialectical behaviour therapy (DBT) may increase the functional capacity of a person suffering from BPD.

### Assessment of Quality of life

Assessment of functioning and quality of life is important in planning the course of management. WHOQOL-BREF is a validated 26-item self-rated questionnaire to assess the quality of life objectively. The Hindi form of this scale is validated. While symptom remission and better emotional control are the initial focus of treatment, early social and occupational rehabilitation helps in recovery and improved quality of life.

### Assessment of the ability to work (disability assessment)

Deterioration of functional ability is often accompanied by a decrease in ability to work. The ability to work may be most impaired in youth and early adulthood, when the transition to working life may be threatened. Vocational rehabilitation courses can improve working/life skills in adults, adults with disabilities, and young adults (aged 18-25 years). Such courses aim to increase life skills and support access to working life or education.

**Table 3: Assessment of psychiatric comorbidities in BPD**

Comorbid psychiatric conditions	Clinical presentations	Clinical instruments
Major Depressive Disorder (MDD)	Episodes of major depressive disorders (MDD) are not uncommon among individuals with BPD, especially during stress. Additional treatment of MDD is essential during the episode.	Hamilton Depression Rating Scale (HDRS)
Dysthymia	Persistent low-grade depressive symptoms with distress lasting for years ( $\geq 2$ years) is a common finding in BPD.	Cornell Dysthymia Rating Scale (CDRS)
Anxiety and panic attacks	Acute anxiety attacks and panic attacks are common manifestations of BPD. Episodes of attacks are more pronounced at times of perceived abandonment or rejection.	Hamilton Anxiety Rating Scale (HAM-A)
Insomnia	Insomnia is frequent. Comorbid depression, anxiety or substance use may add to the dysfunctions related to BPD.	Pittsburgh Insomnia Rating Scale (PIRS)
Somatic symptom disorder (SSD)	Somatoform pain symptoms are often a significant cause of occupational dysfunction in individuals with BPD. Adequate pain management significantly improves the quality of life.	Patient Health Questionnaire-15 (PHQ-15)
Dissociative disorders	Stress-induced dissociative episodes are common. Comorbid substance use disorder or depressive episode imparts diagnostic and management difficulties. Dissociative identity disorders are amongst the most difficult to manage.	Dissociative Experiences Scale (DES)
Impulse control disorder (ICD)	Intense anger may lead to harm to self and others. An additional diagnosis of ICD may be provided when impulse control issues predominate the clinical picture and pose significant dysfunction.	Minnesota Impulse Disorders Interview (MIDI)
Substance use disorders	Comorbid substance use poses a significant burden on physical and psychological health. The risk of impulsive harm to self and others is higher during episodes of intoxication and withdrawal.	Alcohol, Smoking and Substance Involvement Screening Test (ASSIST)
Brief psychotic episode	Stress-induced paranoid symptoms lasting for a few hours are common. Additional diagnosis of brief psychosis may be required when psychosis persists for more than one day.	Brief psychiatric rating scale (BPRS)
Posttraumatic stress disorder (PTSD)	Childhood physical and sexual abuses are common. A comorbid diagnosis of PTSD may be provided when presented independently. When symptoms of BPD emerge after significant, chronic or repetitive psychological traumas, a diagnosis of complex PTSD may be given.	PTSD symptoms scale (PSS)
Eating disorders (ED)	Bulimia and other eating disorders can be present as comorbid conditions with BPD. Body image disturbance is common in both anorexia and BPD. An additional diagnosis should be given when the diagnostic criteria for an independent eating disorder are met.	Eating Disorder Diagnostic Scale (EDDS)

For young people, the risk of being marginalised is high both when transitioning to working life and at the beginning of working life, when employment relationships are often temporary. To prevent the development of marginalisation, possible periods of sick leave should generally be limited to acute periods with severe symptoms of concurrent psychiatric disorders. Referral to enhanced vocational rehabilitation or its assessment and, if necessary, psychiatric rehabilitation is appropriate for the same reason.

If the patient has previously been able to work despite their disorder, it can be considered that their work disability is not solely due to BPD. Medical reports related to the patient's ability to work must describe carefully:

- Symptoms
- Life course
- Diagnosis
- Ability to work and function in real situations
- Treatment attempts and their results
- Educational and work history
- Vocational rehabilitation plan

## SPECIFIC ISSUES IN ASSESSMENT

### Risk assessment

Assessment of the risk of harm to self/others is one of the most critical factors when formulating a management plan for BPD. A thorough history from the patient, relevant other informants and medical/legal records, followed by a detailed mental state examination, is crucial. When a patient's thought is inaccessible and behaviour is unpredictable, appropriate precautions should be taken. Brief hospitalisation can be advised in such cases for further observations.

Factors indicating high suicide risk:

- High lethality of attempt
- Suicide intent
- Active planning
- Depressive cognition
- History of suicide attempts
- Recent loss
- Poor psychosocial support

Factors indicating a high risk for harm to others:

- Prior harm to or threatening behaviours toward dependent children
- Poor self-control on dangerous impulses
- Active homicidal thoughts
- Poor insight

### Considerations for the Indian context

Presentation, interpretation, and treatment options for BPD may vary significantly depending on the culture. Although systematic data from India on the cultural effect on personality organisation and presentation are sparse, some points may

be highlighted. Understanding and representation of self in the Indian context present as interdependent self with fluid and flexible interpersonal bonds.<sup>[36]</sup> Indian large and often joint families experience allow for frequent arguments/fights with minimal/no fear of abandonment, in stark difference to the western values of individualism and independence. Indian family constructs are tolerant of dependent or even manipulative acts (somatic complaints, provocative actions, misleading messages, and self-destructive acts), which are not considered particularly deviant unless they cause significant dysfunction in other areas of life or to the significant others. Cultural acceptance of psychosomatic expressions of distress also curtails the need for strong emotional responses during crises or interpersonal difficulties.

## DIFFERENTIAL DIAGNOSIS

Disorders that are important for differential diagnosis of BPD are described in Table 4:

## PROGNOSIS

Remission is common in BPD and, once achieved, is usually stable.<sup>[37]</sup> More than half of the patients suffering from BPD no longer meet the diagnostic criteria for the disorder after five years. Likewise, depressive symptoms are alleviated and functional capacity recovers clinically significantly in a few years. Among the signs, the fastest to relieve are self-destructiveness and identity diffusion. Impulsivity and fluctuations in emotional life are relieved more gradually with increasing age. As personality instability eases, mood and anxiety disorders also decrease, but do so more slowly. Depression slows down recovery from BPD. Comorbid PDs have also been found to be alleviated in patients with BPD during a six-year follow-up.<sup>[38]</sup>

The treatment results seem to be poor when people suffering from BPD have a lifestyle predisposing them to chronic diseases and high utilisation of health services. Even at the age of more than 50 years, the features of BPD may cause failures in relationships. Key prognostic factors are summarised in Table 5.

## MANAGEMENT

Central to the treatment of someone suffering from BPD is psychotherapeutic methods. They can be combined with other forms of treatment. The therapeutic relationship and the effectiveness of the therapy may be jeopardised if shame is not recognised in the therapeutic relationship and in the patient's most central emotional experiences. As per patients' reports, recovery is facilitated when the care provider offers security, respect, trust, and understanding while guiding toward change by being appropriately active and using specific strategies. At the beginning of the treatment, the therapist should:

**Table 4: Differential diagnosis of the borderline personality disorder**

Differential diagnosis	Description
Depression and dysthymia	Similar in their sense of emptiness and loneliness and the risk of suicide, BPD patients are convinced that they are self-sufficient, despite being dependent on others (it is particularly evident in the state of mania) while depressed people are aware of their need for help, but are usually capable of being completely autonomous. Sudden anger characteristics are rare in depression; although there are symptoms in common, in true depression a sense of mistrust with resignation prevails, in the borderline, this mistrust is accompanied by anger It is also necessary to distinguish the isolated reactive depressive episode from the maladaptive behavioural nature that underlies the depressive episode.
Bipolar disorder	“Bipolarity” differs from “borderline personality disorder” mainly due to the degree of pervasiveness in the subject’s psychic sphere. In the BPD, the oscillation is frequent, and the cycles are short, they last a few days or a few hours. The overhang is usually reactive to something that has to do with the perception of rejection by the other. Minimal signs of disinterest rather than alleged frustrations or losses are magnified and dramatised. In bipolar disorder, the oscillations are more discontinuous and lasting and can occur unexpectedly, regardless of the external situation.
Post-traumatic stress disorder	Both have anxiety, fear, and anger, but in posttraumatic stress disorder, the trauma that caused it is evident and often recent, even if it may develop in the BPD.
Somatoform disorder	In BPD, there is no real simulation of all the symptoms of a pathology but mainly an altered emotional state. Somatic symptoms are commonly manifested in BPD.
Histrionic PD	Both BPD and Histrionic PD want attention. The individual with histrionic PD seeks companionship and often appears happy in appearance, puts in place a seductive and sociable appearance. The individual with borderline PD shows his anger and frustration.
Narcissistic PD	Both are very sensitive to criticism, but the narcissist has a fixed sense of his superiority (grandiose self) that the borderline does not have stably.
Antisocial PD	Borderline antisocial behaviours (transgressing the rules, lying, manipulating) can occur, but the patient never loses the sense of guilt or the ability to feel remorse, while the BPD can repress them, but they are always very present.
Schizotypal PD	Both BPD and Schizotypal PD present with cognitive distortions, behavioural eccentricities and semi-psychotic symptoms during crises (e.g., delusions, paranoia, derealisation, depersonalisations and dissociations). The symptoms of schizotypal PD are deeper, often with unusual perceptual experiences, bordering on schizophrenia, unlike BPD. BPD and Schizotypal PD have in common - unstable emotionality (rapidly fluctuating mood) and the fear of social and personal rejection. However, the individual with BPD can look a lot like schizotypal, especially if it has comorbidities with psychotic or obsessive symptoms.

**Table 5: Factors predicting the outcome of the treatment of borderline personality during a 10-year follow-up period**

Factors explaining recovery	HR=hazard ratio
Faster recovery	
The severity of perceived violence	HR 0.94, <i>P</i> <0.03
No sexual abuse	HR 1.48, <i>P</i> =0.006
Childhood intellectual ability	HR 1.03, <i>P</i> <0.05
No PTSD symptoms	HR 1.56, <i>P</i> =0.002
No concurrent cluster C personality disorder	HR 1.84, <i>P</i> <0.001
No previous hospitalisations	HR 1.68, <i>P</i> =0.001
The parents do not have a mood disorder	HR 1.38, <i>P</i> <0.03
The parents do not have a substance abuse disorder	HR 1.84, <i>P</i> <0.001
Good professional development	HR 1.68, <i>P</i> <0.001
Temperament	
Agreeableness	HR 1.04, <i>P</i> <0.001
Conscientiousness	HR 1.03, <i>P</i> <0.001
Extroversion	HR 1.04, <i>P</i> <0.001
Slower recovery	
Temperament	
Negative emotionality	HR 0.96, <i>P</i> <0.001
Severity of neglect	HR 0.98, <i>P</i> <0.002
The severity of the abuse	HR 0.96, <i>P</i> <0.002

- Carry out a wide-ranging risk assessment,
- Define crisis management options,

- Work on the details of the treatment in coordination with the patient, and
- Avoid communication that increases stigma or negatively judges the patient.

**Treatment utilisation**

It may be helpful to understand the treatment of borderline personality as per the well-known phase model of substance use treatment:

- In the precontemplation phase, there is a lack of awareness of the need for change.
- In the contemplation phase, the advantages and disadvantages of the change seem equal.
- In the preparation phase, the person suffering from the disorder has understood the need for change and tells others about it.
- In the action phase, the person suffering from the disorder is committed to their treatment and works for change.

Typical features in the treatment of those suffering from borderline personality are:

- Abundant and short-term use of different treatment services and forms (Emergency services, primary/

general healthcare, specialist mental healthcare, complementary/alternative help).

- Difficulty adhering to treatment agreements can complicate the treatment of both mental and physical illnesses.
- Difficulty establishing a long-term psychotherapeutic treatment contact: the patient usually attends psychotherapy only for a short time and ends up using the services of many different therapists.

Clinical risk factors for discontinuation of psychotherapy include (1) high aggression and impulsivity, (2) high comorbidity with other mental disorders, and (3) high lifetime suicide attempts.

Symptoms of BPD are often connected to somatic problems and increased use of health services. In western countries, almost half of the BPD patients in general/primary care may be without appropriate psychiatric treatment and the need for treatment may not be noticed. The situation is likely to be worse in India. Patients with BPD who are being treated in general/primary healthcare often use a lot of general/primary healthcare services, are often in contact with doctors by phone between appointments, and take several different medications at the same time. When BPD is treated in general/primary care, it is beneficial to offer regular office visits (regardless of the physical health status) to avoid frequent and impulsive use of services. The patient's anxiety is relieved by the knowledge that the doctor will not leave him without support. It is appropriate for the primary/general health services to be in contact with the many entities that provide the BPD patient social and healthcare services because of their multiple needs, for example, people suffering from BPD in general/primary care have remarkably frequent childhood trauma experiences.

#### Assessment of the need for treatment

When assessing the need for treatment, attention must be paid to current and long-term symptoms:

- For planning consistent, patient-friendly, and systematic treatment.
- To provide a long-term care relationship.
- For intermittent, symptomatic treatment, which may be sufficient for those with milder symptoms.

The following must be taken into account when assessing the patient's risk

- Acute and chronic suicidality.
- Suicide plans.
- Previous plans and attempts.
- Factors that potentially threaten the care relationship.
- Impulsivity and substance use.
- Degree of distress and hopelessness.
- The ability to perceive alternatives.
- The ability to experience and receive care.

#### Telling the diagnosis

The diagnosis should be told to the patient to promote their autonomy and support patient education and cooperation. It is necessary to provide the patient with information about what a borderline personality means, what is supposed to cause it, and the current understanding of effective treatment. Telling the diagnosis and psychoeducation have been found to affect the therapeutic relationship positively. Psychoeducation may alleviate symptoms of BPD.

#### Psychotherapies

Randomised controlled studies on sufficiently large samples and diagnostically specified naturalistic follow-up studies on the effectiveness of psychotherapies for borderline personality are available.<sup>[39]</sup> In all psychotherapy studies, the patients have received drug treatments at the same time. A summary of psychotherapy methods studied in controlled settings is presented in Table 6.

Access to psychotherapy as per effective methods is limited in India and it is necessary to improve the coverage of training/education of mental health professionals. The psychotherapist must have experience in the treatment of people suffering from BPD or receive close supervision as support. About a third of those receiving psychotherapy have been found to have only a mild PD,<sup>[40]</sup> suggesting a need for better prioritisation of services.

#### Psychotherapy for BPD

Psychotherapies of limited duration are useful in the treatment of PDs. A person suffering from PD may also benefit from group psychotherapies.

DBT reduces difficulties in regulating emotions, impulsivity, and feelings of emptiness. It also reduces hostility and self-injurious acts (including suicide attempts) in women with BPD better than treatment as usual. In addition, DBT reduces substance use in women with BPD who have a comorbid substance dependence. The treatment result of DBT in reducing symptoms of instability, suicide attempts, and self-harming acts is apparently just as good, even if the patient has concurrent posttraumatic stress syndrome. Even short-term (20 weeks) DBT, in which only group skills training is implemented, is effective for typical symptoms of BPD and reduces the number of self-harming acts.<sup>[41]</sup>

Cognitive-behavioural therapy (CBT) is more effective than treatment as usual.<sup>[42,43]</sup> CBT may be more effective than treatment as usual in reducing post-traumatic stress symptoms in patients with BPD. Short-term interventions derived from CBT may also be equally effective.

Schema-focused psychotherapy apparently reduces, at least in women, the severity of BPD and the anxiety and depressive symptoms associated with it and improves the quality of life.



**Table 6: Psychotherapy methods that have been studied in a randomised and controlled manner. Source: Koivisto M. 2020**

	Dialectical Behaviour Therapy (Marsha Linehan)	Mentalisation Therapy (Anthony Bateman & Peter Fonagy)	Schema Therapy (Jeffrey Young)	Transference-focused therapy (Otto Kernberg, John Clark, and Frank Yeomans)	STEPS (Systems Training for Emotional Predictability and Problem Solving) (Nancee Blum and Donald Black)	A group aimed at accepting emotions (Kim Gratz)	Good general psychiatric management (John Gunderson)
Background theories	Emotion theory Dialectical philosophy Mindfulness Cognitive behavioural therapy Biosocial theory	Psychodynamic theory of development Attachment theory Object relations theory Cognitive theory	Cognitive-behavioural theory Attachment theory Constructivist theory Object relations theory Character psychotherapy (Gestalt)	Object relations theory	Cognitive-behavioural theory Schema theory System theory	Acceptance and commitment therapy Dialectical behaviour therapy	Attachment theory Psychodynamic and behavioural theory "Common sense"
A core understanding of borderline personality disorder	Emotion regulation disorder	Background insecure (often unstructured) attachment relationship with lower ability to mentalise, especially in attachment contexts and in association with strong emotional experiences	Failure to meet the child's basic emotional needs and respond to them	Object imagery dominated by the use of splitting as a defence mechanism	Disorder of emotional intensity and regulation	Difficulty regulating emotions	Interpersonal hypersensitivity Interpersonal attachment problems
Key therapy goals	Learn to validate self and then others Learn new coping ability for possible difficult situations Working towards personal life goals	Promoting and maintaining mentalisation in as many contexts as possible Recognising feelings and expressing them appropriately to others Taking personal responsibility and interacting with others	Learn to recognise, accept and express basic emotional needs Recognising schemas and development and gradual correction of schemas Survival modes gradually become redundant Reducing the power and influence of harmful authority modes Strengthening wise adult mode	Integration of loosely integrated part-object relationships and gradual transition to the world of intact and stable human relationships	Increasing self-understanding Identifying early maladaptive schemas and other emotional and behavioural triggers Learning emotion regulation and other skills Connecting the patient to the network	Promoting acceptance and adaptive regulation of emotions Learning skills that facilitate awareness, understanding and acceptance of emotions Inhibition of affective behaviour but not emotion	Therapist acts as a centre of gravity In handling the patient's real-life interaction relationships In problematic attachment patterns In regulating emotions, especially in interactions In supporting and functioning and work ability
Treatment implementation	Individual psychotherapy (once a week) Group skills coaching (once a week) The possibility of telephone consultation between meetings Consultation among the team of therapists The duration of treatment is one to three years	Day hospital model: Individual psychotherapy (once a week) Group psychotherapy (thrice a week) Optional: creative therapy groups Community meeting (every week) Monitoring of drug treatment (monthly) Duration of treatment: one and a half to three years Outpatient model: Individual psychotherapy (once a week) Group therapy (once a week) Telephone support in case of crises Monitoring of drug treatment Duration of treatment: one and a half years Can also be offered in hospital conditions	Individual psychotherapy (once or twice a week) Duration of individual psychotherapy: in studies, one and a half to four years, ideally treatment to four years in studies Also developed group therapy to be offered alongside other treatment: 30 sessions	Individual psychotherapy (twice a week) Duration of treatment: one to four years in studies	Psychoeducational group: 20 sessions (weekly) Alongside the existing treatment	Educational group: 14 sessions (weekly)	Regular contact with a psychiatrist or psychoeducator (weekly) Psychoeducation about emotional instability for the patient and family Case management Family get-togethers It can be combined with various group treatments Medical treatment, if necessary Duration of treatment: ideally as long as the patient needs

Mentalisation therapy is effective in the treatment of BPD and mentalisation therapy implemented in outpatient care is as effective as mentalisation therapy implemented in day hospital treatment. In a study conducted in Great Britain, mentalisation therapy was found to be effective even in patients with several comorbid PDs. Mentalisation therapy is effective even in young people.<sup>[44]</sup>

Transference-focused psychotherapy is effective in patients suffering from BPD. Systematically implemented supportive group therapy that includes psychoeducation and is based on a psychodynamic model may also be effective. Transference-focused psychotherapy, supportive psychotherapy, and DBT may be equally effective in treating depression and anxiety symptoms and improving functioning in people with BPD.<sup>[45]</sup>

The STEPPS program (Systems Training for Emotional Predictability and Problem Solving) implemented in an outpatient setting, in addition to the existing conventional psychiatric treatment, apparently has a large effect on the symptoms and functional capacity of BPD.<sup>[46]</sup> A 14-week emotion regulation group aimed at understanding and accepting emotions, implemented alongside the patient's existing outpatient treatment, seems useful in the treatment of women suffering from intentional self-harm and BPD or its features. Young people suffering from BPD may also benefit from emotion regulation coaching.

Experts disagree about the usefulness of long-term and intensive (e.g., inpatient) psychotherapy in the treatment of patients with BPD. In a small naturalistic group comparison study, it was found that a therapy designed for BPD and based on a manual (DBT and dynamic-deconstructive psychotherapy) was more effective than conventional psychotherapy.<sup>[47]</sup>

When considering long-term psychotherapy, it is necessary to make an accurate diagnosis and pay attention to the patient's (i) ability to build relationships, (ii) severity of self-esteem vulnerability, (iii) impulsivity, and (iv) antisociality. Problems on these dimensions may indicate a risk of complications when using therapy other than that designed for treating BPD.

DBT is the recommended form of therapy in the early stages of the disorder. Hospital treatments are frequent if the symptoms are severe, especially if self-harming behaviour is frequent.<sup>[48]</sup>

### Family therapy

Educational and skill-oriented family interventions offered in groups may improve family functioning and the relatives' wellbeing. Counselling families can lighten the burden on relatives and alleviate potential conflicts

between the patient and relatives and between relatives and care providers. The most common family problems are communication difficulties, dealing with hostile reactions, and fear of the patient's suicide. Key principles and features of family psychoeducation<sup>[49]</sup> are:

- Provision of information about treatment and prognosis and the verification of understanding of the information provided.
- Reduction of expressed emotions (expression of anger and criticism within the family).
- Increasing the ability of family members to take each other's experiences seriously and considering them valid from the individual's perspective.

Family intervention should usually be started at the beginning of the treatment.

### Drug and neuromodulation treatments

In some patients, antipsychotics reduce hostility, suspiciousness, affect dysregulation, cognitive and perceptual distortions, psychotic symptoms, and intentional self-harm related to BPD.<sup>[50]</sup>

The mood stabilisers valproate, carbamazepine, lamotrigine, and topiramate may reduce the impulsivity and aggressiveness associated with BPD in some patients. Valproate should be used in women of childbearing age or pregnant women only if other treatments are not effective or appropriate. Oxcarbazepine may also be a useful alternative.

Selective serotonin reuptake inhibitors may reduce the difficulty of impulse control and emotion regulation associated with BPD in some patients [Table 7].<sup>[40,51-54]</sup>

Benzodiazepines are not a recommended drug treatment for the symptoms of BPD. There is no high-quality treatment research available on their use in the treatment of BPD. Once started, stopping the use of benzodiazepines is very difficult for patients with cluster BPDs including BPD; hence, the development of benzodiazepine dependence is a significant risk in BPD. Benzodiazepine may also increase impulsive behaviour. Alternatives to benzodiazepines may include buspirone and pregabalin, which have been shown to be effective in treating generalised anxiety disorder and are nonaddictive. However, their use has not been studied in the treatment of borderline personality. Pregabalin enhances the effect of narcotics, so it is not suitable for drug-dependent patients due to the risk of abuse. In some patients, intranasal oxytocin may relieve the anxiety associated with borderline personality in social situations but the treatment results so far are contradictory, and oxytocin is not yet in general clinical use in the treatment of borderline personality.

The results of a few small studies suggest that omega-3 fatty acids may alleviate symptoms associated with borderline

**Table 7: Psychotropic medications for the treatment of personality disorders**

Drugs used in PD	Doses (mg/day)	Indications in PD	Level of evidence	Strength of recommendations
Escitalopram	5-20	Impulsivity, anger, affective instability, depression, self-harm, and anxiety symptoms	Level II	Strong
Sertraline	50-200	Same as escitalopram (maybe better tolerated by some individuals)	Level II	Strong
Mirtazapine	7.5-45	Depression, anxiety, and somatic symptoms	Level IV	Weak
Lamotrigine	25-275	Affective instability, impulsivity, anger, and aggression	Level II	Weak
Topiramate	100-250	Aggression and somatic symptoms (e.g., headache)	Level II	Weak
Divalproex	250-1500	Impulsivity, anger, aggression, and substance use	Level II	Weak
Olanzapine	2.5-20	Inappropriate anger, impulsivity, paranoid ideation, and dissociative symptoms (side effects may lead to poor adherence to treatment in higher doses)	Level I	Strong
Aripiprazole	5-30	Anger, depression, anxiety, and self-harm	Level II	Weak
Risperidone	0.5-8	Anger, cognitive inflexibility, paranoid ideation, and affective instability	Level II	Weak
Quetiapine	25-600	Sleep disturbance, cognitive inflexibility, paranoid ideation, and affective instability	Level II	Weak

PD, Personality disorder; RCT, Randomised controlled trial; SUD, Substance use disorder. [Level of evidence] Level I: Large RCTs with clear-cut results; Level II: Small RCTs with unclear results; Level III: Cohort and case-control studies; Level IV: Historical cohort or case-control studies; Level V: Case series, studies with no control. [Strength of recommendations] Strong: Indicates confidence that the benefits of the intervention clearly outweigh harms; Weak: Indicates uncertainty (i.e., the balance of benefits and harms is difficult to judge or either the benefits or the harms are unclear)

personality. Supervised disulfiram treatment can be helpful in the treatment of alcohol dependence in patients with a borderline personality disorder.

Electroconvulsive therapy does not alleviate symptoms of BPD. However, BPD is not a contraindication to electroconvulsive therapy for depression. Repetitive transcranial magnetic stimulation may relieve anxiety related to BPD in some patients, but to date, it is an experimental treatment for this indication.

The effort to alleviate the different psychiatric symptoms of BPD may lead to inappropriate polypharmacy. When planning drug treatment, one must consider the increased risk of suicide with drugs and the risk of impulsive suicide attempts, susceptibility to drug dependence, substance use and self-will in the implementation of drug treatment, and the patient's other illnesses.

### Hospital treatment

The planning of treatment requires an integrated service package. A short crisis intervention in the emergency department, combined with subsequent specialised outpatient treatment, can reduce the need for psychiatric hospital treatment in the follow-up of an acutely suicidal borderline personality patient. A crisis treatment plan designed and agreed together with the patient guarantees the durability of the treatment relationship but does not seem to increase the effectiveness of the treatment.

Issues needing round-the-clock hospital care include:

- Acute serious suicidal risk;
- Psychotic symptoms that are not controlled in outpatient care;
- Severe dissociation symptoms, accompanied by significant impairment of functional capacity;
- Severe mood disorder; and

- Uncontrolled substance use in a patient with severe symptoms.

Standard, reliable, and comprehensive research evidence on the results of round-the-clock hospital care is not available. Due to the risk of deterioration of the clinical condition and especially an increase in self-harming activity, the treatment period must be as structured as possible, as additional support and experience of the predictability of the environment can improve the patient's wellbeing. Sending a patient to an unstructured program may do more harm than good when the patient has made a mild suicide attempt related to chronic suicidality. In the context of hospital treatment, it is appropriate to determine the patient's wishes for his treatment and the priority of the treatment methods and to jointly agree on a plan for the continuation. Stormy emotionality may arouse difficult emotional reactions in treatment units. Managing them is important to reduce risks.

Very intensive inpatient treatment based on evidence-based psychotherapies for borderline personality, provided by staff trained in that treatment model, may be helpful. In the treatment of borderline personality, mentalisation therapy implemented in day hospital conditions is effective. Characteristics of effective day hospital care are:

- Flexible, structured care;
- Consideration of compliance with treatment;
- A clear goal;
- A consistent and shared understanding of BPD; and
- Integration into the rest of the care package.

### Clinical management of borderline personality

The following principles are central to the clinical management of BPD:

- The treatment has a clear framework.
- The work has jointly agreed goals and targets.
- The therapist is active.

- Emotions are at the center of work.
- The quality of the relationship is constantly monitored.

Mindfulness may lay the foundation for the ability to recognise and name emotions and regulate them. Ways to modify behaviour in managing symptoms include, for example, shifting attention elsewhere and using substitute activities. The patient can direct his attention to pleasant or everyday activities. Compensatory activities refer to less dangerous means of affect regulation compared to suicidal, impulsive, or otherwise harmful behaviour. Among other things, intense physical activity or the use of cold sensations have been recommended in this context. For example, the patient can submerge his hands up to the forearms in cold water or hold an ice cube in his hand. Relaxation, positive mental imagery, and reminder cards or a diary can also be used to manage symptoms. Behavioural therapeutic methods can produce the first experiences that it is possible to regulate emotional states.

Some patients may continue the harmful and addictive use of medicines. In this case, an attempt can be made to ensure appropriate treatment, for example, by notifying the pharmacy (with the patient's agreement).

#### **Clinical management of crises, dissociations, and anger**

Increasing distress (escalating dysphoria) means an expanding, intense, and often panic-like feeling of discomfort, which is often accompanied by impulsivity, such as self-destruction, cognitive fragmentation, and dissociation. The patient's emotional experiences should be taken seriously so that instead of the content of the crisis, the focus is on the patient's feelings and a clear understanding of his/her current situation and experiences. In a crisis, patients hope more for sensitive listening, genuine interest, and presence than for a concrete answer to the problem in question. Patients perceive the assessment of interpersonal motives and cognitive reformulation before the formation of a good cooperative relationship as belittling. A strong increase in external control, criticism, or a counter-assertive style must be avoided, as they seem to increase the risk of worsening the crisis.

A flexible and warm attitude that takes the patient's experiences seriously is considered important in the treatment of dissociative states and difficulties in regulating emotions. The soothing speech of the person caring for the patient can bring relief when the patient's emotional arousal or cognitive fragmentation increases or s/he begins to suffer from dissociation. When dissociation symptoms have already appeared, the patient can be reassured, for example, by telling them that the symptom is very unpleasant but temporary. Many patients need coping mechanisms to manage their dissociative symptoms before they are able to discuss their traumatic experiences.

In anger management, the patient is first allowed to vent his anger, after which he can be asked to describe his anger in more detail. When the anger has levelled off, the goal is to examine the emotional experience and its expression realistically together with the patient in such a way as to avoid a punitive attitude and rejection of the patient's experience. Only when the emotional state has calmed down is it possible to examine the patient's own possible contribution to the problems.

Pain-reducing medical treatment can be used if necessary.

#### **REHABILITATION**

A multiprofessional assessment of the need for rehabilitation is appropriate in association with the monitoring of psychiatric treatment. The patient may benefit from psychiatric rehabilitation if their ability to function is severely impaired over a long term (e.g., prolonged sick leave, long-term employment difficulties) or if s/he has deficits in psychological functioning, such as the inability to organise his/her own life and plan for the future. The patient's need for neuropsychological rehabilitation must be assessed, especially when s/he has specific learning or other neuropsychological deficits.

Working life skills can also be improved with vocational rehabilitation. Group-based course activity, for example, adaptation training, may be suitable for youth with disabilities. People suffering from mental health disorders in working life can apply for disability benefits.

#### **ORGANISATION OF CARE SERVICES**

The systematic planning of the treatment of borderline personality requires the establishment of special clinical teams to ensure sufficient competence and effective continuing professional education of team members and other healthcare professionals. The main responsibility for diagnosis, treatment, and integration of treatments belongs to the psychiatric outpatient unit, which works in close cooperation with the psychiatric hospital department, general/primary healthcare, substance abuse treatment, the social sector, and the providers of psychotherapy services. The treatment of a person suffering from a borderline personality should be organised and carried out as far as possible in outpatient care and, in the case of hospital treatment, in day hospital conditions.

The primary task of general/primary healthcare is to screen patients and refer them to specialised medical care. Preparing for crisis situations is the cornerstone of treatment. However, where applicable, treatment can be arranged in general/primary healthcare.

The coordination of the patient's overall care is facilitated by naming a responsible person or clinical team. The service supervisor is responsible for monitoring the implementation of the treatment plan and, if necessary, gives other operational units advice to support treatment measures or decisions.

Health and substance abuse services must be coordinated flexibly and by promoting the possibility of smooth consultation. The patient benefits more from the treatment if both substance abuse disorder and psychiatric disorder are treated in the same unit.

Patients may simultaneously use various social welfare services, such as child protection support measures and income support. Cooperation with different actors can be promoted in network meetings, which are especially necessary for the treatment of patients at risk of exclusion.

### General/Primary healthcare

#### *Psychiatric consultation*

The possibility of psychiatric consultations can increase the general/primary care physician's ability to assess the patient's need for treatment. It is necessary to organise adequate opportunities for regular consultations. It is often appropriate to conduct consultations on a long-term basis. Regular consulting activities can also serve as a form of continuing education. Psychiatric consultation is especially relevant when:

- The patient uses a lot of health or social care services;
- The patient does not commit to the treatment of his physical illness;
- The symptomatology is difficult to control, but the patient does not want hospital treatment;
- The need for involuntary care is assessed as required by law;
- The symptomatology presents a differential diagnostic problem; and
- The treatment given by the general practitioner has not produced a sufficient result.

#### *Care in general/primary health setting*

Most people with personality disorders use general/primary healthcare services like the rest of the population. People who have personality disorders almost invariably come to treatment because of a physical illness or their symptoms, other mental disorders, or a difficult life situation. BPD may lead to problems with adherence to medical treatment.

Regarding the treatment of other disorders/diseases, it is generally necessary to follow the criteria set for them. The general/primary care doctor should have at their disposal, consultation, and/or supervision of specialised medical care that is required by the situation and can be implemented quickly enough, especially in threatening situations. A personality disorder may require more specific

psychotherapeutic and drug treatment carried out in a mental health specialist care when the patient has

- Long-term and recurring problems,
- Difficulties that are not limited only to crisis situations,
- A threat of loss of functional capacity,
- A threat of loss of ability to work or study,
- Low motivation for treatment, and
- Less ability to commit to treatment.

Patients suffering from hypochondriasis, somatisation symptoms, or many somatic diseases should primarily be treated in general/primary care. When a person suffering from a borderline personality uses a lot of general/primary care services, a general/primary care doctor should (i) actively consult specialised psychiatric care; (ii) establish a confidential, contractual treatment relationship with the patient (it is good to set motivation for treatment as the first goal because it may be very difficult for the patient to enter into a regular treatment relationship and comply with agreements); (iii) prepare a treatment plan as per the patient's needs; and (iv) assess and, if necessary, intervene in the patient's risky behaviour, such as suicidality.

The patient's risk behaviour is addressed by expressing concern about the patient's functioning, by offering the opportunity to talk about burdensome matters in calm conditions, and by openly asking what kind of help the patient expects during the critical phase. After the critical phase, the patient's condition should be actively monitored and the patient should be explained that the attending physician is not always available and that there are alternative care providers from whom help is available during emergency hours.

The attending physician should be aware that the patient evokes strong emotional reactions in care providers, which may be difficult for the doctor to tolerate and may complicate the patient's treatment. S/he should cooperate with specialised psychiatric care and, if necessary, substance abuse services.

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## Clinical Practice Guidelines on Breaking Bad News

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### INTRODUCTION

The most commonly used definition of bad news pertaining to medical settings is, “any information, which adversely and seriously affects an individual’s view of his or her future.”<sup>[1]</sup> Some of the common examples of bad news in medical settings include—A person is informed that he has tested positive for HIV, the wife is informed that her husband has been diagnosed with Alzheimer’s dementia, a patient is told that his lump has been diagnosed as cancer. Thus, bad news is a message which has a negative connotation and has the capability to alter the recipient’s hope, mental well-being, and upset his lifestyle.

### EPIDEMIOLOGY

Gautam and Nijhawan<sup>[2]</sup> carried out a prospective study on 100 cancer points in India to find out if the diagnosis of cancer needs to be communicated to patients and their caregivers. They found out that most of the patients who knew about their condition (71%) wanted to be told the truth. The picture was similar in case of relatives who wanted that they should be told the diagnosis (81%) but their patients should not be disclosed the same (77%). In a study conducted among faculty and residents of Guilan University of Medical Sciences in Iran, only 13.6% of the participants were found to be trained in delivering bad news.<sup>[3]</sup> In another study carried out on 226 patients with cancer in Poland, it was found that the diagnosis was told to most of them as per steps laid down in the SPIKES protocol of breaking bad news.<sup>[4]</sup>

### IMPLICATIONS OF BREAKING BAD NEWS

Breaking bad news is an art wherein the physician has to strike a fine balance between truth and hope and handle the emotional outcomes of the news on the recipients as well. There are ethical and medicolegal implications of breaking bad news which means that withholding vital information in terms of diagnosis and prognosis from the patient on the presumption that he will not be able to “handle” it may not always be justified in terms of the patient’s autonomy and “right to know.” Similarly, insensible pouring out of

bad news with disregard for its emotional consequences on the patient may not be good for the mental health of the patient and the therapeutic relationship between the patient and the doctor. The technique employed in breaking bad news can influence to what extent they understand the information, to what extent they are satisfied with the care, and over and above all, to what extent they can adjust psychologically to the bad news.<sup>[5]</sup>

### WHAT ARE THE BARRIERS TO BREAKING BAD NEWS?

Breaking bad news can take a heavy emotional toll on the doctor, he often feels burdened by negative news and anticipates negative reactions. The common barriers to breaking bad news are presented in Table 1:<sup>[6]</sup>

### WHAT ARE THE GOALS OF BREAKING BAD NEWS?<sup>[7,8]</sup>

The basic goals of breaking bad news are summarized in Table 2.

### WHO SHOULD BREAK BAD NEWS?

The head of the unit or a senior consultant who is known to the patient and family members should deliver the bad news. A senior member of the nursing staff may need to be called to break the bad news in certain emergencies where the treating consultants may be absent.

Dos and Don’ts for breaking bad news are summarized in Table 3.<sup>[9]</sup>

**Table 1: Common barriers to breaking bad news<sup>[6]</sup>**

1. The doctor is not sure about what the patient is expecting
2. The doctor fears that he may be destroying the hope of the patient.
3. The doctor may fear that he himself may not be adequately capable of dealing with an uncontrollable disease.
4. The doctor may fear that he is incapable of managing the emotional reactions resulting from breaking the news
5. The doctor might have presented an overoptimistic picture of the patient’s condition in the past and this may be causing embarrassment in the current situation where he needs to break the bad news



**Table 2: Goals of breaking bad news**

1. To collect information from the patient in order to develop an idea regarding the patient's existing level of knowledge about the condition and what are his expectations
2. To convey information with clarity keeping in mind what the patient needs and what he wants.
3. Another important goal of the treating team is to provide proper psychological support and assistance to face the aftermath of the bad news
4. Minimize loneliness and isolation (reassure about non-abandonment)
5. To develop a treatment plan and long-term strategy in collaboration with the patient

**Table 3: Dos and don'ts for breaking bad news****Dos for Breaking Bad News**

- Allow for silence as well as emotional reactions
- Give time
- Be sensitive to the nonverbal language
- Document and liaise with the multidisciplinary team
- Use simple language and honest communication
- Ensure privacy and confidentiality
- Listen to what the patient says

**Don'ts for Breaking Bad News**

- Assuming that you know what concerns the patient
- Make judgmental comments
- Distort the truth
- Keep talking all the time
- Give false reassurance
- Overload with information
- Withhold information

**VARIOUS PROTOCOLS FOR BREAKING BAD NEWS**

Over the years, various clinicians have developed separate protocols for delivering bad news. The SPIKES protocol<sup>[8]</sup> is the oldest and most commonly used worldwide [Table 4]. Subsequently, clinicians have modified this protocol to add certain steps which they felt were essential. For example, in 2005, a modified version, P-SPIKES was published,<sup>[10]</sup> where "P" stands for "Preparation" which includes reviewing all information about the patient that needs to be communicated and rehearsing them if necessary. Another criticism of this protocol is that it does not have a step on patient questions and clarifications. Another recent modification, SPWICES<sup>[11]</sup> includes "w" which deals specifically with "warning shot" and "ICE" which involves juggling with providing information, clarifying, and dealing with emotions. Other popular protocols include the ABCDE protocol [Table 5],<sup>[7]</sup> Kaye's 10-step model<sup>[12]</sup> [Table 6], and BREAKS protocol [Table 7].<sup>[13]</sup> All these protocols have traditionally been devised by oncologists. Hence, in subsequent years, other specialists, including surgeons and emergency physicians, have come up with their own modified protocols. The PEWTER protocol [Table 8]<sup>[14]</sup> has been devised for emergency physicians. Similarly, the SUNBURN protocol [Table 9]<sup>[15]</sup> has been developed to suit the purpose of trauma and acute care surgeons. A simple step-by-step method is outlined in Table 10 which incorporates the essential elements of breaking bad news

and has been incorporated more or less in every established protocol on breaking bad news. This method is simple and can be easily adopted by all clinicians. Otherwise, any of SPIKES, ABCDE, Kaye's model, or BRAKES protocol may be used.

**DOCUMENTATION**

Documentation is very essential in breaking bad news—the detailed conversation, what was the information that was exchanged between the two parties, all these may be noted down properly. Detailed notes may be maintained in the patient's files. The most important points to be kept in mind during documentation include the diagnosis, various options that were discussed regarding future management, and the exact words and expressions that were used while breaking the bad news. Maintaining accurate records will help in communicating with the treating team and facilitate proper follow-up care of the patient.

**BREAKING BAD NEWS OVER TELEPHONE<sup>[17]</sup>**

While it is generally advised to break bad news through face-to-face interactions, the exceptional challenge posed by the pandemic forced all nations to make newer adjustments, including breaking bad news over the telephone. Things to be kept in mind during a phone call:

**TONE & PITCH**

- Ensure your tone captures the seriousness of what you are telling the patient
- Note the patient's tone and pitch as that may indicate how the patient is feeling.

**LANGUAGE**

- Use "we" or "the team" as opposed to "I," to help them to feel like the family member is managed by a team.
- Keep it simple and use clear, direct language. If the patient is emotionally overwhelmed, he will not be able to process complex information.

**UNDERSTANDING**

- One must find out to what extent the patient and his/her caregiver have understood the information conveyed by the team
- The patient/carers must get adequate opportunities to ask questions and clarify doubts
- Before delivering the news over the phone, the doctor must find out where is the person at the time of receiving the call. He must find out whether the person is in a position to take up an uninterrupted conversation. It is also important to find out whether there is anyone around for emotional support. One must

**Table 4: The SPIKES protocol<sup>[8]</sup>**

<p>Setting up the interview-</p> <ul style="list-style-type: none"> <li>• Arrange for some privacy</li> <li>• Involve significant others as per the patient's choice</li> <li>• Sit down</li> <li>• Make connection with the patient: maintain eye contact and/or touch the patient (if he/she is comfortable with you doing so)</li> <li>• Manage time constraints and interruptions</li> </ul> <p>Assess the patient's perception</p> <ul style="list-style-type: none"> <li>• Determine what the patient knows about the medical condition or what he (she) suspects</li> <li>• Listen to the patient's level of comprehension</li> <li>• Determine if the patient is engaging in illness denial</li> </ul> <p>Obtain the patient's invitation</p> <ul style="list-style-type: none"> <li>• Ask the patient if he (she) wishes to know the details of the medical condition and/or treatment • Accept the patient's right not to know</li> <li>• Offer to answer questions later if he (she) wishes</li> </ul> <p>Give knowledge and information</p> <ul style="list-style-type: none"> <li>• Warn the patient that bad news is coming; this may lessen the shock that can follow the disclosure of bad news</li> <li>• Start at the patient's level of comprehension and vocabulary</li> <li>• Use non-technical words</li> <li>• Avoid excessive bluntness</li> <li>• Give information in small chunks, and periodically check the patient's understanding</li> <li>• Avoid using phrases such as "There is nothing more we can do for you"</li> </ul> <p>Address the patient's emotions with empathic responses</p> <ul style="list-style-type: none"> <li>• Observe for any emotion on the part of the patient</li> <li>• Identify the emotion experienced by the patient by naming it to oneself</li> <li>• Identify the reason for the emotion</li> <li>• Let the patient know you have connected the emotion with the reason for the emotion by making a connecting statement</li> </ul> <p>Strategy and Summary</p> <ul style="list-style-type: none"> <li>• Summarize the information you have provided. If the patient is ready, discuss the treatment plan</li> <li>• Sharing responsibility for decision making</li> <li>• Check patient's understanding/misunderstanding of the discussion</li> </ul>
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have an empathetic tone of voice during conversation. Pauses and silence in the conversation has to be used effectively

- Socio-demographic background of the patient/caregivers must be kept in mind while delivering bad news.

## ROLE OF PSYCHIATRISTS IN BREAKING BAD NEWS

Many physicians consider that psychiatrists are best suited for breaking bad news since they are better at handling emotions as well as more effective in communication skills. The role of a psychiatrist becomes much more important in a consultation-liaison setup in this respect. Breaking bad news can be encountered by psychiatrists themselves while disclosing the diagnosis and prognosis of disorders like dementia, intellectual disability, and an autistic spectrum disorder. There are many similarities between medical and psychiatric settings in terms of breaking bad news [Table 11]. However, certain issues may create roadblocks like the patient's understanding of the information being conveyed which may be affected by existing psychopathology or cognitive deficits and the long-term consequences of the

**Table 5: The ABCDE protocol<sup>[7]</sup>**

<p>Advance preparation</p> <ul style="list-style-type: none"> <li>Ask what the patient already knows and understands.</li> <li>What is his or her coping style?</li> <li>Arrange for the presence of a support person and the appropriate family</li> <li>Arrange a time and place that will be undisturbed (hand off beeper)</li> <li>Prepare emotionally</li> <li>Decide which words and phrases to use (write down a script)</li> <li>Practice delivering the news</li> </ul> <p>Build a therapeutic environment/relationship</p> <ul style="list-style-type: none"> <li>Arrange a private, quiet place without interruptions</li> <li>Provide adequate seating for all</li> <li>Sit close enough to touch if appropriate</li> <li>Reassure about pain, suffering, abandonment</li> </ul> <p>Communicate well</p> <ul style="list-style-type: none"> <li>Be direct ("I am sorry, have bad news")</li> <li>Do not use euphemisms, jargon, or acronyms Say "cancer" or "death"</li> <li>Allow for silence</li> <li>Use touch appropriately</li> </ul> <p>Ask the patient to repeat his or her understanding of the news</p> <ul style="list-style-type: none"> <li>Arrange additional meetings</li> <li>Use repetition and written explanations or reminders</li> <li>Deal with patient and family reactions</li> </ul> <p>Assess patient reaction</p> <ul style="list-style-type: none"> <li>* physiologic responses: flight/fight, conservation/withdrawal</li> <li>* cognitive coping strategies: denial, blame, intellectualization, disbelief, acceptance</li> <li>* affective responses: anger/rage, fear/terror, anxiety, helplessness, hopelessness, shame, relief, guilt, sadness, anticipatory grief</li> <li>Listen actively, explore feelings, express empathy</li> </ul> <p>Encourage and validate emotions (reflect back emotions)</p> <ul style="list-style-type: none"> <li>Correct distortions</li> <li>Offer to tell others on behalf of the patient</li> <li>Evaluate the effects of the news</li> <li>Explore what the news means to the patient</li> <li>Address further needs, determine the patient's immediate and near-term plans, assess suicidality Make appropriate referrals for more support</li> <li>Provide written materials</li> <li>Arrange follow-up</li> <li>Process your own feelings</li> </ul>
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stigma associated with mental illness. Psychiatrists should play a leading role in teaching communication skills and skills in breaking bad news to their fellow colleagues in other disciplines.

## BREAKING BAD NEWS IN PSYCHIATRIC CONDITIONS

Diagnostic disclosure has been a problem area in various psychiatric disorders, especially psychoses. Studies conducted toward the end of the last century reported low rates of disclosure of diagnosis for both schizophrenia and other psychiatric conditions (30–65%). In contrast, studies conducted in the last two decades reported higher rates of disclosure of psychiatric diagnoses for various psychiatric disorders (77–88%). In western studies, however, the diagnosis was discussed to a much lesser extent if the patient belonged to the immigrant community (22%). The most important factor determining diagnostic disclosure is the nature of the diagnosis—schizophrenia was disclosed

**Table 6: Kaye's 10 step model<sup>[12]</sup>**

1. Prepare
  - Know all the facts
  - Ensure privacy
  - Find out whom the patient would like present
  - Introduce yourself
2. Determine what the patient knows
  - Start with open-ended questions (e.g., "How did it all start?")
3. Determine if more information is wanted
  - Do not force information on to the patient (e.g., "Would you like me to explain a bit more?")
4. Give warning shots
  - Not straight out with it! (i.e., "I'm afraid it looks rather serious")
5. Allow patient to refuse information at that time
  - Denial is a defense mechanism and a way of coping
  - Allow the patient to control the amount of information he (she) receives
6. Explain if requested
  - Go step by step
  - Details might not be remembered, but the way you explain them will be
7. Listen to concerns
  - Ask "What are your concerns at the moment?"
  - Allow time and space for answers
8. Encourage feelings
  - Acknowledge the feelings
  - Be non-judgmental
9. Summarize
  - Review concerns, plans for treatment
  - Foster hope
  - Offer written information if asked
10. Follow-up
  - Offer further information
  - Assure patient of your continued availability

**Table 7: BREAKS protocol<sup>[13]</sup>**

- Background**  
An in-depth study on the patient's disease status, emotional status, coping skills, educational level, and support system is done before attempting to break the bad news
- Rapport**  
Building rapport is essential. Physician should have unconditional positive regard. Present conditions should be probed through open-ended questions.
- Explore**  
It is always preferable for the physician to start with what the patient knows about his/her illness
- Announce**  
A warning shot is desirable  
Give the information in short, comprehensible sentences  
It is always desirable not to give more than three pieces of information at one go
- Kindling**  
Allow adequate space for the free flow of emotions  
Ensure that the patient/relatives did not misunderstand the gravity of the disease
- Summarize**  
Physician has to summarize the session and discuss the treatment plan

much less often (7–59%) in comparison to other diagnoses like depression (71–98%), bipolar disorder (61–96%), or anxiety-related disorders (58–96%).<sup>[19]</sup> Schizophrenia was frequently replaced by alternative terminology like "psychosis," "severe mental illness," and "chemical imbalance." Findings from most of the studies have

**Table 8: PEWTER model<sup>[14]</sup>**

- P:** Preparing the one giving the news through education and training, and preparing the setting and the approach for giving the news  
**E:** Evaluating what the listener already knows  
**W:** Warning by making a brief statement followed by a moment of silence to prepare the listener for the bad news that comes next  
**T:** Telling the news  
**E:** Emotional response: paying attention to and responding appropriately to the listener's emotional responses  
**R:** Regrouping by helping the listener move forward with the next steps

**Table 9: SUNBURN protocol<sup>[15]</sup>**

- S**–Setup  
**U**–Understand perceptions  
**N**–Notify ('Warning Shot')  
**B**–Brief narrative and break bad news  
**U**–Understand emotions  
**R**–Respond  
**N**–Next steps

revealed that discussing the mental health condition led to better outcomes in terms of satisfaction among patients and caregivers; the negative effect of stigma has been reported in some studies. Overall, the evidence has been overwhelmingly in favor of disclosure.

### **BREAKING BAD NEWS TO PATIENTS WITH PSYCHIATRIC CONDITIONS: A PROPOSED MODEL**

Certain psychiatric diagnoses, particularly schizophrenia, involve many complex issues while conveying the diagnosis to the patient and significant others. The patients lack insight and cognitive capacity, especially during the initial phase of the illness, which may interfere with their ability to understand the diagnosis and long-term treatment implications. The stigma associated with psychiatric diagnoses, especially schizophrenia, is another issue that often deters clinicians from discussing the diagnosis with the patients and caregivers. Keeping in mind all these complexities, psychiatrists have a tendency to withhold information related to diagnosis. One study examining the implementation of the SPIKES protocol in breaking bad news to patients with schizophrenia<sup>[20]</sup> found that rates of implementation of this protocol were very low among psychiatrists despite studies, showing that psychiatric patients want to know and should be informed about the diagnosis. The authors concluded that the SPIKES protocol is applicable for breaking bad news to patients with schizophrenia though the role of the family while breaking the news and during shared decision making was emphasized.<sup>[20]</sup> Researchers have reviewed the available literature and concluded that the SPIKES protocol may be applied for delivering the diagnosis of schizophrenia although certain modifications were necessary, especially regarding the inclusion of family members, demystifying the diagnosis and treatment process through proper

psychoeducation and instilling hope, and most importantly, addressing stigma.<sup>[21]</sup> Another model has been proposed by Levin *et al.*<sup>[22]</sup> for delivering the diagnosis of schizophrenia to patients and caregivers [Table 12]. We propose a protocol suitable for breaking bad news to patients and their significant others regarding psychiatric diagnoses of all types, including severe mental illnesses like schizophrenia, bipolar disorder, severe depression with psychotic symptoms, catatonic syndrome as well as neurodevelopmental disorders like attention-deficit hyperactivity disorder, intellectual developmental disorder, and autistic spectrum disorder [Table 13]. The model is derived from all essential elements that are common to various protocols for

breaking bad news. Since families are an essential part of breaking bad news in the context of psychiatric diagnoses, the involvement and role of family members and significant others have been specifically emphasized in a separate step. Our model has also incorporated patient and caregiver perspectives that have emerged from the available research on delivering information related to psychiatric diagnosis. This includes open sharing of information, instilling realistic hope of future recovery, stigma reduction, recognizing the changing nature of the diagnosis, and providing adequate psychoeducation. The steps can be easily remembered by the acronym—ASKS WIVES.

**Table 10: Simple step-by-step protocol for communicating bad news<sup>[16]</sup>**

1. Prepare for the encounter
  - If possible, have an advance discussion with the patient about who will be present
  - Find a location with adequate privacy
  - Arrange an adequate time for discussion
  - Review the clinical information
2. Assess the patient’s understanding
  - Ask the patient about his or her view of the situation
  - Find out how much that patient wants to
3. Disclose the news
  - Consider giving a “warning shot”
  - Provide information honestly and in simple language
  - Tailor amount of medical details and technical language in accordance with the patient’s wishes
4. Respond to the patient’s emotions
  - Encourage the patient to express his or her emotions
  - Acknowledge the patient’s emotions and empathize with concerns at this point
  - Tolerate silence
5. Offer to discuss the implications of the news, including
  - Prognosis
  - Treatment options
  - Effect on quality of life
6. Offer additional resources, including:
  - Assistance talking to others
  - Other support services
7. Summarize the discussion
  - Restate important points
  - Ask if there are any other questions
8. Arrange a follow-up time for patient and family questions and concerns
9. Document the discussion in the medical record

**Table 11: Similarities in breaking bad news in medical and psychiatric settings<sup>[18]</sup>**

The patient has the right to know about his condition  
 The information should be shared in a setting that has adequate privacy.  
 The primary treating team should take responsibility for breaking bad news  
 The treating team must determine to what extent the patient/caregivers know about the condition  
 The treating team must provide psychological support following emotional reactions to the news  
 The information must be provided in short chunks, and understanding on the part of patients/caregivers must be checked  
 The treating team/doctor must ask whether the patient/caregiver wishes to know more  
 Finally, further steps and future plans need to be discussed

**HOW TO APPLY THE MODEL IN VARIOUS SITUATIONS**

In our proposed model, involving significant others has been mentioned in Step 4. However, in certain situations like

**Table 12: A practitioner’s model for communicating a diagnosis of schizophrenia<sup>[22]</sup>**

- Prepare for the meeting
- Review the patient’s and family member’s understanding of the mental illness
- Negotiate the agenda in a collaborative manner with patient and guardians
- Discuss the prognosis including the best and worst possible outcomes.
- Explain the meaning of the term “schizophrenia”
- Empathic communication with patients and families
- Discuss the follow-up plan

**Table 13: The proposed model for breaking bad news to patients with psychiatric diagnoses (ASKS WIVES)**

1. **Adequate preparation**—Make sure that adequate information has been gathered to reach a provisional diagnosis at least. Involve family members and significant caregivers at this stage in cases of severe mental illness, neurodevelopmental disorders
2. **Setting of the interview with adequate privacy**—It is desirable to avoid discussing diagnostic information in a busy outpatient setup in the presence of other, unrelated individuals. Ensuring adequate privacy and confidentiality is of utmost importance
3. **Assess the level of Knowledge and understanding**—Reviewing the existing knowledge and understanding is necessary before delivering information. This is the right opportunity to clear myths and misconceptions
4. **Involve Significant others and assess their background knowledge too**—If the patient has adequate mental capacity, his opinion should be sought regarding which family member/caregiver should be involved
5. **Warning shot**—Rather than abruptly breaking the news, it should be preceded by a warning that serious information is about to be divulged. A brief period of silence may be helpful
6. **Information regarding the illness**—Apart from sharing all relevant information about a diagnosis, this is the right opportunity to provide psychoeducation. Sharing information should include instilling hope in a realistic manner.
7. **Encourage ventilation of emotions and deal with emotional reactions**—This is the stage to provide empathy and reduce stigma
8. **Explain all possible implications as per queries in detail**—Use this opportunity to clear myths and misconceptions; also provide details of available supports and networks which can be accessed
9. **Summarize the discussion, arrange a follow-up meeting, and document everything**

acute schizophrenia, mania, severe psychotic depression, catatonia, or advanced stages of dementia, it may not be possible to convey the information to the patient. In such cases, the involvement of significant others should begin from step 1 and proceed accordingly. The choice of significant others would also not depend on the patient's consent but on the judgment of the treating team. These conditions apply to situations where the judgment of the patient is severely impaired as laid down in the Madrid Declaration.<sup>[23]</sup>

The timing of disclosure of diagnosis is an important consideration. In the acute stage of a severe mental illness, the patient may not be in a position to understand or discuss the diagnosis or treatment issues. In the preliminary stages, the diagnosis is often provisional in nature and may change over time. Both these factors should be kept in mind when planning to communicate with patients or caregivers at the initial stages. The caregivers may be involved in the initial stages and discussion may include the provisional nature of the diagnosis with a mention that it may change over a period of time. As the team reaches a confirmed diagnosis over a period of time, the team may sit down with the caregivers as well as the patient who may have settled down by that time.<sup>[24]</sup> In the case of Alzheimer's disease, there is general consensus about disclosure. However, one has to determine when and how to disclose. The general consensus is on disclosing to the patient in the presence of family members/caregivers. This disclosure should be done as early as possible after a diagnosis has been established. Apart from diagnosis, the disclosure should involve available support, care, and long-term planning. The physician should give accurate and reliable information, using simple language. It should also be clearly explained that a properly planned and organized family network can reduce the burden on the primary caregiver and maintain quality of life as far as possible.<sup>[25]</sup> There are certain situations where the diagnosis may not be disclosed (may be temporarily) to the patient: (1) severe dementia where the patient is not likely to be able to understand the diagnosis, (2) when there is a phobia about the condition, or (3) when the patient is severely depressed.<sup>[23]</sup>

There is no specific recommendation regarding how or whether to convey a diagnosis of mild cognitive impairment or probable dementia. On the one hand, there is a concern for patient autonomy, and his right to know and take necessary interventions. On the other hand, a full disclosure of such a state where there is a lack of certainty regarding progression to dementia may lead to serious psychiatric issues including suicidality. In such cases, the psychiatrist

may use his own judgment keeping "therapeutic privilege" in mind.

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# Clinical Practice Guidelines for Assessment and Management of Psychiatric Morbidity in Medical Professionals

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## INTRODUCTION

The medical career and profession are considered to be one of the most stressful professions. Evidence suggests that stress in the life of medical professionals starts before joining the medical college, from the time of preparation for the entrance examination, and continues throughout life. To succeed during medical school and residency training and later in practice, they are expected to balance various demands, including pressures to constantly imbibe new knowledge and skills, meet the deadlines for various activities, and handle the workload. The association of stress with various mental illness is well known. Accordingly, medical students, residents, and practicing physicians have a higher prevalence of mental disorders. Data are mainly available for depression, burnout, substance use disorders, sleep disturbances, and suicide. Despite the high prevalence of mental disorders among medical students, residents, and practicing physicians, they are often reluctant to seek mental health services. They also have a lot of apprehensions about the use of psychotropics. Hence, mental health professionals need to understand these barriers, provide quality care to the medical professionals seeking help, and create a friendly environment to improve the rates of seeking help.

This group of clients are often ambivalent about seeking a psychiatric consultation and contact the psychiatry emergency services (such as crisis helpline) or services at the student welfare centers, and seek urgent help. They often contact the psychiatric services, when they are not able to manage their issues on their own and expect that the mental health professionals will be able to help them on an urgent and priority basis. This guideline provides a broad framework for the assessment, management, and prevention of mental health issues among medical professionals. The health care needs of the medical students, residents, physicians, and other medical professionals such as nurses and paramedical staff can vary. These guidelines are not framed keeping any specific setting or model of psychiatric care and will require modifications to suit the needs of patients, service model, and precise setting. Similarly, these guidelines do not provide recommendations for any specific psychiatric disorder in medical professionals. Instead, it gives a general

outline of how to address issues specific to this group of patients. In this guideline, the term “doctor-patient client” refers to all groups of health professionals, such as medical students, resident doctors, and practicing doctors.

## EPIDEMIOLOGY OF MENTAL HEALTH ISSUES AMONG THE PHYSICIANS

Data from all parts of the globe suggest a high prevalence of mental disorders among healthcare professionals compared to the general population.

### Depression

A meta-analysis of the data on medical students suggests that the prevalence of depression or depressive symptoms is 27.2%. The longitudinal studies assessing depressive symptoms before joining the medical schools and during the medical course suggest an increase in the prevalence of depressive symptoms by 13.5% during undergraduate medical training.<sup>[1]</sup> A meta-analysis that included data on resident physicians estimated the pooled prevalence of depression or depressive symptoms to be 28.8% [95% confidence interval (CI): 25.3%-32.5%]. The meta-analysis also suggested that over the years, there has been an increase in the prevalence of depression with the increasing calendar year, and secondary analysis of the data indicated an increase in depressive symptoms by 15.8% after starting residency.<sup>[2]</sup> Another meta-analysis of data from Australia estimated the prevalence of depression to be 27% among medical students, 29% among registrars, and 60% among doctors in practice.<sup>[3]</sup> The data that have emerged from various countries during the COVID-19 pandemic has estimated the prevalence of depression among physicians to be 26%.<sup>[4]</sup> A meta-analysis of data on nursing students estimated the prevalence of depression to be 34%, with a higher prevalence among those of Asian origin.<sup>[5]</sup> The prevalence of depressive symptoms in nurses has been estimated to range from 12% to 43.3%.<sup>[6,7]</sup>

Available data suggest that depressive symptoms are associated with an increased relative risk of medical errors. Data also indicate that committing medical errors is also associated with an increased risk of depression.<sup>[8]</sup> Depressive

symptoms and depression among physicians are associated with reduced work productivity, lower work satisfaction, higher rates of dysfunctional and worrisome approaches to seeking mental health services, and self-prescription of antidepressants.<sup>[9]</sup>

Meta-analysis of the data from India suggests that the prevalence of depression among medical students is 40% (CI: 32%–47%), with a significantly higher prevalence among girls.<sup>[10]</sup> A meta-analysis of studies conducted during the COVID-19 pandemic has estimated the prevalence of depression among physicians to be 41.9%,<sup>[4]</sup> and that in nurses has been estimated to range from 35.8%-70%<sup>[11,12]</sup> [Table 1].

### Suicidal ideations and suicide

The prevalence of suicidal ideation is estimated to be 11.1% among medical students<sup>[11]</sup> and 17% among physicians.<sup>[26]</sup> Further, the data also suggest that suicide rates are higher among physicians and healthcare workers compared to the general population. A recent meta-analysis estimated that the standardized mortality rate for suicide among physicians to be 1.44 (95% confidence interval: 1.16, 1.72) when compared to general population, with a higher risk among females compared to males. In terms of specialty, anesthesiologists, psychiatrists, general practitioners, and general surgeons are at higher risk.<sup>[26]</sup> A study from India estimated the prevalence of suicidal ideations among medical students to be 53.6%.<sup>[27]</sup> A study assessed the prevalence of suicidal ideations to be 16.7% among resident doctors and faculty members in a tertiary care hospital.<sup>[21]</sup>

### Burnout

The concept of physician burnout emerged during the 1960s. It is defined as “a persistent, negative, work-related state of mind in ‘normal’ individuals primarily characterized

by exhaustion, which is accompanied by distress, a sense of reduced effectiveness, decreased motivation, and the development of dysfunctional attitudes and behaviors at work.”<sup>[28]</sup> It is considered to have three subcomponents, i.e., emotional exhaustion, depersonalization, and a sense of low accomplishment.<sup>[29]</sup> Different meta-analysis suggests that there is a high prevalence of burnout among medical students (44.2%),<sup>[30]</sup> residents (35.7%),<sup>[31]</sup> physician (67%),<sup>[32]</sup> and nurses (11.23%).<sup>[13]</sup> Emerging data from the USA also suggest that over the period (from 2011 to 2014), there has been an increase in the prevalence of symptoms of burnout among physicians, with a reduction in the satisfaction with work-life balance.<sup>[33]</sup> The risk factors for burnout among medical students include the curriculum, stress arising due to competition, examinations, finances involved in pursuing the studies, hospital conditions with the workload, exposure to patients’ suffering and death, management style, and young age.<sup>[30]</sup> Among the residents, high burnout rates are reported for residents pursuing general surgery, anesthesiology, obstetrics and gynecology, and orthopedics compared to other specialties.<sup>[31]</sup> Available data also suggest a high correlation between depression and burnout<sup>[14,34]</sup> and burnout and anxiety.<sup>[34]</sup> A meta-analysis of data suggests that burnout among professionals (not limited to medical professionals) is a significant predictor of hypercholesterolemia, type 2 diabetes, coronary heart disease, hospitalization due to cardiovascular disorder, musculoskeletal pain, changes in pain experiences, prolonged fatigue, headaches, gastrointestinal issues, respiratory problems, severe injuries, and mortality below the age of 45 years. Similarly, burnout is also significantly associated with adverse psychological consequences, including insomnia, depressive symptoms, use of psychotropic and antidepressant medications, hospitalization for mental disorders, and psychological

**Table 1: Prevalence of mental health outcomes in healthcare professionals as reported in different meta-analysis**

Psychiatric disorders	Medical students	Residents/Registrars	Physicians	Nursing students	Nurses
Worldwide Data					
Depression or depressive symptoms	27.2% <sup>#</sup>	28.8% <sup>#</sup>	60% <sup>#</sup> 26% <sup>##</sup>	34% <sup>#</sup> 52% <sup>##</sup>	12-43.3% <sup>#</sup>
Suicidal ideations	11.1% <sup>#</sup>	-	17% <sup>#</sup>	-	-
Burnout	44.2% <sup>#</sup>	35.7% <sup>#</sup>	67% <sup>#</sup>	-	11.23% <sup>#</sup>
Anxiety disorders	33.8% <sup>#</sup> 28% <sup>##</sup>	-	25.8% <sup>##</sup>	32% <sup>##</sup>	37% <sup>##</sup>
Insomnia	55% <sup>#</sup>	-	41.6% <sup>##</sup>	27% <sup>##</sup>	34.8% <sup>##</sup>
Substance abuse	20-40% <sup>§</sup>	-	10-15% <sup>§</sup>	14-27.3% <sup>##</sup>	10% <sup>#</sup>
Data from India					
Depression or depressive symptoms	40% <sup>#</sup>	-	41.9% <sup>##</sup>	-	35.8%-70% <sup>§§</sup>
Suicidal ideations	53.6% <sup>§§</sup>	-	-	-	-
Burnout	16%- 80% <sup>§§</sup>	27.13% <sup>§§</sup>	24%-EE <sup>#</sup> 27%- DP <sup>#</sup> 23%-PA <sup>#</sup>	-	37.6% <sup>§§</sup>
Anxiety disorders	34.5% <sup>#</sup>	-	42.87% <sup>##</sup>	-	40-74% <sup>§§</sup>
Insomnia	17.3% <sup>§§</sup>	-	31.9% <sup>##</sup>	-	43%- 83% <sup>§§</sup>
Substance abuse	40.3% <sup>#</sup>	-	10% <sup>#</sup>	-	-

<sup>#</sup>Data from meta-analysis<sup>[1,10,13-19]</sup>; <sup>##</sup>Data from meta-analysis done on data emerging during the COVID-19 pandemic<sup>[4,18,20]</sup>; <sup>§</sup>data from review<sup>[17,21,22]</sup> <sup>§§</sup>Prevalence studies.<sup>[12,23-25]</sup> EE-Emotional exhaustion; DP: Depersonalization; PA; Personal Accomplishment



ill-health symptoms. Burnout has also been associated with adverse professional outcomes such as job dissatisfaction, absenteeism, new disability pension, perception of high job demands, and presenteeism.<sup>[35]</sup>

Various studies have estimated the prevalence of burnout among medical students to range from 16% to 80%,<sup>[36,37]</sup> 27.13% to 90% among the residents/registrars and physicians,<sup>[38,39]</sup> and 37.6% among nurses.<sup>[40]</sup> A meta-analysis, which included data from 15 studies from India that included doctors, nurses, resident doctors, paramedics, and physiotherapists, estimated the prevalence of emotional exhaustion to be 24% (95% CI: 16 – 36%), and that of depersonalization to be 27% (95% CI: 15–44%), and 23% (95% CI: 11–42%) for burnout in the domain of personal accomplishment.<sup>[15]</sup> This review also showed that the prevalence of burnout was higher among females, those who were unmarried, and those who had long working hours. The prevalence was also higher in those with higher professional dissatisfaction, perceived stress, low remuneration, lack of time for leisure activities, disturbed sleep-wake cycle, and lack of respect at work.<sup>[15]</sup>

### Anxiety

The prevalence rate among medical students has been reported to be 33.8% (95% CI: 29.2–38.7%), with a higher prevalence in students from the Middle East and Asia.<sup>[16]</sup> A large amount of data has emerged after the COVID-19 pandemic, and this suggests a high prevalence of anxiety among physicians (25.8%) and nurses (37%).<sup>[41]</sup> A meta-analysis of studies from India among medical students suggests that prevalence of anxiety is 34.5%.<sup>[17]</sup> Similarly, few cross-sectional studies have reported around 40 to 74% prevalence of anxiety in nurses.<sup>[11]</sup> During the COVID-19 pandemic, anxiety among physicians has been reported to be 42.8% as per a meta-analysis.<sup>[4]</sup>

### Insomnia

The prevalence of insomnia in medical students has been reported to be around 32%, which is relatively high.<sup>[41]</sup> Systematic review and meta-analyses on the global prevalence of insomnia in physicians and nurses are lacking. However, the meta-analysis of studies that emerged during the COVID-19 pandemic evaluating insomnia in doctors and nurses reported the prevalence of insomnia to be 41.6%, 27%, and 34.8% among doctors, nursing students, and nurses, respectively.<sup>[18]</sup> The Indian studies evaluating insomnia in medical students and doctors report a prevalence of about 17.3%.<sup>[23]</sup> Meta-analysis of data emerging during the COVID-19 pandemic suggests that prevalence of insomnia is 31.9%.<sup>[18]</sup> Similarly, studies on nursing professionals from India report a high prevalence of shift work sleep disorders and poor sleep quality.<sup>[24,25]</sup>

### Substance abuse

The worldwide prevalence of substance abuse in medical students has been estimated to range from 20 to 40%,<sup>[42]</sup>

and the same in nursing students is 14 to 27.3%.<sup>[43,44]</sup> Among physicians and nurses, the prevalence of substance use is almost similar to the general population, i.e., 10-15% worldwide.<sup>[22,45]</sup>

A meta-analysis of studies from India suggests the prevalence of substance abuse in medical students to be 40.3%.<sup>[19]</sup> Limited data on the prevalence of substance abuse in physicians suggest that it may be about 10%.<sup>[46]</sup>

Epidemiological data for other psychiatric disorders are lacking for the healthcare professionals. However, it must be remembered that they can suffer from any mental disorder, as encountered in people from general population.

## BARRIERS TO SEEKING MENTAL HEALTH CARE AMONG PHYSICIANS

Despite the high level of mental morbidity among medical professionals, they do not seek treatment. Data suggest that 50% of female doctors who meet the criteria for a mental disorder do not seek professional help.<sup>[47]</sup> Among the various barriers, stigma is one of the crucial barriers preventing doctor-patient client from seeking help, which is more among younger practitioners than older practitioners. The young practitioners also report a higher level of barriers in the form of confidentiality and impact on career progression and registration.<sup>[48]</sup> The reluctance to seek help has also been reported to be associated with stigma related to mental illnesses, fear related to licensing issues, wanting to solve the problem on their own, fear of colleagues coming to know about the same, lack of time, lack of convenient access, and issues related to confidentiality.<sup>[49–52]</sup> A review of 33 articles identified the following as the most common barriers to seeking mental health care among medical students: fear of the negative effect on residency/career opportunities, apprehension about the breach in confidentiality, stigma, and fear of shaming from peers, lack of perceived seriousness/normalization of symptoms, lack of time, and fear of documentation on academic record [Table 2]. Students also preferred to seek care outside of their institution for fear of the provider being an academic preceptor.<sup>[53]</sup> The experience of students who seek help for mental health issues also suggests that they are negatively judged by their supervisors and peers, revealing their emotional/mental health problems to others.<sup>[54]</sup>

One of the studies from India evaluated the barriers in health care seeking among medical students and reported that about one-third of the participants indicated towards barriers to seeking mental health services. The commonly reported barriers included lack of confidentiality (61.2%), fear of unwanted interventions (56.4%), unsure about where to seek help (50.3%), stigma (45.8%), lack of time (40.1%), fear of the impact on the academic performance (38.8%), fear of side effects (30.2%), and cost of treatment (11.5%).

**Table 2: Barriers to help-seeking among doctor-patient clients**[Adapted from]<sup>[21,53,55]</sup>

Individual level barriers	System level barriers
<p><b>Medical Professionals &amp; Interns</b></p> <ul style="list-style-type: none"> <li>• Perceived structural stigma (fear that they may not be accepted onto a specific training program)</li> <li>• Perceived stigma (that others would think less of them)</li> <li>• Self-stigma (that one should be able to cope without the help of others)</li> <li>• Lack of time and prioritizations</li> <li>• Recognition and awareness of stress symptoms</li> <li>• Treatment attitudes and expectations</li> <li>• Preference for self-management</li> <li>• Concerns about the cost of treatment</li> <li>• The belief that treatment does not work</li> </ul> <p><b>Medical Students</b></p> <ul style="list-style-type: none"> <li>• Personal stigma against seeking care</li> <li>• Apprehension about non-confidentiality</li> <li>• Fear of mental health care being noted on academic record</li> <li>• Fears of decreased opportunities for residency and career</li> <li>• Fear of discrimination/judgment</li> <li>• Lack of time to seek care</li> <li>• Concerns about effectiveness/appropriateness of treatment</li> <li>• A belief that the issue may self-resolve/is not severe enough to seek care</li> <li>• Normalization of symptoms</li> <li>• Previous experience with mental illness in close contacts</li> <li>• Lack of experience with mental illness in close contacts</li> <li>• Lack of knowledge of resources</li> <li>• Preference for mental support from family, friends, peers</li> <li>• Competition with peers</li> <li>• Self-diagnosis</li> <li>• Diagnosed mental illness or high severity of symptoms</li> <li>• Fear of unwanted intervention</li> <li>• Fear of treatment side effects</li> <li>• Lack of positive mentorship</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of access to care: access to services that are anonymous or not related to the individual's immediate work or professional networks</li> <li>• Lack of convenient access</li> <li>• The professional culture of considering high levels of stress either a necessity of the occupation or indicative of effort or commitment</li> <li>• Concerns regarding confidentiality</li> <li>• Negative impact on career</li> </ul> <ul style="list-style-type: none"> <li>• Affiliation of treating practitioner with university</li> <li>• Involvement of practitioner in medical training</li> <li>• Access issues</li> <li>• Cost</li> <li>• Limited number of sessions</li> <li>• Mandatory reporting laws</li> <li>• Lack of education on resources</li> <li>• Lack of available resources</li> <li>• Cultural stigma</li> </ul>

When the barriers to help-seeking for mental and physical health were compared, a significantly higher proportion of students reported stigma, confidentiality issues, lack of awareness about where to seek help, and fear of unwanted intervention to be more common barriers to seeking mental healthcare services.<sup>[56]</sup> When the barriers to help-seeking were compared between those in the first year and final year, students of the first year more often reported lack of time, awareness about where to seek help, cost issues, and fear of future academic jeopardy as common barriers. In contrast, final-year students reported stigma as a barrier to seeking help for mental health issues.<sup>[57]</sup> Another study evaluated the barrier to seeking help among the medical residents and faculty reported that only 13% of the participants had sought help from mental health professionals for their work-related stress, and the commonly identified barriers to seeking help included fear of being stigmatized and labeled as “weak” and having a mental illness, fear of being accused of shirking work, fear of the impact of seeking help on the attitude of faculty toward them, and time constraints to seek help.<sup>[38]</sup>

All these barriers must be considered while dealing with doctor-patient clients. The mental health professionals should remember that those consulting them may still be apprehensive about these issues. They should discuss the relevant issues with the help-seekers to relieve some of their anxiety.

## BASICS OF ORGANIZING SERVICES

It is often said that doctors make the worst patients.<sup>[58]</sup> Taking care of doctors requires extra time and effort.<sup>[59]</sup> As pointed out, medical students and physicians have multiple barriers to seeking mental health care. Further, certain other behaviors make them complex patients [Table 3]. Some of these clients come with behavior akin to “VIP syndrome,” which is understood as a demanding patient resulting in an unsound clinical judgment on the part of the treating clinician to meet the unrealistic expectations of the demanding patients leading to deleterious outcomes.<sup>[60]</sup> These facts must be kept in mind while evaluating a medical student or a physician, and the clinician should try to be objective in the patient's best interest.

Some of the basic etiquettes should be kept in mind. The general principle includes attending to them on priority, whenever feasible. Physicians contacting mental health services should be treated as a priority and, if possible, at a mutually agreed convenient time. It is better to organize the services to cater to the need of this group of patients [Table 4]. One of the crucial issues is the ease of managing such patients on the part of the psychiatrist, as many of the physicians seeking help may be known to the psychiatrist or may be closely associated with them. If the psychiatrist feels uncomfortable managing a particular

**Table 3: Some of the issues to be kept in mind while detailing with doctor-patient clients as persons with mental health issues**

- The stigma associated with mental illnesses
- Stigma leading to poor help-seeking-fear of being found by other colleagues/their patients in the clinic of the mental health professional, fear of loss of privacy, and confidentiality
- VIP Syndrome
- Self-diagnosis and reluctant about full-disclosure
- Unable to accept the patient role
- Under-estimation or over-estimation of the symptoms and severity of the illness
- Cutting corners when the history is being collected or attempts are made for detailed physical and mental status examination
- Poor medication adherence
- Reluctance to disclose the illness to close family members or other available support groups
- Poor follow-up rates

**Table 4: Organizing services and principles of dealing with doctor-patient clients as persons seeking help for mental health issues**

- Decide whether you are comfortable seeing such a client
- Assess for yourself-whether you would be able to maintain a doctor-patient relationship with your colleague
- Try to schedule the appointment: mutually agreed time, be flexible in accommodating the colleague
- Discuss the issues of fee structure
- Have sufficient time in hand
- Allay the anxiety
- Request the colleague to come with a reliable informant, if feasible
- In case of a crisis call-try to accommodate and attend at the earliest
- Emphasize the need to maintain a doctor-patient relationship
- Don't get swayed by the stature of the colleague in the city or the institute
- In case, a medical student or resident is to be assigned to a trainee psychiatrist-discuss the issue with the patient, take into account their wishes about whom to avoid
- Address the anxiety related to confidentiality, situations in which confidentiality would be broken (while working in an institutional setting-when and to whom)
- Clarify the treatment process-duration of treatment
- Clarify-which of their demands could be accommodated and which cannot be accommodated
- Telepsychiatry services and/or hybrid services: Keeping the time issue and confidentiality issues in mind, give the options of telepsychiatry and/or hybrid services to the medical students, residents, and physicians; work out the terms and conditions of such services
- Institutional Level Organization of Services
  - Student welfare center/services: Designated team including faculty members, clinical psychologists, trainee residents, etc.
  - Crisis-Helpline: 24-hour on-call services which could be contacted anytime for psychiatric help

client, it is better to refer the physician-client to another psychiatrist after a discussion about the issue.

Confidentiality is an issue for this group of clients. It is always better to be aware of the institutional policies regarding disclosure and non-disclosure about the students. In the institutional setting, the mental health professionals employed in the same institute may be required to inform the administration about the mental health issues the

students/staff face. This kind of provision can have pros and cons, as some persons who are not suicidal/severely ill might find this to be unnecessary. An effort must be made to explain to the clients about the provisions, and who would be informed, as this often helps to alleviate the anxiety. The clinician can inform the doctor-patient client that in case as a treating psychiatrist they feel that the doctor-patient client can be a threat to their own life and to others (including the patients whom they are treating), the confidentiality would be broken in the larger interest of the doctor-patient client. However, if the medical student, resident or physician contacts a psychiatrist outside their institute, they are not required to inform the administration.

Concerning confidentiality, the treating psychiatrist should be clear upfront concerning what would be disclosed to whom and when (e.g., when the person seeking help is suicidal and there is a need to monitor the person with the help of family or other staff/colleagues). Whenever feasible and felt appropriate, the person seeking help should be encouraged to inform their family about the mental health status, who can get involved and provide the desired social support and supervision.

Many medical students, residents, and physicians self-medicate and often try to validate the prescription from the psychiatrist when they come across them in a social situation. Similarly, some people seek formal professional help once and then try to maintain informal contact. These behaviors should be discouraged, and regular formal consultations should be encouraged if the symptoms persist. At times, the doctor-patient clients, especially residents seek informal help from their fellow colleagues pursuing residency in psychiatry. In general, the residents pursuing psychiatry training should be discouraged to provide informal consultations, as these does not occur in a proper therapeutic situation and at times could land them in trouble, if the doctor-patient client exhibits a suicidal behavior.

In an institutional setting, services are often organized as a student welfare center/service and/or crisis helpline. The students can contact these services in their time of need and get help. In an institutional setting, when the medical students and residents seek help, they are sometimes assessed in detail and managed by the trainee residents. In such a situation, the consultant or the first point of contact should ask about the preference of the student/resident about the resident with whom they would be more comfortable, and this should take into account the—gender of the treating trainee, place of residence of the treating trainee, the language the trainee can speak, the seniority of the treating trainee, etc.

In institutional setting, at times a psychiatrist may be asked by the administration to evaluate a doctor-patient client due to the disciplinary issues. In such a situation, the doctor-patient client should be initially evaluated by

a relatively senior psychiatrist (a faculty member and not a resident), who after initial evaluation can decide about the course of treatment. When a doctor-patient client is referred by administration, has a diagnosable mental illness, and is willing for treatment, the clinician can inform the administration (with due consent from the client) about the mental health issue and provide treatment as per the need. However, if the mental health professional feel that the disciplinary issue is related to personality traits, or are arising due to the inability of the client to fit into their role due to interpersonal clashes with colleagues, it is always better to request for formation of a medical board. If the administration is expecting the psychiatrist to make any recommendations beyond treatment, then it is always better to ask for constitution of a multidisciplinary medical board, rather than making recommendation on your own.

In case, a doctor patient client is referred by the administration for a mental health issue and the doctor-patient client or their family is unwilling for psychiatric consultation, the psychiatrist can inform the administration about the same and should not coerce them for treatment. However, depending on the doctor-patient client, the psychiatrist should make all efforts to counsel the doctor-patient client and their family members about their impression about the mental health issues, need for treatment and the possible consequences, if the treatment is not started. They should also inform the doctor-patient client and their family members that in case at any time they decide to seek treatment, they can contact them.

### Assessment

A medical professional's assessment of mental health issues should be like that of any other patient concerning evaluating the signs and symptoms of mental illnesses [Table 5]. However, some of the problems must be kept in mind while evaluating them. A doctor-patient client may be initially anxious and frightened like any other patient. Hence, the mental health professional should provide a friendly environment to open up and try to alleviate their anxiety. The treating psychiatrist should also inform about the professional doctor-patient relationship involved in the assessment and management so that the doctor-patient client realizes that it is not a casual conversation. It is also essential to reassure that they will be treated most appropriately, but as a patient and not as a doctor in this interaction. They should also be comforted that the confidentiality will be maintained as for other patients, with certain exceptions (i.e., suicidality or if their behavior could risk the life of their patients). The clinician should also try to maintain professional boundaries by avoiding becoming overly close due to empathy or sympathy with their doctor-patient client.<sup>[58]</sup>

Physicians and trainees may sometimes equate their symptoms/illness with weakness.<sup>[58]</sup> It is better to convey

that their experience is part of an illness that anyone can experience.

Persons with a medical background often describe their problems using medical jargon rather than expressing their symptoms in detail, and try to cut corners when the history is being collected, or attempts are made for a detailed mental status examination. The psychiatrist should not take the labels of the symptoms described at face value and instead should ask them to explain what they mean when they use particular terminology. Further, many medical students and physicians will come up with self-diagnosis. The treating psychiatrist should not accept the self-diagnosis, and all attempts must be made to clarify the diagnosis. Another important aspect of this group of clients is that they may also tend to underestimate certain aspects of the problems such as substance use, marital problems, work-related stress, self-harming or suicidal behavior, dysfunction due to the symptoms, and impact of the illness on the professional life. Accordingly, the mental health professionals should go into the details about these aspects, spend enough time to evaluate the same, and seek collateral information from the informants, if they are available.

Another crucial point that must be considered while assessing doctor-patient clients includes focusing on profession-specific or work-related stressors to understand the association of psychiatric symptoms with work-related stress. An important aspect to consider is that some professionals may be workaholics and would not accept that the work stresses them and instead try to rationalize their behavior. Similarly, issues related to studies and careers should be evaluated while evaluating students and residents. Besides assessing the work-related matters, the treating psychiatrist should also not shy away from asking personal questions related to relationships, substance use, sexual history, sexual orientation, etc.

The prevalence of substance use disorders is common among doctor-patient clients. Hence, an attempt should be made to evaluate the same in detail concerning type of substance used, quantity, last use, impact on the same on the studies and profession, the impact of the same on work performance including patient-related activities, and any physical or psychological complications in the past. The mental health professional should not limit this inquiry into the self-reported substance and should extend the same to the evaluation of history for the use of all the possible substances. Further, information about excessive use of medications, such as benzodiazepines and other hypnotics and opioids, should be looked into.

The treatment history should also look into the past formal treatment received and for any kind of self-medication use. While evaluating the past treatment history, look for the duration of therapy, doses used, response to treatment,

**Table 5: Assessment of mental health issues among the medical students, residents, and practicing physicians****History**

- Current symptoms: onset, precipitating factors, course of illness, duration, severity, level of dysfunction/consequences of psychiatric symptoms on psychiatric symptoms on the personal, social, and personal life
- Suicidal behavior: ideations, attempts, planning, assess to means, suicidal gestures
- Past history of mental disorders
- Family history of mental illness
- Substance use: type of substance, the pattern of substance, any recent increase or decrease in the quantity of substance, last intake of the substance
- Chronic medical illnesses: diabetes mellitus, hypertension, coronary artery disease, cerebrovascular disease, Parkinson's disease, Epilepsy, obesity, etc.
- Age and gender-specific issues: Premenstrual dysphoria, pregnancy, post-partum, sexual functioning/dysfunction, gender orientation, sexual harassment
- Current and recent history of frequent infections (may be indicative of lower immunity)
- Medication history: review all the prescription drugs, over-the-counter medications, any recent changes in the medicines, any recent change in medication doses, medication adherence
- Self-medication: psychotropics, non-psychotropics; use of pattern—dependence/abuse
- Type of professional responsibilities: team leader, the junior member of the team
- Workplace stress: working hours, workload, interpersonal relationships with the seniors or other staff, academic pressure, sleep deprivation and disturbances, poor ability to cope with stress/dysfunctional coping (substance use), type and frequency of call duties (night call or weekend call), work environment, organization culture, level of documentation required at the workplace, financial remuneration and level of satisfaction with the same, risk of malpractice suits, kind of patients attended, control over the work environment, level of support from the superiors and the administration, type of leaders at the workplace, opportunities for career advancement, time pressure to complete the work, kind of hierarchy followed at the workplace, level of autonomy, amount of positive feedback received at the workplace, sexual harassment at the workplace
- Work-related behavior: level of dedication, conscientiousness, taking responsibility for the assigned work, level of commitment to work, workaholic, inability to delegate responsibility
- Studies-related stress (in the case of students and residents): exams, failures, academics, thesis, research-related issues, etc.
- Patient and caregiver-related behaviors: violence against the doctors, pending medicolegal issues, pending inquiries
- Level of social support outside the workplace or work environment: marital status, having a partner
- Personality: level of perfectionism, Idealism, ambitiousness, masochism, self-criticism, anxiety about competence, anger, and aggression
- Work-life balance: Problems of work-life balance
- Workplace abuse: emotional abuse, sexual abuse, etc.
- Personal stressors: loneliness, relationships issues in personal life (marital functioning, relationship with the partner (s) in case not married), work interrupted by personal concerns
- Coping mechanisms to deal with stress
- Ways of unwinding: hobbies, socialization
- Social support: number of friends, relationship with friends
- Consequences of the mental symptoms on work and personal life: Medical errors, level of productivity, absenteeism, interpersonal relationships, substance use
- Current status of work responsibility: Working independently or in a team, chances of risk to the life of the treated patients
- Other contextual factors: Place of residence (hostel, paying guest, rented accommodation), number of friends, problems related to adjustment to the new environment (food, housing, first time away from home, ragging or bullying faced, language barrier), access to medications (anesthetic agents, psychotropic medications)
- Physical examination
- Detailed physical examination- looks for signs of anxiety (sweating, restlessness, tremors, etc.), substance withdrawal and substance use (marks of intravenous substance use), substance or medication intoxication (drowsy), and self-harm (cut-marks, scratches), etc.
- Mental Status Examination
- Besides the disorder-specific assessment, specifically focus on suicidal ideations, plan, attempt; relationship issues, and ongoing stress in the workplace

**Investigations**

- Routine investigations: hemogram, renal function tests, serum electrolytes, liver function test, serum glucose levels, electrocardiogram
- Other investigations: as per the psychiatric condition, physical comorbidity, and physical examination
- Rating of the severity of illness

medication and treatment adherence, reasons for stopping medications, and the impact of medicines on professional functioning.

The assessment of suicidality is of paramount importance and should not be missed. All kinds of suicidal behaviors (past and current), including suicidal ideations, plans, attempts, and gestures, should be enquired. While evaluating the same, the doctor-patient can be reassured that it is common for people with certain mental illnesses to have such features that resolve with treatment. While assessing suicidality, it is also essential to focus on the means used in the past and the access to means, in case

a doctor-patient client expresses suicidal ideations and plans.

Many doctor-patient clients suffer from symptoms for a reasonable time before they seek consultation. Hence, it is also crucial to focus on what led to the current consultation. This will help to decide whether the client requires a crisis intervention.

Another important aspect of assessment, especially among the medical students and residents, is understanding their living arrangements. Often, this group of clients lives in hostels or live in rented accommodations. This

understanding can help determine the social support and supervision available. Other contextual issues which may be relevant to the assessment of medical students and residents include evaluation of problems related to adjustment to the new environment (food, accommodation, first time away from home, ragging or bullying faced, language barrier), and access to medications (anesthetic agents, psychotropic medications).

It is also vital for the psychiatrists to understand that some of the students, residents, and physicians may have problems related to their personal life rather than solely work-related stress. Hence, these should not be ignored while carrying out the detailed assessment.

While evaluating this group of clients, the psychiatrist should remember that depending on the institutional policies and environment, clients may not meet a mental disorder's syndromal diagnosis and may present with, at best, an adjustment disorder or physician burnout. The psychiatrists should familiarize themselves with risk factors, causes, and clinical features of burnout [Tables 6 and 7]. In general, it is essential to remember that social conflicts, overwhelming demands, lack or loss of resources, insufficient rewards, and absence of fairness at the workplace contribute to burnout. While evaluating physician burnout, it is also essential to assess the organizational work culture, as this may help in understanding the context in which the person is working or studying. While evaluating doctor-patient clients, the psychiatrists should also remember that even if the person fulfills a syndromal diagnosis, they may be having symptoms of burnout or burnout that could be contributing to the manifestation of a psychiatric disorder under evaluation. If required, the clinicians can use structured instruments like Maslach Burnout Inventory (MBI),<sup>[29]</sup> Oldenburg Burnout Inventory,<sup>[61]</sup> Copenhagen Burnout Inventory,<sup>[62]</sup> Burnout Clinical Subtype Questionnaire,<sup>[63]</sup> Shirom Melamed Burnout Measure,<sup>[64]</sup> and Stanford Professional Fulfilment Index<sup>[65]</sup> to understand the level of physician burnout.

Assessment should also consider the impact of the current symptoms on the person's work-related functioning. This assessment should be individualized concerning the specialty, place of posting, type of responsibilities, amount of face-to-face time with patients, possible consequences of any medical error which can occur due to symptoms, and risk to the life of the patient managed by them in the current mental state and risk to the life and medicolegal issues of the doctor-patient if they continue to work. Similarly, while evaluating the students and residents, issues related to upcoming examinations (theory/practicals) and meeting the deadlines for the academic assignments, including the thesis, should be kept in mind. Focusing on coping abilities, including the ability to bounce back in an adverse situation can also provide helpful information.

Finally, the assessment should also include evaluating the need for inpatient care or recommending leave. This assessment should consider the severity of symptoms, risk of harm to self and others (i.e., their patients), contextual factors including the available social support, and the working environment. If the assessment suggests that it would be better for the doctor-patient client to be off from work for some time, then the psychiatrist should be prepared to recommend medical leave.

**Management**

It is essential to understand that many doctor-patient clients seek help only once and have poor follow-up rates. Hence, the assessment and management should go hand to hand. Further, the follow-up with the treatment advice (both pharmacological and non-pharmacological) would be influenced by their attitude toward mental illnesses and psychotropics and psychosocial interventions. Additional factors that play a role in accepting treatment include the family's and accompanying co-workers' perspective toward the mental health treatment. The presence of inadequate or wrong knowledge about psychiatric illnesses and treatments also influences the treatment behavior.

**Table 6: Risk factors and features of physician burnout<sup>[66,67]</sup>**

Risk factors for physician burnout	Causes of Burnout
<ul style="list-style-type: none"> <li>• Young age</li> <li>• Female gender</li> <li>• Negative marital status</li> <li>• Long working hours</li> <li>• Low levels of job satisfaction</li> <li>• Sleep deprivation</li> <li>• High level of work/life conflict</li> <li>• Work interrupted by personal concerns</li> <li>• High level of anger, loneliness, or anxiety</li> <li>• The stress of work relationships</li> <li>• Anxiety about competency</li> <li>• Difficulty “unplugging” after work</li> <li>• Regular use of alcohol and other drugs</li> </ul>	<ul style="list-style-type: none"> <li>• Workload: high face-to-face time, documentation time, administrative time</li> <li>• Specialty: Neurosurgery</li> <li>• Practice setting: rural/urban, academic/non-academic, inpatient/outpatient</li> <li>• Patient characteristics: demand, entitlement, adherence, compliance</li> <li>• Sleep deprivation: self-explanatory</li> <li>• Personality type: workaholic, masochistic</li> <li>• Loss of meaning in medicine and patient care: decreased support, increased responsibility, without autonomy and flexibility</li> <li>• Challenges in institutional cultures: perceived lack of peer support, lack of professionalism, disengaged leadership</li> <li>• Problems with work-life balance</li> <li>• Methods of dealing with death and suffering: oncology, critical care, palliative care</li> <li>• Methods of dealing with medical mistakes: internal defenses, external support</li> <li>• Malpractice suits: internal defenses, external support, nature of the complaint</li> <li>• Lack of control over practice environment</li> </ul>

Accordingly, the psychiatrist should appropriately utilize the first opportunity of assessment and management to address these issues, as this can go a long way in influencing not only the medication and treatment adherence of the doctor-patient client, but also influence their future attitude toward psychiatry as a specialty but also toward patients with mental illnesses. Once the initial assessment is complete, it should not be presumed that the doctor-patient understands their diagnosis and the course of the treatment. Accordingly, proper psychoeducation about the illness and treatment should be an integral part of the assessment. Similarly, if a doctor-patient client has come with a crisis, the crisis intervention should start from the first encounter itself.

The treating psychiatrist should spend enough time discussing the diagnosis and/or treatment plan. Give the doctor-patient client enough time to discuss the diagnosis and treatment [Table 8]. Again, re-emphasize the issues related to privacy and confidentiality. The psychiatrist should remind the doctor-patient client that the National Medical Council code of ethics requires every physician to disclose the information *in the court of law under the orders of the Presiding Judge; in circumstances where there is a serious and identified risk to a specific person and/or community; and notifiable diseases.*<sup>[69]</sup> They should be informed about any institutional policies concerning the students, residents, and physicians. If any information is to be disclosed to the administration, they should be informed about who will be notified, how they will be told, and what will be revealed. Often the doctor-patient clients have low self-esteem due to mental illness when they are evaluated for the first time. Hence, the psychiatrist should make efforts to reassure them and improve their low self-esteem. If inpatient care is being considered, inform the doctor-patient client about the same, along with the details about the indications for inpatient care, and risks involved in avoiding inpatient care. Inpatient care should be considered as per the recommendations for various diagnoses. However, some of the issues (not necessarily a comprehensive list) which may be pertinent for consideration of inpatient care are listed in Table 9.

Similarly, if the assessment suggests that it would be better for the doctor-patient client to be off work for some time, i.e., till they recover, than this issue should be discussed in detail, and they should be informed about the facts being taken into account to reach such a decision.

If any kind of pharmacological intervention is being offered, spend enough time in mutual discussion with the doctor-patient client to choose the most appropriate agent for them. Like any other patient, they should be given the opportunity to select the pharmacological agent. When choosing a pharmacological agent, the impact of the medication on functioning should be kept in mind. The

**Table 7: Signs and symptoms of physician burnout<sup>[68]</sup>**

- Loss of motivation
- Feeling helpless, trapped, or defeated
- Anxiety, fear, tension, Hypersensitive, frequently losing temper
- Lack of empathy
- Increased cynicism and negative outlook about everything, pessimism
- Lowered satisfaction or sense of accomplishment
- Feeling tired and drained most of the time
- Frequent headaches and muscle aches
- Tiredness not relieved with adequate rest
- Lowered immunity: frequent infections
- Change in appetite or sleep habits
- Withdrawal from responsibilities
- Cognitive dulling: poor attention and concentration, subjective memory disturbances, executive dysfunction
- Procrastination
- Skipping work or coming in late and leaving early, not answering phone calls, isolating self
- Reduced work performance: Slower in performing work
- Lack of flexibility: Poor tolerance of ambiguity, inability to compromise
- Committing medical errors

**Table 8: Issues and principles to be kept in mind while closing the first assessment session**

- Have enough time in hand after the assessment is done to address the issues of the doctor-patient client
- Give the doctor-patient client enough time to discuss the diagnosis and treatment
- If inpatient care is being considered, inform the doctor-patient about the same, along with the details about the indications for inpatient care and the risks involved with not admitting
- Again, re-emphasize the issues related to privacy and confidentiality and the exceptions to the same
- Address the low self-esteem
- Carry out crisis intervention, if the first consultation was precipitated by a personal life crisis or work-related crisis
- Choose the pharmacotherapy with mutual agreement and informed decision-making
- Decide about the non-pharmacological treatments which are feasible, effective, and evidence-based.
- Emphasize the need for medication and treatment adherence
- Discuss the high-risk management, as per the requirement
- Discuss the pros and cons of involving a family member in the treatment
- Address the issues of risk involved in continuing to work in the current clinical state
- Discuss taking a break from work
- Discuss the need for inpatient care, and its benefits
- Decide about the follow-up plan

**Table 9: Some of the indications for inpatient care**

- Presence of suicidal ideations and/or plans
- Recent suicide attempt
- The patient has threatened or physically hurt someone else
- Impairment of reality testing, poor insight, and poor judgment
- Rapidly deteriorating course
- Failure to improve despite adequate treatment
- Severe illness
- Violent and aggressive patient
- Patients with psychosis and mania lack insight and require treatment initiation
- Severe emotional breakdown
- Substance intoxication or severe withdrawal
- Requiring special therapy

doctor-patient clients often underestimate or overestimate the need for medication and treatment adherence. They should be provided enough information about the risks involved with poor medication adherence.

Sometimes, despite being indicated, doctor-patient clients may refuse to take medications. In such a scenario, efforts should be made to explain to them the pros and cons of not starting the medicines. Additionally, the mental capacity of the doctor-patient client should be taken into account before making a final decision.

On the other hand, if the assessment suggests that the doctor-patient client may not require any pharmacological treatment, the same must also be shared with them, as this may also help to relieve a lot of anxiety.

Similarly, while considering non-pharmacological treatments, they should be provided with the full menu, explained the feasibility (time required, frequency of sessions, expectations from them as a patient), and be given the option to choose by taking into consideration the available time with them. If the doctor-patient client requires high-risk management, this should be kept in place at the earliest. All efforts must be made to explain to them the need for the same. At times the doctor-patient clients are not comfortable involving anyone in their treatment. This may be alright if they are not suicidal, but if there is a risk of suicidality, then all efforts must be made to ensure the safety of the patient.

Before closing the initial session, it is important to discuss the follow-up plan. The doctor-patient clients should be informed about the need to keep the consultation as a formal interaction so that the objectivity of the doctor-patient relationship can be maintained from either side. If the doctor-client patient is prepared to follow-up but is reluctant due to confidentiality issues (being seen by other staff in the psychiatry services), they should be given the option of following up on teleservices. In such a situation, it is better to discuss beforehand when the teleconsultation will be converted to a face-to-face consultation.

Besides addressing the issues of the doctor-patient client, the psychiatrist should also address the issues raised by the caregivers without breaching confidentiality. The interaction with the caregivers should also be taken up as an opportunity to discuss the high-risk management if required, addressing the issue of the need for social support and addressing the interpersonal issues in the personal life, if these are contributing to the clinical picture in any way. The caregivers can also be involved in the supervision of treatment, accompanying the patient during the inpatient stay.

Management of specific psychiatric disorders should be done as per the clinical practice guidelines for the particular disorder. The treating psychiatrists should follow

the recommendations and modify the same as per the requirement of the doctor-patient client.

In case, a doctor-patient client is recommended leave or receives inpatient care, then during the follow-up, they should be prepared to handle the stigma. The doctor-patient clients often face self-stigma and public stigma. Addressing public stigma may not be in the hand of treating psychiatrists, but the self-stigma should be addressed. Self-stigma is defined differently by different authors. According to one of the definitions, it is understood as “*shame, evaluative thoughts and fear of enacted stigma as a result of individuals' own identification with a stigmatized group that serves as a barrier to the pursuit of valued life goals*”.<sup>[70]</sup> According to another definition it “*involves negative beliefs about the self, strong negative feelings, for example of self-hate and shame, as well as putting oneself at a disadvantage, for example through social withdrawal.*”<sup>[71]</sup> Some of the commonly recommended strategies for reducing self-stigma include improving self-esteem, self-efficacy, empowerment, and self-compassion<sup>[72]</sup> [Table 10].

In case a doctor-patient client is recommended leave, the psychiatrist should reassess the person and ensure that the person's symptoms have improved to such an extent that he can function adequately. This assessment should take into consideration the job profile (e.g., night duties, specialty in which the colleague is working, expected work pressure),

**Table 10: How to address self-stigma: Improving self-esteem, empowerment, and self-compassion**

- Strategies to improve self-esteem
- Be kind to yourself
- Reduce negative self-talk
- Focus on your strengths
- Don't equate yourself with your illness
- Avoid self-isolation
- Have positive relationships
- Be assertive
- Try to say NO, when required
- Speak against stigma
- Strategies to improve self-efficacy
- Celebrate your success
- Seek people who give you positive feedback and avoid people who give you negative feedback
- Pay attention to your negative thoughts and try to counter them with positive thoughts
- Strategies to improve empowerment
- Having a positive attitude toward life
- Take care of self
- Have reasonable goals
- Have the company of positive people, use positive self-talk, be assertive, and take action
- Strategies to improve self-compassion<sup>[73]</sup>
- Treat yourself as you would treat a friend in need- encourage yourself rather than being harsh and belittling yourself
- Understand common humanity (no one is perfect- it is not me only who has deficiencies or limitations-every human has some or other deficit; take a broader perspective of own life)
- Mindfulness (i.e., being aware of own negative thoughts, don't try to overidentify self with the same)



available social support at the work place and outside the work place, past history of relapse or lack of relapse of symptoms after joining back, and the client's own preparedness to joining.

Occasionally, a medical student, resident or a medical professional end up taking extreme step and consequently losing their life as a result of suicide. In such a situation, the fellow students and colleagues are often shocked, distressed or in anger. In such a situation, a psychiatrist may be asked to address the fellow students. Depending on the situation (individual or group), the psychiatrist should listen to the fellow students or the colleague of the person who has lost their life, should acknowledge the loss, try to understand what others feel about the possible contributory factors, try to reassure them, address their emotional turmoil and if required inform the administration about the needs for corrections at the institutional levels to prevent future events. However, they should refrain from making any false promises on behalf of the administration. The psychiatrist can also take this opportunity to educate the students about the mental illnesses among medical professionals, need for seeking help, available resources in the institute and how the students can act as gate-keepers for their colleagues and prevent such unfortunate events in future.

The management of physician burnout involves the use of individual-level strategies and organization-level strategies. While dealing with the individual doctor-patient client, the psychiatrist can use individual-level strategies to address the burnout. Depending on the institutional ethics and culture, the psychiatrists should also strive to make changes at the institutional level to improve the working environment of the organization.

In terms of individual-level strategies, it is essential to remember that there is a significant overlap between the preventive and treatment methods. Some of the strategies which have been suggested include mindfulness-based techniques, self-care, stress management techniques, cognitive behavioral techniques, improving communication skills, gratitude interventions, development of interpersonal skills, and development of knowledge and work-related skills to enhance job competence and improve communication skills and personal coping strategies.<sup>[21,74]</sup> Enhancing control over the work, improving flexibility and work-life integration by focusing on organizational skills, personal efficiency, and personal factors that affect the work-life can also help to reduce physician burnout.

In terms of organization-level interventions [Table 11], the psychiatrist should make an effort at their level with the administration to make it more physician-friendly.

The mental health professionals should also strive to reduce stigma at the institutional level, which will promote help seeking.

**Table 11: Organizational level strategies to manage physician burnout<sup>[21,74]</sup>**

- Workplace supportive measures (appointing medical scribes, establishing a crisis helpline, and easy access to mental health care)
- Reducing stigma towards mental illnesses
- Inclusion of stress management and burnout prevention modules as part of the medical education curriculum
- Improving physician autonomy (ability to influence work environment and schedule control)
- Modifying the work processes and flow
- Promoting a collegial work environment (promoting healthy relationships and common goals)
- Adequate support services (such as nursing, secretarial, administrative, social work, and ancillary services) and support in the form of Apps, software, etc.
- Formation and implementation of a culture/social connection calendar to improve interactions
- Work hour modifications: rationalize the working hours, flexible working hours, and Time-banking system
- Having explicit policies for cross coverage, vacation, sick leave, maternity, and paternity leave
- Access to self-care resources
- Restructuring of the task
- Making the environment more congenial for learning
- Organization of social events
- Increasing the level of participation in decision-making
- Opportunities for professional development
- Screening employees at regular intervals and identifying the problem areas to bring about changes

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# Clinical Practice Guidelines for the Use of Electroconvulsive Therapy

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## INTRODUCTION

Electroconvulsive therapy (ECT) is a clinical procedure where a small dose of electric current is passed through the brain for a brief period to induce seizures for therapeutic purposes in psychiatric (and certain neurological) conditions. Modified ECT is the modern form of ECT where the electrical stimulus is given under general anesthesia and muscle relaxation. This is one of the most effective treatments for many psychiatric conditions. Modern modified ECT is a safe treatment when practiced with adequate knowledge, skills, and expertise. Following the basic standards of ECT practice is necessary for better clinical outcomes including minimal cognitive adversities. This guideline document is aimed at enabling consistent, safe, and effective practice of ECT in patients in applicable psychiatric disorders.

## METHODS

These guidelines are developed as part of the initiative of Clinical Practice Guidelines (CPG) subcommittee of Indian Psychiatric Society. The initial draft guideline was developed by the authors. The information was sourced from key research articles, national/international guidelines on psychiatric care, and ECT. No formal systematic literature search was conducted. The current guideline was prepared to suit the existing Indian mental health care system and legislations. The draft was further presented and discussed in the in-person workshop of CPG-2022. The draft was revised following the discussion in the workshop based on the consensus-based recommendation method.

This guideline is not a directive or mandatory instruction but a guidance document for professional practitioners administering ECT. This is not a full and complete review of ECT procedure. But it is intended to improve patient outcomes by facilitating best practice standards by maximizing benefits and minimizing adversities.

## USE OF ELECTROCONVULSIVE THERAPY

### Indications

Table 1 shows the indications for ECT. Evidence exists for the efficacy of ECT in depressive episodes, manic episodes, and acute exacerbations of psychosis in

schizophrenia. Treatment-resistant depression, mania, and schizophrenia, including clozapine-resistant schizophrenia, are well-recognized indications,<sup>[1-6]</sup> with evidence from comparative trials (comparison across types of ECT or with waitlisted patients). ECT should not be withheld until the failure of several medication/psychotherapy trials in severe depression. Health economics suggest that it is beneficial to consider ECT as a second or third line agent in severe depression. ECT is considered as first-line (primary) treatment for emergency psychiatric conditions across diagnoses. These include high suicidality, catatonia, excitement, aggression, poor oral intake, acute psychotic symptom exacerbations, and severe physical debilitation secondary to psychiatric disorders.<sup>[7-13]</sup> The rigor of the evidence base is limited for such indications due to ethical and pragmatic considerations in conducting sham-controlled trials in these emergency life-threatening transdiagnostic situations. It may be noted that almost all international standard guidelines suggest ECT as a first-line treatment option for these indications.<sup>[8-13]</sup>

### Predictors of response

In general, older age, psychotic symptoms, and shorter episode duration are predictors of response to ECT. Melancholic features and greater baseline depressive symptom severity are also associated with better ECT response. Past good response to ECT is considered a good predictor of response for the current episode.

Continuation/Maintenance (C/M) ECT should be considered for patients with a history of severe, recurrent episodes who have failed to remain well on medications.<sup>[14]</sup>

ECT is a first-line treatment when rapid and/or definitive response to avert harm to self/others is needed. Acute suicidal risk, agitation, catatonia, and deteriorating physical status secondary to psychiatric conditions are some of such situations. After an acute course of ECT, C/M treatment with pharmacotherapy and/or psychotherapy is needed.

All the indications mentioned above have to be individualized and should be based on the clinical needs, patient's preferences, and putative risk of adverse effects.

### ECT staffing

ECT without anesthesia and muscle relaxation is now

**Table 1: Indications of ECT**

Disorders	Indications
	Common Indications
Major depressive disorder	Poor oral intake High suicidal risk High level of distress requiring rapid symptom remission Psychotic features Melancholic features Peripartum depression Treatment resistance With severe mixed affective features
Mania	Require rapid clinical improvement Persisting/clinically significant agitation and aggression. Treatment resistant mania With severe mixed affective symptoms Delirious mania
Schizophrenia and related disorders	Acute psychosis requiring high-intensity management Acute exacerbations of positive psychotic/affective symptoms of schizophrenia and schizoaffective disorder requiring high-intensity management. Good response in the past exacerbations Treatment-resistant schizophrenia Clozapine augmentation in clozapine-resistant schizophrenia Postpartum psychosis
Catatonia	Resistant to benzodiazepine trial Good response in past episodes Malignant catatonia, risk of imminent mortality
	<b>Uncommon indications</b>
Autism	Severe repetitive self-injurious behavior
Dementia	Agitation and aggression
Obsessive compulsive disorder	Comorbid depression Difficult-to-treat OCD, before invasive neurosurgical procedures
Parkinson's disease	Comorbid severe depression/psychosis On-off phenomenon with nonresponse to medicines Wearing-off phenomenon
Epilepsy	Intractable temporal lobe epilepsy Status epilepticus
Neuroleptic malignant syndrome	With any dopamine antagonist (irrespective of underlying indication) Withdrawal of a dopamine agonist (irrespective of underlying indication)

prohibited under the Mental Health Care Act, 2017. Hence, the staffing shown in Table 2 is advisable for administering modified ECT.

### Treatment site and equipment

The treatment suite ideally involves three distinct areas, but which are nearby or closely connected:<sup>9,10]</sup>

- a. Waiting/preparation room: should have the following facilities:
  - i. Waiting area for patients and caregivers
  - ii. Space for assessment: for interviewing, examining, verifying the records, and to ensure adequate preparation

- iii. Sphygmomanometer and stethoscope
- b. ECT administration room
  - i. ECT apparatus including bite block, electroencephalogram (EEG) monitor, and ECG monitor
  - ii. Anesthetic agents (e.g., thiopentone, propofol, etomidate, ketamine, isoflurane, sevoflurane, etc.) and muscle relaxants (along with succinylcholine, at least one nondepolarizing agent like atracurium or rocuronium should be available)
  - iii. Emergency medication tray to manage uncontrolled hypertension, hypotension, cardiac arrhythmia, cardiopulmonary arrest, anaphylactic shock, prolonged seizure, and status epilepticus. This should include intravenous fluids, epinephrine, dopamine, atropine, glycopyrrolate, cholinesterase inhibitors (neostigmine, physostigmine), anticonvulsants (lorazepam, diazepam, phenytoin), steroids, beta blockers (esmolol, labetalol), alpha-blockers (prazosin, clonidine), vasodilators (nitroglycerin, hydralazine), antiarrhythmics (lidocaine), analgesics (paracetamol), antiemetics (domperidone, metoclopramide), antihistamines (chlorpheniramine, cetirizine), bronchodilators (aminophylline) among others)
  - iv. Vitals monitoring: sphygmomanometer, reflex hammer, oxygen saturation, ECG
  - v. Intubation set: oral and naso-pharyngeal airways
  - vi. Oxygen delivery system with intermittent positive pressure ventilation capabilities through a mask as well as endotracheal tubes
  - vii. Suction apparatus, iv infusion set, syringes with needles, cotton and gauze pads, hand gloves.
  - viii. Defibrillator
  - ix. Portable cots/beds, disposable containers
- c. Recovery room: should have all items iii to ix listed above

### Informed consent (Supplements 1–4)

Written informed consent has to be taken before initiating ECT based on principles of shared decision-making. Consent should be taken following due procedures in accordance with the highest ethical standards and applicable laws/regulations. Written information material may be provided to the patient and caregivers, and adequate time should be provided for reverting with any clarifications. Information should be provided regarding the anticipated benefits and possible short-term and long-term adverse effects of modified ECT, including possible risks with both anesthesia and ECT, in the given individual. Discussion on the type of ECT, modification procedure, electrode placement, and expected outcomes should be included in this process. Unless the patient disagrees, it is recommended to make caregivers a part of the consenting process. If a patient does not have the capacity to consent, the same needs to be documented.

**Table 2: Staffing for ECT**

Staff	Number	Remarks
ECT Psychiatrist	1	Psychiatrist trained in ECT. The role is to assess patients before ECT, ensure indication of ECT, pre-ECT evaluation, determination of how each treatment is administered and documentation of these aspects.
Anesthesia provider	1	Anesthetist/Anesthesia technician. This person requires skill in conducting preanesthetic evaluation, airway management, cardiopulmonary resuscitation, emergency life-support, management of acute adverse events/medical emergencies arising during or soon after ECT. High-risk cases should be handled only by an anesthetist.
ECT nurse	1	Staff nurse trained in ECT. This can be an OT nurse with basic training in ECT-related aspects including pre-ECT assessments and consent, assisting in anesthesia, monitoring vitals, coordinating logistics and ensuring availability of supplies and ECT equipment.
Recovery nurse	1	Staff nurse trained in postanesthesia recovery care. The recovery nurse should be capable of monitoring vital signs, pulse oximetry, electrocardiogram (ECG); administering oxygenation, intravenous fluids, suctioning provide supportive care for disorientation, delirium, and/or agitation.

The advance directives, if any, have to be examined and, in accordance with that, consent may be obtained from the nominated representative. In the case of minors, oral/verbal assent (as per the age) should be obtained along with written informed consent from parents/nominated representative; the decision about initiating ECT has to be taken only after concurrence by two independent psychiatrists or a psychiatrist + a physician, and due permission from the mental health review board as per the law. As and when a patient regains the capacity to consent or attains 18 years of age, his/her consent has to be obtained for continuing ECT sessions then onwards.<sup>[15,16]</sup> Consent has to be obtained again before initiating C/M ECT, as the clinical condition, purpose (consolidation/relapse prevention), and character of treatment (frequency of ECT sessions and end-point) would have changed.

**Pre-ECT evaluation** (Supplement 5): This should be performed as close to the ECT course as possible.

#### Psychiatric and physical evaluation

Psychiatric evaluation is needed to ascertain indications. Rating scales can be used to determine these indications systematically and measure the changes during the ECT course. If the patient has received ECT in the past, details of the electrode placement and electrical parameters in earlier ECTs, level of achieved response, and associated cognitive deficits would guide the current course of ECT.

It is important to evaluate the psychotropic medications that can potentially interfere with anesthesia and ECT. For instance, anticonvulsants increase seizure threshold; antipsychotics like chlorpromazine and clozapine are known to be pro-convulsants; lithium can increase the risk of postictal delirium; tricyclic antidepressants are known to increase the risk of cardiac adverse events during ECT/anesthesia.

Physical examination is needed to identify any relative contra-indications and prevent complications [Table 3]. It should mandatorily involve fundoscopic examination along with other systemic examinations. Dental evaluation for loose or missing teeth, cardiovascular

examination for arrhythmias, assessment for neurological comorbidities, and pulmonary clinical evaluation are mandatory.

Preanesthetic evaluation is recommended to plan for an anesthetic agent and a muscle relaxant. Also, suitable investigations or interventions can be planned in the presence of medical conditions associated with a substantial risk for general anesthesia-related complications. Liaison with other specialist physicians if deemed is necessary by the psychiatrist/anesthetist.

#### Baseline cognitive screen

Monitoring of cognitive adverse effects would be necessary for patients receiving ECT. Baseline knowledge of cognitive abilities is crucial in attributing the changes in cognitive abilities with ECT. Hindi Mental Status Examination and Mini Mental Status Examination are simple tools for monitoring, but are not sensitive to subtle cognitive changes associated with ECT. Montreal cognitive assessment battery (MoCA) and brief ECT cognitive screen are assessment tools used internationally. "Battery for ECT-Related Cognitive Deficits" (B4ECT RECODE) is a tool validated in the Indian population and is recommended to be used during the initiation and course of ECT.<sup>[10]</sup>

#### Investigations

For general anesthesia: hemoglobin levels, blood sugar, electrolytes, blood urea, and serum creatinine would facilitate the detection of common risk-enhancing medical comorbidities but are not mandatory. Similarly, X-ray, electrocardiography, echocardiogram, and other tests would be indicated based on physical evaluation and associated medical comorbidities

#### TREATMENT PROCEDURE

ECT is mandatorily used as a modified procedure, as per the law in India. The modification involves using muscle relaxants to reduce the neuromuscular injuries and using anesthetic agents to induce sedation and amnesia for the procedure involving muscle relaxation and electrical stimulation.

a. Anesthesia

i. Preparation before anesthesia [Figure 1, Table 4 and Supplement 6]

The procedure may be anxiety provoking. So, reassure patients while initiating the procedure including while securing iv access and placing the mask for oxygenation.

ii. An ideal anesthetic agent for ECT would be rapidly inducing and short acting (early emergence from effects of anesthesia), has a good amnesic effect and stable systemic/cerebral hemodynamics during ECT, and would not have any effects on seizure threshold. Tables 5 and 6 provide information helpful in selecting anesthetic agents.<sup>17]</sup>

A combination of propofol and ketamine called ketofol can be used to balance seizure duration and hemodynamic effects. Adjunctive short-acting opiates (remifentanyl, alfentanil, fentanyl) or dexmedetomidine have dose-sparing effects and can be used, but they need more evidence of their exact role in ECT. The differential effects of anesthetic agents are dependent on their dose, and this needs to be considered while choosing the anesthetic agent.

iii. Muscle relaxation is an important component of modified ECT. Ideal muscle relaxants should have the ability to avoid musculoskeletal injury without affecting cerebral seizure activity and provide rapid recovery without residual paralysis. Succinylcholine (0.3–1 mg/kg) is a

preferred muscle relaxant due to its rapid onset and recovery. Nondepolarizing muscle relaxants may be considered in certain conditions. These include pseudocholinesterase deficiency, recent organophosphorus poisoning, severe, widespread burns, hypercalcemia, severe neuromuscular disease or injury (e.g., quadriplegia, amyotrophic lateral sclerosis, muscular dystrophy), history of malignant hyperthermia in the patient or his/her family. In a patient with suspected/known history of a recent (4 weeks) suicide attempt and referred to ECT, a high suspicion of organophosphorous poisoning should be considered. There are reports of prolonged apnea even after 4 weeks of poisoning. Clinicians may consider the assessment of pseudocholinesterase level when in doubt or may use of nondepolarizing agents in such cases.

**Table 3: Clinical conditions requiring caution while administering ECT**

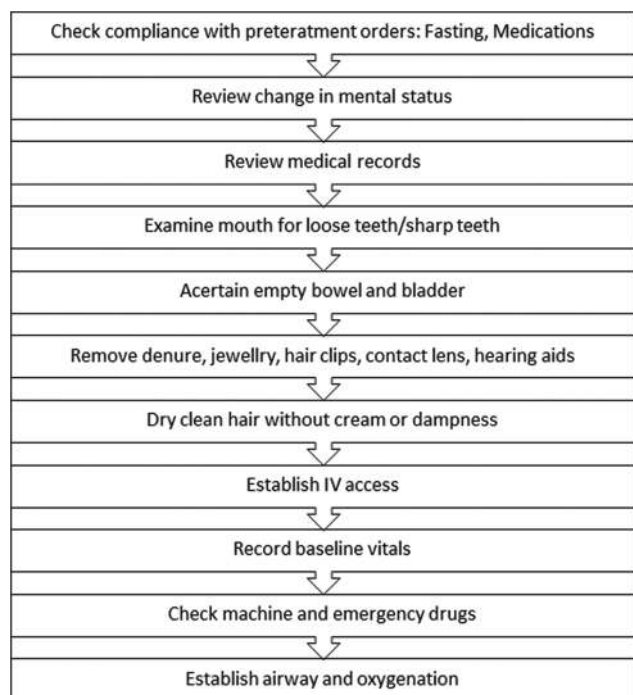
Cerebral	Ocular	Cardiac	Neuromuscular
Raised intracerebral pressure – Intracerebral space occupying lesions	Raised intraocular pressure	Recent myocardial infarction	Spinal injuries
Unstable cerebral aneurysm	Retinal detachment	Poor cardiac output	Bone fractures
Pheochromocytoma		Unstable arrhythmias	Recurrent dislocations
Recent intracerebral hemorrhage/stroke		Medical conditions associated with high-risk for general anesthesia (ASA level 4 or 5)	
		Third degree burns	

**Table 4: Preparation for ECT procedure**

- a) ECT is administered in fasting condition, after last intake of clear liquids of minimum 2 h, milk and light meals of 6 h, and fried food, fatty food, or meat over 8 h.
- b) Head should be dry and clean for the procedure.
- c) Medications that should preferably be avoided before the procedure: Morning dose of oral hypoglycemics, lithium, diuretics, anticonvulsants, theophylline, and benzodiazepines can be withheld, and requirement should be considered only on individual basis.
- d) Medications that should not be avoided before the procedure: Morning doses of scheduled medications like antihypertensives, thyroxine, antiemetics, antireflux, antianginal, bronchodilators, and anticholinergics should not be withheld and can be taken orally 2 h before the procedure with small sips of water.

**Table 5: Summary of critical properties of anesthesia agents in choosing for ECT**

Properties	Propensity of the anesthetic agents
Seizure threshold: Proconvulsant >neutral >anticonvulsant	Ketamine >Etomidate>Methohexital >Sevoflurane >Thiopentone >Propofol
Heart rate (HR): Propensity to increase HR	Ketamine >Methohexital >Thiopentone >Etomidate >Propofol
Mean arterial pressure (MAP): Propensity to increase MAP	Ketamine>Etomidate >Methohexital >Thiopentone >Propofol
Emergence time: Longest to shortest	Ketamine >Etomidate >Thiopentone >Methohexitone >Propofol >Sevoflurane



**Figure 1: Steps of preanesthesia preparation**

**Table 6: Dosage and selected properties of anesthetic agents used during ECT**

Inducing agent	Influence on seizure quality	Advantages	Disadvantages
Propofol (0.75-1 mg/kg)	Shortens seizure duration Increases seizure threshold	Better hemodynamic stability in patients with cardiovascular risks Quicker emergence	Pain during injection
Etomidate (0.15-0.3 mg/kg)	Prolongs seizure duration May reduce seizure threshold	Useful in patients with high seizure threshold	Hyperdynamic response more pronounced; longer emergence time Potential for adrenocortical suppression
Methohexital (0.5-1 mg/kg)	Considered 'Gold standard'	Long history of use	Sparse availability in market; lack of familiarity with use
Thiopentone (3-5 mg/kg)	Reduces seizure duration, though less than propofol	Fast acting agent	Increased risk of arrhythmias
Ketamine (0.5-3 mg/kg)	Unclear Modest seizure enhancing effect	Useful in patients with high seizure threshold Sedative and analgesic	Emergence phenomena Reduced hemodynamic stability Potential for increased intracranial pressure Questionable amnesia
Sevoflurane (Inhalation)	Comparable to thiopentone	Useful when venous access is difficult Better hemodynamic stability Pregnancy: Reduces uterine contraction Enhances muscle relaxation	Special equipments required Time-consuming Potential for QT prolongation

Pseudocholinesterase level can be assessed in patients with high suspicion (e.g., patients belonging to Arya Vysya community, an earlier history of prolonged apnea). Routine determination of pseudocholinesterase level is not recommended. Routine prophylactic use of anticholinergics (atropine/glycopyrrolate), beta-blockers, calcium channel blockers, nitrates, hydralazine, and ganglionic blockers for cardiovascular stability is not recommended. Wherever used, the rationale for using such an agent should be noted.

#### b. ECT Dosing

The protocol of ECT varies considerably and choice on the protocols should be based on individual needs of a given patient. The rapidity of needed response, effectiveness, and potential cognitive adverse effects of the protocols should guide the choice.

Rather than any set of protocols, it is important to have knowledge of each parameter in the protocol, and personalization of protocol can be done based on clinical situations.<sup>[18,19]</sup>

##### i. Electrical Parameters

A brief or ultrabrief pulse is strongly recommended and should be administered with a constant current device. Sinewave ECT and constant voltage systems are not recommended in the modern practice of ECT due to safety concerns.

Electrical charge is generally considered as a linear measure and chief parameter of dosing. But this approach is faulty, and the combination of electric current intensity, pulse width, pulse frequency and train duration (number of pulses) along with electrode placement (stimulation site), frequency of sessions and duration of session should be carefully considered in choosing a protocol.

*Electrical current intensity:* Historically, 500–1000 mA has been used in the practice of ECT. Most devices come with a default current of 800–900 mA. The current intensity is known to linearly correlate with tolerability, cognitive as well as seizure quality but is generally kept constant and not modified during dose incrementation. Recently, low amplitude (200–400 mA) has been explored as part of individualized low-amplitude seizure therapy.<sup>[20]</sup> Its clinical utility is yet to be understood.

*Pulse width:* ECT is classified as brief pulse (0.5–2 ms) and ultrabrief pulse (0.2–0.4 ms). Pulse width is likely to have a linear effect on cognitive adverse effects with broader widths being associated with worse cognitive effects. Ultrabrief pulse of 0.3 ms has been shown to have a cognitive advantage over brief pulses with right unilateral placement in depressive disorders. But the antidepressant efficacy may be compromised with it. A lower range of brief pulse (0.5–1 ms) may be considered optimal to obtain a rapid clinical effect. But when cognitive effects are of major concern, a stimulus with ultra-brief pulse width may be chosen.<sup>[21]</sup>

*Pulse frequency:* The number of biphasic pulses every second is the electrical parameter that is inverse of the interpulse interval. It is an important electrical parameter that generally ranges from 20 to 240 pulses/s (10–120 Hz, i.e., bidirectional pulse pair per second). Stimuli with lower frequencies are generally more efficient, i.e., a seizure can be elicited at a lesser charge with lower frequency than with higher frequency when all other parameters are kept constant. Many ECT devices in the default increment method involve an increase in frequency. ECT clinicians should be aware of this aspect while using a default way of



increasing stimulus charges to address the issue of high seizure threshold.

**Train duration:** This is the most commonly modified parameter to set the dose. Generally, the pulse duration is limited by the devices. Most devices have a range of 0.2–8 s, but certain devices come with the highest limit of up to 16 s. No limit has been examined/recommended on the highest duration. An increase in charge is achieved by increasing train duration till the upper limit of the device is reached.

**The number of pulses:** It is directly a factor of train duration and will also be influenced by pulse frequency. The number of pulses may intuitively suggest a direct correlation with seizure. But as “crowding of pulses” is inefficient in eliciting seizure, the number of pulses by itself may not be a good indicator for setting electrical parameters.

**Directionality:** The default ECT parameter widely applied is bidirectional current. There are preliminary trials of unidirectional current – anodal at one site and cathodal at the other. But the evidence is limited to suggest the clinical utility of unidirectional current.

**Patterned doses:** Bursts of pulses are provided similar to theta bursts in transcranial magnetic stimulation. The available evidence is for continuous pulses with similar intervals, which is supported by most commercially available devices. Currently, patterned pulses cannot be recommended for routine clinical application.

ii. Electrode placement

The electrodes are placed in different ways [Figure 2].<sup>[22-25]</sup>

1. Bilateral:

- a. **Bitemporal:** Classical method. One electrode is placed in the frontotemporal region (one inch above the imaginary line joining the outer canthus and external auditory meatus).
- b. **Bifrontal:** Electrodes placed on frontal regions (2 inches above outer canthus on an imaginary vertical line perpendicular to the imaginary line joining two pupils). Clinical trials have shown that bifrontal is equally if not more effective than bitemporal placement, but with lesser

cognitive effects in patients with mania, depression as well as schizophrenia.

- c. **Left anterior right temporal:** Asymmetrical placement of electrodes with the left side on the frontal region and right on frontotemporal regions is reported. Evidence from systematic studies is lacking for this placement.

2. Unilateral:

- a. **Right unilateral:** One electrode is placed on the right frontotemporal region and another electrode 1 inch right to vertex (point of crossing of two imaginary lines, one joining two tragi and other joining nasion-inion). This is shown to have lesser cognitive adversities but requires nearly 4–6 times the threshold dose when provided as an ultrabrief pulse for efficacy, equaling that of bilateral placements.
- b. **Left unilateral:** Same as right unilateral on the left hemisphere. This is found to be equi-efficacious to the right unilateral. This placement can be chosen when sparing nonverbal and visual memory is needed more than sparing verbal memory. It is also considered in those having the right dominant brain function.

The evidence for the efficacy of unilateral ECT is available only for depression. The evidence of unilateral ECT is lacking for other common indications (namely, schizophrenia or mania).

iii. Dose of ECT

ECT dosing is discussed in terms of charge (milliCoulombs, mC). A higher charge is associated with better efficacy and higher cognitive adverse effects. But as discussed earlier, the charge is not a linear measure but a combination of multiple electrical parameters [Figure 3].

Electrical charge = Current intensity × pulse width × pulse frequency × train duration.

The total dose for optimal efficacy through repeated ECT sessions is considered with respect to the seizure threshold;

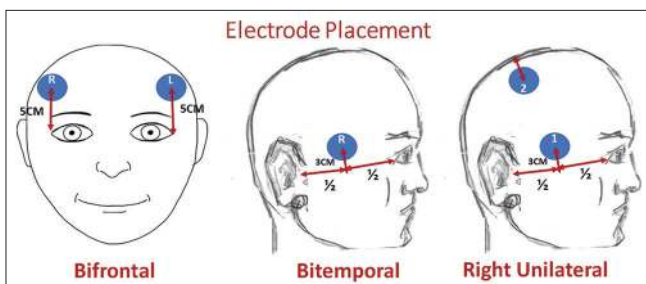


Figure 2: ECT electrode placements

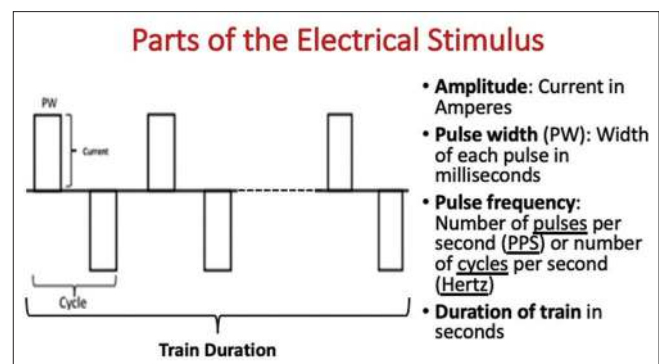


Figure 3: Electrical parameters

efficacy is also dependent on pulse width and electrode placement.

Marginally suprathreshold charge ( $1.5 \times$  seizure threshold) is recommended in bilateral (Bitemporal/Bifrontal) ECT with brief pulse ECT (pulse width of 1 ms or more). Some evidence suggests a requirement of a higher charge ( $2.5 \times$  seizure threshold) when a lower range of brief-pulse (0.5 ms) is used with bilateral ECT. There is strong evidence that a markedly suprathreshold ( $6 \times$  seizure threshold) is required with ultrabrief (0.3 ms) ECT, with the evidence available for primarily right unilateral ECT, specifically in depression. For right unilateral ECT with brief pulse width, electrical charge is to be considered 4–6 times the seizure threshold. Ultrabrief bilateral (bifrontal/bitemporal at 0.3 ms) is found to be less effective and may not be advisable with the existing evidence. Ideally, the dose increment has to happen for a fixed current amplitude, pulse frequency, and pulse width. Hence, the suprathreshold dose should also be a function of train duration. But most of the standard devices have a limitation of train duration at 4–8 s in default settings, and they increase pulse frequency to increase the total duration. Most studies have used these default increments, and hence this guideline should be read with caution. More studies are needed to ascertain this need.

Dose estimation methods:<sup>[26,27]</sup>

1. *Stimulus titration method*: This will be the recommended method in regular practice. The first session can be spared in finding the lowest dose needed for seizure threshold estimation. Formula-based methods can be used as guidance for identifying the first dose of titration. Faster titration may be attempted with higher increments between stimuli in elderly patients, and slower titration with smaller increments may be attempted in adolescents/younger adult patients. Subsequent sessions can be provided at suprathreshold doses as discussed above.
2. *Formula-based methods*: Based on the age and sex of the patient, different formulae are derived. There is a need to be cautious in using the formula, as medications and anesthetic agents may impact the seizure threshold. The stimulus should have the same amplitude, pulse width, pulse frequency, and electrode location from which the formula was derived.
3. *Fixed high dosing*: This uses a single high dose, commonly the maximum for all the sessions. The use of a high fixed dosing strategy should be reserved only for patients with sufficiently serious concomitant medical conditions in which avoidance of subconvulsive stimulation is a priority.
4. *Dosing from benchmark*: A high dose will be administered at the first session. The peak heart rate and tonic-clonic convulsions would be observed. In subsequent sessions, the doses are down-titrated to continue at the lowest

dose producing a similar outcome. This could be a better alternative to the continued fixed high dosing method, wherever it is used.

- c. Procedure and monitoring [Supplements 7 and 8]
  - i. ECT procedure [Figure 4]

#### Seizure monitoring

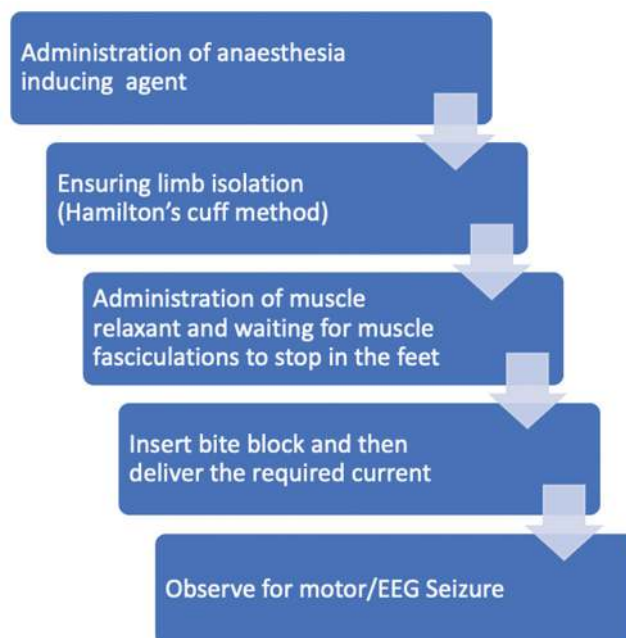
Hamilton cuff method is recommended for monitoring motor seizures by isolating the ipsilateral limb (right limb in the right unilateral ECT) from muscle relaxants.

EEG gives a direct measure of seizure activity and is recommended wherever available. Bilateral EEG recording from at least two channels (FP1 and FP2) referenced to the ipsilateral mastoid is preferred. When only a single channel is available, a contralateral channel is preferred.

EEG recording can have artifacts due to muscle movements and other technical issues. Hence, motor monitoring should always be used to supplement EEG.

#### Adequate seizure

- Good quality seizure should be given more importance than any specific duration. A good quality seizure, even of shorter duration, has been demonstrated to be efficacious in elderly depressed patients.
- Earlier definition of 15 s of motor seizure and 25 s of EEG seizure to define adequate seizure is found to be of little clinical or prognostic benefit.
- Good quality motor seizure involves different stages. Initially, there is a gradual seizure induction during (or soon after the end of) the stimulation. This will be



**Figure 4:** Steps of ECT procedure

followed by tonic contraction. Bilateral convulsions will emerge, which will end gradually. A comatose stage will succeed the convulsions, with the gradual regaining of consciousness and orientation. The motor manifestation should be monitored even in the presence of EEG monitoring.

- Hamilton cuff method of isolation and monitoring of the convulsion in the ipsilateral limb (in case of unilateral electrode placements) is preferred in modified ECTs, as it indicates generalization of seizures.
- Time from the beginning of ECT stimulus till the end of the last clonus in any part of the body (usually ends in the limbs) shall be considered for motor seizure duration.
- Good quality EEG seizure involves the visualization of seizure activity in contralateral channels.
- Good quality EEG seizure will have four phases [Figure 5]:
  - Phase 1: Recruitment stage involving high-frequency waves with gradually increasing amplitude.
  - Phase 2: Hypersynchronous high amplitude polyspike bursts at around 10 Hz lasting 10–20 s corresponds to tonic contraction.
  - Phase 3: Hypersynchronous polyspikes intermixed with slow waves for 20–40 s correspond to the tonic-clonic phase.
  - Phase 4: Postictal suppression – a flat isoelectric line is seen. The onset of this phase heralds the end of seizures.
  - Phase 5: The last phase is recovery from delta to theta to alpha waveform.
- Visualization of EEG is better in younger patients than in elderly patients.

**Missed seizure:** If there is no motor or EEG seizure even after 20 s of completion of electrical stimuli administration, then restimulation may be attempted by increasing the stimulus dose. Delayed onset seizure should be watched out for.

**Inadequate seizure:** If the EEG seizure is of low quality or the motor seizure is nongeneralized, limiting to one side of the body or restricted to the facial region only, restimulation at higher doses may be attempted after 45 s. Restimulation may be attempted till the patient comes out of anesthesia/muscle relaxant. Generally, four to five restimulations can be attempted. If needed, reinduction of anesthesia, or “top-up” dose, can be requested from the anesthetist. It may be noted that top-up doses reduce the quality of seizures. If the seizures are very brief (e.g., 5–10 s duration), and if the patient is showing the expected

clinical response, then restimulation with a higher dose need not be administered. Restimulation on the same day after adequate seizure, called the multiple monitored ECT (MMECT), is not recommended. Even in cases of unilateral ECT, markedly suprathreshold stimulation would not be necessary on the first day of titration. This might be considered only extremely rare life-saving conditions like neuroleptic malignant syndrome or intractable seizures.

In the case of a prolonged seizure (seizure longer than 180 s), termination can be attempted if a seizure extends beyond 120 s. Airway and respiration should be closely monitored till the complete cessation of seizure. A seizure may be terminated using benzodiazepines, phenytoin, valproate, or barbiturate (usually, the anesthetic agent used for induction). If the patient is on theophylline or lithium, stopping them temporarily or alternatives may be considered. Shifting to anticonvulsant anesthetic agents may also be considered.

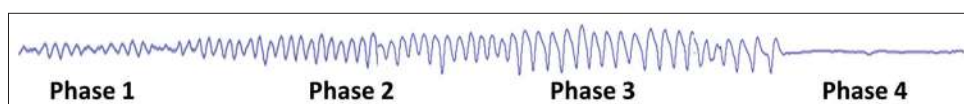
Left lateral positioning and monitoring in the ECT suite should continue under the care of an anesthetist till spontaneous breathing is gained. Then, the patient can be shifted to the recovery room.

#### ii. Monitoring in the recovery room

- Monitoring of the vitals should be continued: pulse rate, blood pressure, and oxygen saturation.
- ECG should be monitored in high-risk patients (history of cardiac disease).
- Patient should be monitored for agitation/delirium, aspiration, arrhythmia, tardive seizure, enuresis/encopresis, and neuroleptic syndrome.
- Feeding should be avoided until the patient regains full consciousness.
- Any adversities during the procedure should be evaluated for: tongue bite/mucosal injury, musculoskeletal injuries (fractures, dislocations).
- Orientation and gait should be assessed for recovery to baseline or near baseline before shifting the patient from the recovery room.

#### iii. During the course of ECT treatment.

The number of ECTs should not be predetermined but should be based on the needs of individual patients. Progress in terms of clinical symptoms and cognitive and other adverse effects should be monitored at least once a week during the course of ECT. ECT may be terminated at any time if complete clinical improvement/remission is achieved. If satisfactory clinical improvement is not observed, a minimum of 8–12



**Figure 5:** Phases of electroconvulsive therapy-induced electroencephalogram-monitored seizures

ECT sessions should be provided in acute courses before considering the failure of response to ECT. A longer course may be needed in some slow responders, and this decision to continue more than 12 sessions should be taken after a risk–benefit analysis. In general, the response to ECT is seen after more sessions in schizophrenia than in depression and mania. Switching from unilateral to bilateral and/or ultrabrief pulse to brief pulse ECT can be considered after a risk–benefit analysis if clinical improvement is not noted after four to eight sessions.

*Monitoring clinical improvement:* A clinical, indication-specific, structured symptom rating tool may be used weekly for assessment wherever feasible. A clinical assessment is a must after every ECT, preferably within 24 h following the ECT session, but certainly before the next session.

*Monitor adverse effects:* ECT-specific cognitive assessment tools can be used. MoCA, brief ECT cognitive screen, and battery for ECT-Related Cognitive Deficits (B4ECT-RECODE) may be used serially during the course of ECT.<sup>[28,29]</sup>

1. It should be noted that there could be an improvement in some cognitive functions with improvement in clinical symptoms.
2. Retrograde amnesia is one of the most distressing adverse effects, which is difficult to measure using objective cognitive tests.
3. Subjective assessment of memory impairment should be given due importance alongside objective assessment and should be a part of routine cognitive assessment.
4. Some cognitive domains would be difficult to reliably and sensitively assess using standard cognitive assessment tools. This could lead to a higher subjective reporting of cognitive impairment. Other reasons include:
  - The functional impact of the cognitive impairment in the given individual may be significant even though the severity of cognitive impairment is milder.
  - Cognitive decline could be a part of the natural course of illness. Patients/caregivers would be able to recognize the cognitive impairments after symptom improvement/regain of insight with ECT.
  - Cognitive deficits could be associated with a preoccupation with psychopathology

#### Continuation and maintenance ECT

ECT can be used as a continuation-phase treatment (up to 6 months of remission) for consolidation of effects and maintenance treatment (after 6 months of treatment) as prophylaxis in major depressive disorder, bipolar disorder, and schizophrenia. Acute courses (of 2–3 sessions/week), if effective, can be gradually tapered down from twice a week to weekly, fortnightly, and monthly. The tapering and frequency of continuation should be tailored to the individual patients' clinical needs. The course should not be prefixed. It should be planned dynamically during the course and scheduled based on periodic clinical reviews.<sup>[7,29]</sup>

After 6 months of continuation based on clinical needs, maintenance ECT may be planned. It is usually given at a frequency ranging from one session every 1–12 weeks. Alternative pharmacological and psychological interventions should be considered for risk–benefit analysis while planning maintenance treatment.

#### Management of adverse effects

##### Frequent inadequate/missed seizures or prolonged seizures:

- EEG monitoring is advisable in such patients for subsequent sessions.
- Treatment chart should be checked for electrolyte disturbances, seizure history and use of pro/anticonvulsants, past traumatic brain injury, hypoxia in the past, and pregnancy.
- Dose or type of anesthetic agent should be revised based on its expected effects on convulsions.
- Vigorous hyperventilation and preoxygenation may be attempted in cases of inadequate or missed seizures.
- In case of missed/inadequate seizures, the stimulus may be modified to lower pulse frequency and/or briefer pulse width. The frequency of sessions may be reduced. If the patient is receiving bilateral ECTs, shifting to unilateral ECT may be considered, as the seizure threshold is much lower with the latter.
- In case of recurrent prolonged seizures: Consider dose reduction. But it is pertinent to note that seizure duration would be highest near the threshold dose. Hence, in certain situations (like longer duration noted during dose titration), increasing the dose in subsequent sessions may be effective in shortening the seizure duration.

**Tardive seizure:** Seizures may happen within hours of an ECT session. This requires investigating for other causes of seizures. There may be nonmotoric manifestations of tardive seizures. Seizures need to be aborted using anticonvulsant medicines.

**Post-ictal confusion/delirium:** Generally, patients regain orientation within 5–45 min after an adequate seizure. If confusion and poor response to commands with or without behavioral agitation continue after this period or if they are very severe during this period, supportive intervention should be considered.

Patients should be secured in a safe environment, and airway, breathing, and circulation should be maintained (IV line should be secured from getting damaged). Environmental stimuli should be reduced and gentle, temporary physical restraint may be used if necessary to prevent the patient from harming himself. IV benzodiazepines or anesthetic agents may be used if agitation is persistent or severe. Low-dose antipsychotics (e.g., haloperidol IM 2–5 mg with repeated dose when necessary) may be used if the benzodiazepines

are ineffective. Physical conditions like electrolyte imbalance or infections should be evaluated in cases of recurrent postictal delirium. Nonconvulsive prolonged seizures, status epilepticus, or tardive seizures should be considered as differential diagnoses. A prophylactic higher dose of anesthetic agent or benzodiazepines may be considered in cases of recurrent postictal delirium.

#### *Cognitive adverse effects*

One or more of the following steps may be considered to address these. The decision should be taken balancing with the possible reduction in effectiveness with these methods.

1. Spacing of ECT sessions.
2. Switching to unilateral ECT.
3. Switching to briefer pulse width.
4. Reduction of stimulus dose.
5. Reduction or stopping of medications like lithium (serum levels >0.6 meq/l) that are known to affect cognition.
6. Reduction of the dose of anesthesia if given in higher doses.
7. Termination of ECT if the risks outweigh benefits.

**Pain:** May manifest as headache, muscle soreness, and joint pains.

**Headache:** It is generally mild. If severe, analgesics like paracetamol, aspirin, or nonsteroidal anti-inflammatory drugs may be used.

**Muscle soreness:** Can be addressed similar to a headache. Generally, it is intense after the first session and would not be much with later sessions. Intense fasciculations with succinylcholine could contribute to muscle soreness. Reduction of dose or change to another muscle relaxant can be considered.

**Joint pain:** Temporomandibular joint dislocations due to uncoordinated contractions of the temporalis, pterygoid, and masseters may happen with modified ECT due to direct stimulation. Firm holding of jaws during the stimulus would reduce the risk. Examine for dislocations and relocate using appropriate maneuvers in such situations.

**Nausea/Vomiting:** These are generally associated with headaches, and they respond to analgesics. If severe, butyrophenones, phenothiazines, and metoclopramide may be used. Ondansetron may also be used as next-line agent.

**Treatment-emergent mania:** ECT may be continued or frequency may be reduced based on clinical needs.

#### **Phobia and anxiety toward ECT**

Patients and families should be given the opportunity to express apprehensions, concerns, and ask questions. Information and fact sheets should be provided, supplementing the consent form. Video materials can be

a value addition to this. Group sessions of patients and family caregivers, including those who have received ECTs, would enhance mutual support and enhance knowledge. Anxiety about ECT developing during a course of ECT may sometimes be due to awareness of the effect of muscle relaxants under anesthesia. In such cases, the dose of the anesthetic agent should be modified to ensure unawareness; muscle relaxants should be administered after clearly noting that the patient is deeply sedated.

#### **Special population**

**Children and adolescents:** Literature regarding ECT in this population is limited.<sup>[30-32]</sup> There is no evidence for differential efficacy or safety in this group. The Mental Health Care Act of 2017 of India mandates preapproval from the mental health review board to administer ECT under dire needy situations in this population. Having two psychiatrists' opinions regarding the need for and specifics of ECT would be beneficial. ECT is generally chosen only after other options have failed. Prolonged seizures are commoner in this age group, and hence, it is best to avoid proconvulsant/neutral anesthetic agents like etomidate and ketamine.

**Pregnancy:** ECT is safe and effective in pregnancy and is a preferred option, given its lesser risk of teratogenicity compared to many psychotropics. The risk evaluation should be a joint activity of the psychiatrist, anesthetist, and obstetrician. A few additional steps should be considered in pregnancy (most applicable in second and third trimesters):

- Adequate hydration should be maintained while fasting. IV fluids should be used if any signs of dehydration are noted.
- Left lateral or pelvic tilt should be provided to maintain aorto-caval circulation.
- Preoxygenation should be provided, but hyperventilation should be avoided.
- Premedication with H<sub>2</sub> blocker/antacids should be considered to reduce the risk of aspiration. Routine use of anticholinergic premedication should be avoided even though it would reduce the risk of fetal arrhythmias.
- Before, during, and after ECT, Doppler or cardiotocography monitoring should be used for fetal monitoring along with the vitals monitoring of the pregnant woman, as per regular standards.
- After 20 weeks of gestation, ECT should preferably be administered in settings with the availability of obstetric support. Availability of tocolytics and preferably tocodynamometer should be ensured to handle any risk of labor induction/abortion.

#### *Elderly*

ECT is safe and effective in elderly patients.<sup>[33]</sup> Evidence suggests a higher response rate of elderly depression than the mixed age group population. Cognitive adverse effects would be of greater concern primarily when ECT is indicated

**Table 7: Special care during ECT in patients with medical comorbidities**

Organ system	Special care in specific conditions
Cardiac disease	Hypertension: Optimal control of blood pressure is necessary. Use short acting antihypertensives during ECT, if needed Myocardial infarction (MI): Consider waiting for 4–6 weeks in case of recent MI Valvular diseases: consider the need for anticoagulation Congestive heart failure: avoid multiple restimulations. Assess functional cardiac capacity (2D Echocardiogram and treadmill test) Aneurysms: consider maintaining blood pressure with short-acting parental antihypertensives Cardiac conduction defects and pacemakers: generally safe but to be given only in consultation with cardiologists Choice of anesthesia, muscle relaxants, preanaesthetic medications, and ECT stimulus parameters have to be preplanned by the psychiatrist and anesthetist liaising with a cardiologist
Endocrine	Evaluate for the status of the diabetes mellitus, hypothyroidism and other known endocrine disorders in a given patient Avoid hypoglycemic agents before ECT during fasting Uncontrolled hypothyroidism may lead to a delay in recovery Steroids may be needed just before ECT in Addison's disease to maintain stress reaction
Cerebral	Recent ischemic/hemorrhagic stroke, and symptomatic intracranial mass may warrant postponement of ECT until the risks of complications are minimized Ensure patency of ventriculo-peritoneal shunt, when placed, before ECT Postcraniotomy: place electrodes away from the site to avoid very high charge density Depolarizing muscle relaxants to be avoided in multiple sclerosis Cerebral implants and foreign bodies are not absolute contraindication and ECT may be administered in consultation with neurologists. Keep electrodes as far as possible from metallic implants/foreign bodies
Renal	Adequate muscle relaxation is necessary: can prefer nondepolarizing agents Hypoventilation can lead to respiratory acidosis, hyperkalemia, and further acid-base imbalance Hemodialysis patients: potassium levels should be done within 24 h before ECT
Pulmonary	Asthma and chronic obstructive pulmonary disease (COPD): careful monitoring of oxygenation Morning medications can be taken before ECT Avoid hyperventilation in COPD as it may lead to delayed awakening and decreased respiratory drive Theophylline to be discontinued 24 h before ECT due to risk of prolonged seizures and status epilepticus

for dementia-related behavioral disturbances. Risks of high seizure threshold, missed seizures, medical comorbidities, and postictal delirium are higher in old age. Certain general consideration regarding ECT in older age:

- Propofol may be avoided as an anesthetic agent and anticonvulsants may be minimized.
- One should minimize nonconvulsive shocks: higher initial dose and faster increments can be considered.
- Right unilateral or bifrontal ECT would be preferred to Bitemproal ECT. A lower range of brief or ultrabrief pulse may also be considered.
- Concomitant high-dose lithium (>0.6 mEq/l) should be avoided due to a higher risk of postictal delirium.
- Interdisciplinary medical management should be ensured, and close monitoring would often be necessary with high rates of comorbidity.

**Medical comorbidities:** Table 7 describes the concerns related to medical comorbidities and special care to be taken while administering ECT for patients with different medical comorbidities. In all cases, there should be a thorough consideration of the risk–benefit ratio and a multidisciplinary approach to minimize complications. Appropriate risks should be explained to the patient/caregivers while taking consent.

#### COVID-19 (Corona Virus Disease) related precautions

ECT is an aerosol-generating procedure. Certain additional precautions to curtail the spread of COVID may be taken as per risk assessment by clinicians [Table 8].

**Table 8: Special precautions during COVID pandemic**

1. Atropine/Glycopyrrolate can be used to reduce oral secretions
2. High-efficiency particulate air (HEPA) filters, reusable masks, heat moisture exchangers can be used during ventilation
3. Use of appropriate personal protective equipment (PPE)
4. Posting patients with suspected COVID at the end of the ECT day
5. Administering ECT in isolation wards for patients known to have active COVID

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#### Conflicts of interest

There are no conflicts of interest.

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**SUPPLEMENTARY MATERIALS:**

Supplement 1: ECT consent form (for patients)

Supplement 2: ECT consent form (for the nominated representative in case the patient is considered not competent to provide consent for ECT)

Supplement 3: ECT consent form (for patients after regaining competency to provide consent for ECT)

Supplement 4: Continuation/Maintenance ECT consent form (for patients)

Supplement 5: Pre-ECT evaluation and anesthesia consultation form

Supplement 6: Pre-ECT preparation record

Supplement 7: ECT procedure record

Supplement 8: ECT vitals monitoring record



## SUPPLEMENT: 1

### ECT Consent form (for patient)

Please feel free to ask for clarification if you do not understand any part of this form

#### Information

Considering all aspects of your mental and physical health, we believe that you would benefit from Electro Convulsive Therapy (ECT) as a form of treatment. In this treatment, a controlled dose of electricity will be passed through your head and a brief-lasting convulsion is produced. It is administered under anaesthesia so that you do not experience any discomfort. The treatment will be done in morning in the ECT suite. You will be required not to eat or drink anything, including water, for 8 hours before the procedure. To provide anaesthesia, the doctors would give you an injection and after you are put to sleep, they would apply a small electric current to your head. You would wake up after a few minutes. A team of doctors and nurses supervise your condition throughout this time. You will receive ECT on alternate days or twice a week for about 2–3 weeks. We will observe you daily for the effects of ECT and, with your consent, decide on the number of treatments that you may require.

ECT is expected to improve your health. It is not expected to cure your illness. The improvement achieved with ECT should be sustained with the help of medications, counselling (psychotherapy) and/or other treatments. We will attempt to reduce the side effects of ECT by careful evaluation before and through the course of ECT and by adjusting your medications. The side-effects are usually mild and temporary: e.g., headache and confusion for some time following ECT session. You may also notice minor lapses in memory for events around the course of ECT. Memory for your past, including all you have learnt weeks or months before the ECT will not be affected in any major way. Overall, the advantages of ECT are expected to outweigh the risks in your case.

The **Information Leaflet** providing more information on ECT is available. We urge you to go through it and seek clarification if you have questions. You may also discuss with us about alternative treatments suitable for your case and possible course of your illness with and without ECT. We urge you to make a decision about ECT considering all these aspects. ECT will be administered to you only after you provide consent for it. You can refuse your consent now as well as withdraw your consent during the course of the treatment. In either case, the best available alternative treatments will be provided to you without any prejudice.

**Information about high-risk** (*Strike off if not applicable*): As you may be aware, in addition to the psychiatric problem for which we have suggested ECT, you are suffering from \_\_\_\_\_ (name of the high-risk condition/s). In this background, administration of anaesthesia and ECT may have additional risks to your health. The team of doctors and nurses will do their best to minimize these risks by taking appropriate precautions and measures. Please be informed that your doctors have suggested ECT to you with the full knowledge of your above-mentioned condition and have consulted the anaesthetists in this regard.

#### DECLARATION OF CONSENT FOR ECT

I have been advised that my present health condition requires ECT. I have been sufficiently informed about the procedure of ECT with its benefits and possible risks. I am aware that I have the right to refuse this treatment now or at any time during the course of treatment without compromising my right to obtain all other services in the hospital. I, Mr./Mrs./Ms \_\_\_\_\_ (Name of the patient) hereby provide my consent for the administration of ECT to me. I have received a copy of this informed consent for my record.

#### **High-risk consent** (strike off if not applicable):

I am aware that I have \_\_\_\_\_ in addition to my psychiatric condition. The doctors have explained to me that administration of anaesthesia and ECT in this background may have additional risks to my health and that they will be taking additional precautions and measures to minimize these risks. I hereby declare that the doctors have explained to me the additional risks involved in providing ECT to me and I am consenting with full knowledge of these risks.

\_\_\_\_\_

(Signature of the Patient)

(Signature and Name of the relative)

---

(Signature and Name of the witness) (Preferably Nursing Staff)

---

(Name of the Doctor) (Doctor's signature) (Designation of the Doctor)

Date:

Place:

**SUPPLEMENT: 2**

**ECT Consent Form**

*(for the nominated representative in case the patient is considered not competent to provide consent)*

*Please feel free to ask for clarification if you do not understand any part of this form*

*Information*

Considering all aspects of the mental and physical health condition of your relative Mr./Mrs./Ms \_\_\_\_\_ we believe that he/she would benefit from Electro Convulsive Therapy (ECT) as a form of treatment. In this treatment, a controlled dose of electricity will be passed through the patient’s head and a brief-lasting convulsion is produced. It is administered under anaesthesia so that he/she doesn’t experience any discomfort. The treatment will be given in morning in a specially equipped area. The patient will be required not to eat or drink anything, including water since last night for at least 6-8 hours. To provide anesthesia, the doctors will give him/her an injection and after he/she put to sleep, they will apply a small electric current to his/her head. He/she would wake up after a few minutes. A team of doctors and nurses supervise his/her condition throughout this time. Your relative will receive ECT on alternate days or twice a week for about 2–3 weeks. We will observe him/her daily for the effects of ECT and, with your consent, decide on the number of treatments that he/she may require.

ECT is expected to improve your relative’s health. It is not expected to cure his/her illness. The improvement achieved with ECT should be sustained with the help of medications, counselling (psychotherapy) and/or other treatments. We will attempt to reduce the side-effects of ECT by careful evaluation before and through the course of ECT and by adjusting your relative’s medications. The side-effects are usually mild and temporary: e.g., headache and confusion for some time following ECT session. The patient may notice some lapses in memory for events around the course of ECT. Memory for the past including all he/she has learnt weeks or months before the ECT will not be affected in any major way. Overall, the advantages of ECT are expected to outweigh the risks in your relative’s case.

The **Information Leaflet** providing more information on ECT is available. We urge you to go through it and seek clarification if you have questions. You may also discuss with us about alternative treatments suitable for your relative’s case and possible course of his/her illness with and without ECT. We urge you to make a decision about ECT for your relative considering all these aspects. ECT will be administered to your relative only after you provide consent for it. You can refuse your consent now as well as withdraw it during the course of the treatment. In either case, the best available alternative treatments will be provided to your relative without any prejudice.

**Information about high-risk** *(Strike off if not applicable)*: As you may be aware, in addition to the psychiatric problem for which we have suggested ECT, your relative is suffering from ..... (name of the high-risk condition/s). In this background, administration of anesthesia and ECT may have additional risks to your relative’s health. The team of doctors and nurses will do their best to minimize these risks by taking appropriate precautions and measures. Please be informed that your relative’s doctors have suggested ECT to him/her with the full knowledge of his/her above-mentioned condition and have consulted the anesthetists in this regard.

**DECLARATION OF CONSENT FOR ECT**

I have been advised that present health condition of my \_\_\_\_\_ (Relation and name of the patient) requires ECT. I have been sufficiently informed about the procedure of ECT with its benefits and possible risks. I am aware that I have the right to refuse this treatment for my relative now or at any time during the course of treatment without compromising my right to obtain all other services in the hospital. I, Mr./Mrs./Ms \_\_\_\_\_ (Name of the relative) hereby provide my consent for the administration of ECT to my \_\_\_\_\_ (Relation and name of the patient). I have received a copy of this informed consent for my record.

**High-risk consent** (strike off if not applicable):

I am aware that my \_\_\_\_\_ (Relation and name of the patient) have \_\_\_\_\_ in addition to my psychiatric condition. The doctors have explained to me that administration of anesthesia and ECT in this background may have additional risks to my relative’s health and that they will be taking additional precautions and measures to minimize these risks. I hereby declare that the doctors have explained to me the additional risks involved in providing

ECT to my \_\_\_\_\_ (Relation with the patient) and I am consenting with full knowledge of these risks.

\_\_\_\_\_

(Signature and Name of the Relative)

\_\_\_\_\_

(Signature and Name of the witness) (Preferably Nursing Staff)

\_\_\_\_\_

(Name of the Doctor) (Doctor's signature) (Designation of the Doctor)

Date:

Place:

**SUPPLEMENT: 3**

**ECT Consent Form**

*(for patients after gaining competence to provide consent for ECT)*

Considering all aspects of your mental and physical health, we believed that you would benefit from Electro Convulsive Therapy (ECT) as a form of treatment. Since you were unable to comprehend the information about ECT and decide regarding ECT because of your condition, your relative, \_\_\_\_\_ (Name of the relative who gave consent for patient’s ECT) was explained about your situation, and risks and benefits of ECT. He/she has consented for ECT. We believe that you are now in a position to understand the information regarding ECT and to make a decision about continuing this treatment.

*Please feel free to ask for clarification if you do not understand any part of this form.*

*Information:*

In this treatment, a controlled dose of electricity will be passed through your head and a brief-lasting convulsion is produced. It is administered under anaesthesia so that you do not experience any discomfort. The treatment will be done in morning in the ECT suite. You will be required not to eat or drink anything, including water, for 8 hours before the procedure. To provide anesthesia, the doctors would give you an injection and after you are put to sleep, they would apply a small electric current to your head. You would wake up after a few minutes. A team of doctors and nurses supervise your condition throughout this time. You receive ECT on alternate days or twice a week for a total of about 2–3 weeks. We observe you daily for the effects of ECT and, with your consent, will decide on the number of treatments that you may require.

ECT is expected to improve your health. It is not expected to cure your illness. The improvement achieved with ECT should be sustained with the help of medications, counselling (psychotherapy) and/or other treatments. We attempt to reduce the side-effects of ECT by careful evaluation before and through the course of ECT and by adjusting your medications. The side-effects are usually mild and temporary: e.g., headache and confusion for some time following ECT session. You might have noticed minor lapses in memory for events around the course of ECT. Memory for your past, including all you have learnt weeks or months before the ECT will not be affected in any major way. Overall, the advantages of ECT are expected to outweigh the risks in your case.

The **Information Leaflet** providing more information on ECT is available. We urge you to go through it and seek clarification if you have questions. You may also discuss with us about alternative treatments suitable for your case and possible course of your illness with and without ECT. We urge you to make a decision about further ECT considering all these aspects. ECT will be administered from now onwards to you only after you provide consent for it. You can refuse your consent now as well as withdraw your consent during the course of the treatment. In either case, the best available alternative treatments will be provided to you without any prejudice.

**Information about high-risk** (*Strike off if not applicable*): As you may be aware, in addition to the psychiatric problem for which we have suggested ECT, you are suffering from ..... (name of the high-risk condition/s). In this background, administration of anesthesia and ECT may have additional risks to your health. The team of doctors and nurses will do their best to minimize these risks by taking appropriate precautions and measures. Please be informed that your doctors have suggested ECT to you with the full knowledge of your above-mentioned condition and have consulted the anesthetists in this regard. And the ECTs you have received till now has not led to untoward consequences to your physical health.

**DECLARATION OF CONSENT FOR ECT**

I have been advised that my present health condition requires further ECT. I have been sufficiently informed about the procedure of ECT with its benefits and possible risks. I am aware that I have the right to refuse this treatment now or at any time during the course of treatment without compromising my right to obtain all other services in the hospital. I, Mr./Mrs./ Ms \_\_\_\_\_ (Name of the patient) hereby provide my consent for the administration of further ECT to me. I have received a copy of this informed consent for my record.

**High-risk consent** (strike off if not applicable):

I am aware that I have \_\_\_\_\_ in addition to my psychiatric condition. The doctors have

explained to me that the administration of anesthesia and ECT in this background may have additional risks to my health and that they will take additional precautions and measures to minimize these risks. I hereby declare that the doctors have explained to me the additional risks involved in providing ECT to me and I am consenting with full knowledge of these risks.

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(Signature of the Patient)

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(Signature and Name of the relative)

---

(Signature and Name of the witness) (Preferably Nursing Staff)

---

(Name of the Doctor) (Doctor's signature) (Designation of the Doctor)

Date: Place:

**SUPPLEMENT: 4**

**Continuation/Maintenance ECT Consent Form**  
*(for Patient)*

After examination and considering all aspects of your mental and physical condition we opine that you would require ECT (Electro Convulsive Therapy) beyond the sessions you have received to date. You would be aware of the procedure of ECT. This is to inform you again its details and to discuss about continuation of ECT.

*Please feel free to ask for clarification if you do not understand any part of this form*

*Information*

In this treatment, a controlled dose of electricity will be passed through your head and a brief-lasting convulsion is produced. It is administered under anaesthesia so that you do not experience any discomfort. The treatment will be done in morning in the ECT suite. You will be required not to eat or drink anything, including water, for 8 hours before the procedure. To provide anesthesia, the doctors would give you an injection and after you are put to sleep, they would apply a small electric current to your head. You would wake up after a few minutes. A team of doctors and nurses supervise your condition throughout this time.

Initially, ECT is given on alternate days or twice a week for a total of about 2–3 weeks. As in your situation, further ECTs would be given on possibly twice a week and gradually would be spaced out up to once a month. We would observe you regularly for the effects of ECT and, with your consent, decide on the number of treatments that you may require. Presently, the continuation of ECT is required for you as there is further scope of improvement with it and/or possibility of re-emergence of symptoms if ECT is stopped at this stage, even if medications, counselling (psychotherapy) and other required treatments are given concurrently. We hope that further ECTs would lead to a situation where improvement can be sustained with the help of other treatments.

Concurrent with your experience, the side-effects are usually mild and temporary: e.g., headache and confusion for some time following ECT session. You might have noticed minor lapses in memory for some events around ECT. Memory for your past, including all you have learnt earlier and yours learning capacity will not be affected in any major way. Overall, the advantages of ECT are expected to outweigh the risks in your case.

The **Information Leaflet** providing more information on ECT is available. We urge you to go through it and seek clarification if you have questions. You may also discuss with us about alternative treatments suitable for your case and possible course of your illness with and without ECT. We urge you to make a decision about further ECT considering all these aspects. ECT will be administered from now onwards to you only after you provide consent for it. You can refuse your consent now as well as withdraw your consent during the course of the treatment. In either case, the best available alternative treatments will be provided to you without any prejudice.

**DECLARATION OF CONSENT FOR ECT**

**Information about high-risk** (*Strike off if not applicable*): As you may be aware, in addition to the psychiatric problem for which we have suggested ECT, you are suffering from ..... (name of the high-risk condition/s). In this background, administration of anesthesia and ECT may have additional risks to your health. The team of doctors and nurses will do their best to minimize these risks by taking appropriate precautions and measures. Please be informed that your doctors have suggested ECT to you with the full knowledge of your above-mentioned condition and have consulted the anesthetists in this regard. And the ECTs you have received till now has not led to untoward consequences to your physical health.

**DECLARATION OF CONSENT FOR ECT**

I have been advised that my present health condition requires further ECT. I have been sufficiently informed about the procedure of ECT with its benefits and possible risks. I am aware that I have the right to refuse this treatment now or at any time during the course of treatment without compromising my right to obtain all other services in the hospital. I, Mr./Mrs./ Ms \_\_\_\_\_ (Name of the patient) hereby provide my consent for the administration of further ECT to me. I have received a copy of this informed consent for my record.

**High-risk consent** (strike off if not applicable):

I am aware that I have \_\_\_\_\_ in addition to my psychiatric condition. The doctors have explained to me that administration of anesthesia and ECT in this background may have additional risks to my health and that they will be taking additional precautions and measures to minimize these risks. I hereby declare that the doctors have explained to me the additional risks involved in providing ECT to me and I am consenting with full knowledge of these risks.

\_\_\_\_\_  
(Signature of the Patient)

\_\_\_\_\_  
(Signature and Name of the relative)

\_\_\_\_\_  
(Signature and Name of the witness) (Preferably Nursing Staff)

\_\_\_\_\_  
(Name of the Doctor) (Doctor's signature) (Designation of the Doctor)

Date:    Place:



## SUPPLEMENT: 5

### Pre-ECT Evaluation and Anaesthesia Consultation Form

Name (First Middle Last Name):

Age (years):      Gender:

Department:      Unit:

Date of Submission:

Out-patient/In-patient (If 'in-patient' is selected → write Ward)

Psychiatric Diagnosis:

Medical Diagnosis:

Neurological Diagnosis:

Past history of ECT: Yes/No (If 'Yes' is selected → Write specific details pertaining to procedure of ECT, response to ECT and adverse effects with ECT)

Reasons for prescribing ECT (*You may select multiple options*)

1. Catatonia
2. Less food intake without other catatonic symptoms
3. Suicidal risk
4. Speed up response to the medications for reasons other than stated above
5. Inadequate response to other kinds of treatment
6. Intolerability to medications
7. Poor compliance to medications

ECT Parameter details

Electrode Placement Details (*Only 1 option to be selected*)

1. Bifrontal
2. Bitemporal
3. Right Unilateral

Pulse width (*Only 1 option to be selected*)

1. 1mm
2. 0.5mm
3. 0.3mm

Pulse Frequency: (pps)

Medical and Neurological History (*If any illness is present, mention at least its total duration, current treatment, any related surgery done in the past, and current level of control of its symptoms; following illness to be specifically marked for*)

1. Diabetes Mellitus
2. Hypertension
3. Any cardiac illness
4. Hypothyroidism
5. Cerebrovascular accident (Infarct, haemorrhage)

Medications Prescribed

(*current psychotropic and other medications for psychiatric illnesses; if any medication is in tapering mode or increasing mode, write the related details as well*)

General Physical Examination (*Write positive findings*)

Handedness: Right/Left    Weight: (kg)    BMI: (kg/m<sup>2</sup>)    BP: mm of Hg    HR:/min

Airway: Mouth opening Adequate/Mouth opening restricted

Respiratory System:

Cardiovascular System:

Per Abdomen:

Central Nervous system:

Fundus:

Investigations

Hb:    RBS:    Urea:    Creatinine:    Na:    K: ECG:

*(If TFT done, write its values; If patient is on lithium or valproate, it is better to mention its serum levels; Also mention any test which has positive findings)*

Suspected Pseudocholinesterase Deficiency: Yes/No; If 'Yes' is selected → then write details.

Anaesthesiologist:

Submitted by

*(Name, Designation and Signature of the physician in-charge)*



**SUPPLEMENT: 7**

**Supplement: 7**

Name: \_\_\_\_\_ Age: \_\_\_\_ Gender: \_\_\_\_ Hospital No. \_\_\_\_\_

**ECT PROCEDURE RECORD**

ECT Session No. →	1	2	3	4	5	6	7	8
-------------------	---	---	---	---	---	---	---	---

Date								
Cognitive Deficits								
Thiopentone <sup>#</sup> (mg)								
Succinylcholine <sup>§</sup> (mg)								
Glycopyrrolate/Any other durg <sup>‡</sup> (mg)								
Electrode Placement								
Pulse Width (ms) & Pulse Frequency (pps)								
Charge (mC)								
Motor Seizure (sec.)								
EEG Seizure (sec.)								
Remarks (Any complication* during or Post ECT or advice to be followed before or during next ECT including electrical charge, any tests, any medication, any referral)								
Psychiatrist								
Name								
Sign.								
Anesthesiologist								
Name								
Sign.								

\*Prolonged seizures/apnea, bradycardia/tachycardia, hypotension/hypertension, post-ECT confusion/delirium and how it was handled. Please write in the file in details if required. <sup>#</sup>Write the name also if any other anesthetic agent is used in place of Thiopentone; <sup>§</sup>Write the name also if any other muscle relaxing agent is used in place of succinylcholine.; <sup>‡</sup>Write the name if medication other than glycopyrrolate is used. If no medication including atropine is administered, write 'Nil'.

**SUPPLEMENT: 8**

**Supplement: 8**

Name: \_\_\_\_\_ Age: \_\_\_\_ Gender: \_\_\_\_ Hospital No. \_\_\_\_\_

**ECT VITALS MONITORING RECORD**

ECT Session →	1 or 9	2 or 10	3 or 11	4 or 12	5 or 13	6 or 14	7 or 15	8 or 16
---------------	--------	---------	---------	---------	---------	---------	---------	---------

Date

Pre-Anesthesia Monitoring

- Heart Rate (/min)
- Blood Pressure (mm Hg)
- Respiratory Rate (/min)
- Oxygen Saturation (%)
- Sensorium<sup>#</sup>

Post-ECT Monitoring

- Heart Rate (/min)
- Blood Pressure (mm Hg)
- Respiratory Rate (/min)
- Oxygen Saturation (%)
- Sensorium<sup>#</sup>

Fit to be shifted to Post-ECT Recovery Area (Yes/No)

Post-ECT Recovery Area Monitoring

- Heart Rate (/min)
- Blood Pressure (mm Hg)
- Respiratory Rate (/min)
- Oxygen Saturation (%)
- Sensorium<sup>#</sup>

Suction of secretions done (Yes/No)

Gait (*Cannot Stand/Walk with support/Walk without support*)

Anesthesiologist

Sign.  
Name

<sup>#</sup>A – alert; V – response to verbal commands; P – response to pain; U – unresponsive

# Clinical Practice Guidelines for the Therapeutic Use of Repetitive Transcranial Magnetic Stimulation in Neuropsychiatric Disorders

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## INTRODUCTION

Psychopharmacology and psychotherapy form the mainstay of treatment in psychiatric disorders. Despite advances in both the forms of treatments and their strategies, 20-60% of patients with psychiatric disorders do not respond.<sup>[1]</sup> This treatment non-response, which is now recognized across the whole range of psychiatric disorders, leads to a greater healthcare burden. Moreover, poor adherence, which is related to the stigma attached to psychopharmacological agents, their side-effect profiles, and poor feasibility in following psychotherapy sessions, contributes to poor treatment outcomes, specifically termed as 'pseudo-resistance'.<sup>[1]</sup> In the background of this, and also in the wake of technical advances in the field of basic neurosciences, newer forms of treatments have been developed and investigated. One such newer treatment is the use of repetitive transcranial magnetic stimulation (rTMS).

rTMS is a non-invasive, non-convulsive method of brain stimulation first described by Anthony Barker and his colleagues in 1985 and came to be used in clinical settings in the 1990s. It refers to a multisession treatment where magnetic fields induced by recurring TMS pulses stimulate nerve cells in a particular brain region. It has a neuromodulatory effect on neuronal excitability and has been implied to have neuroplastic effects. The development of rTMS as a form of treatment is supported by a large number of clinical studies across psychiatric disorders. Since 2008, the US Food and Drug Administration (FDA) has so far cleared many pieces equipments for the therapeutic use of rTMS as an adjunctive treatment strategy in various conditions [Table 1].<sup>[2]</sup>

Over the course of the last 2 decades, there has been a significant increase in interest in the use of rTMS, and several forms of rTMS, various protocols, coils, target regions, etc., have been investigated. While high-frequency (>5/10 Hz) and low-frequency ( $\leq 1$  Hz)

**Table 1: The United States Food and Drug Administration (FDA) approval timeline for rTMS equipment**

Year	Equipment	Disorder
2008	Neuronetics (Neurostar)	MDD
2013	Deep TMS (Brainsway)- H1 coil	MDD
2013	eNeura	Migraine
2015	Rapid <sup>2</sup> (Magstim)	MDD
2016	Tonica Elektronik (MagVenture)	MDD
2017	Navigated Brain Therapy (NBT) system (Nexstim)	MDD
2017	Deep TMS (Brainsway)- H7 coil	OCD
2018	Apollo TMS (MAG & More)	MDD
2018	Tonica Elektronik (MagVenture) with TBS	MDD
2020	Neuronetics (Neurostar) with TBS	MDD
2020	Tonica Elektronik (MagVenture)	OCD
2020	Deep TMS (Brainsway)- H4 coil	Smoking cessation
2020	CloudTMS (Soterix Medical) along with robotic - coil positioning/neuronavigation	
2021	CloudTMS (Soterix Medical)	MDD
2021	Deep TMS (Brainsway)- H1 coil	Anxiety comorbid with MDD

TMS=Transcranial Magnetic Stimulation; TBS=Theta Burst Stimulation; MDD=Major Depressive Disorder; OCD=obsessive compulsive disorder

stimulations are considered the conventional rTMS forms, patterned rTMS i.e., theta burst stimulation (TBS) and quadri-pulse stimulation (QPS) are the newer forms. Further, there are three sub-forms of TBS– intermittent TBS (iTBS), continuous TBS (cTBS), and intermediate TBS (imTBS). Several protocols- once daily, twice or more daily (also called intensive or accelerated protocols), 3-5/week to once weekly, fortnightly, or even once a month maintenance protocols are being investigated. Further, as many as 50 TMS coil designs are being examined.<sup>[3]</sup> Moreover, apart from the conventional target sites– dorsolateral prefrontal cortex (DLPFC) and the temporoparietal cortex (TPC), several new brain regions (cerebellum, orbitofrontal cortex (OFC), supplementary motor area (SMA), etc) including bilateral stimulations have been chosen to study the effects of rTMS in various psychiatric disorders.

Given the rising interest among psychiatrists for the use of rTMS in routine clinical practice, increasing availability of TMS equipment, an array of numerous choices in modes of rTMS delivery forms, and increasing literature base for the use of rTMS in several psychiatric disorders,<sup>[4]</sup> even from India,<sup>[5]</sup> it is important to develop specific and up-to-date clinical practice guidelines (CPG). The Indian Psychiatric Society (IPS)- CPG for the use of rTMS in various psychiatric disorders intends to synthesize the emerging evidence-based literature and provide expert guidance for bringing consistency in the clinical application of rTMS. While we encourage practitioners to implement evidence-based recommendations, we also deem that the use of rTMS in clinical practice can vary and depends upon the clinician's acumen and experience.

## METHODS

### Process of forming the CPG for use of rTMS

The IPS-CPG task force delegated a team of five experts for drafting the CPG for use of rTMS. The experts met at IPS state/zonal conferences and via online meetings and developed the recommendations and the draft. The recommendations were informed primarily by an umbrella review of recent meta-analytic studies assessing the role of rTMS in various psychiatric disorders performed by the authors and supplemented by other clinical practice guidelines,<sup>[6]</sup> evidence-based guidelines, and umbrella reviews<sup>[7-9]</sup>, and consensus or expert recommendations.<sup>[10-12]</sup> The experts involved in developing the recommendations were also abreast of the GRADE (Grading of Recommendations, Assessment, Development, and Evaluations) framework.

### Umbrella review- Search strategy and Inclusion criteria

We performed an umbrella review of meta-analyses that have assessed the efficacy and/or safety of various rTMS protocols in different psychiatric disorders.

We systematically searched the PubMed database until July 15<sup>th</sup>, 2022 supplemented with manual searches. The search string used was (“rTMS”) OR (“theta burst stimulation”) OR (“Non-Invasive Brain Stimulation”). We applied the “Meta-Analysis” filter and adjusted the “timeline” to 2018–2022 (i.e. last five years). This resulted in a total of 168 articles, that were further screened for the following inclusion criteria: i) meta-analysis of randomized controlled trials (RCTs), and ii) reporting on efficacy and safety of rTMS (including theta burst stimulation (TBS)) in psychiatric disorders, specifically a) cognitive disorders and dementia; b) substance use disorders; c) schizophrenia; d) depression (including unipolar depression, bipolar depression, peripartum depression, post-stroke depression, post-traumatic brain injury depression, depression associated with Parkinson's disease); e) bipolar disorder; f) anxiety disorders; g) obsessive-compulsive disorder (OCD) and related disorders; h) Post-traumatic stress

disorder (PTSD); i) autism spectrum disorder (ASD); j) attention deficit hyperactivity disorder (ADHD); k) eating disorders; l) chronic pain disorders including headache and fibromyalgia; m) insomnia; n) chronic tinnitus; and o) essential tremors. We also included meta-analyses specifically aimed at assessing suicidality, impulsivity, empathy, and borderline personality disorder. The Exclusion criteria we chose were i) study designs other than MA of RCTs, ii) no safety or efficacy data reported, iii) non-English articles. Studies that assessed other (non-invasive brain stimulation (NIBS) together with rTMS, or two conditions together or not having specifically defined a clinical condition and not having provided pooled statistics for rTMS separately for distinct disorders were also excluded.

Finally, 97 meta-analyses were reviewed. Only sham-controlled pooled effect sizes were noted and included for synthesis. A list of references for all the studies is submitted as supplementary material.

## CLINICAL PRACTICE GUIDELINES

### Who can provide rTMS?

Provision of rTMS sessions can primarily be understood as i) prescribing or advising rTMS treatment and ii) delivering rTMS sessions. This two personnel are termed “TMS physician” and “TMS operator”. The “TMS physician” by definition is “a clinician with prescriptive privileges who is knowledgeable about, trained, and credentialed in rTMS”<sup>[8]</sup>. Moreover, they are essentially required to have an “extensive background in brain physiology that is obtained during residency training in psychiatry, neurology, or neurosurgery”, and “a deep understanding about the neurophysiological effects of rTMS”.<sup>[13]</sup> On the other hand, the “TMS operator” needs to be able to “recognize potentially serious changes in a patient's mental status and know when to alert an attending physician” and have been trained in recognizing and effectively responding to seizures.<sup>[10,13]</sup> Therefore, the “TMS operator” may be any non-medical personnel. However, paramedical staff such as nurses may be preferred when available.

### Training for providing rTMS treatment

The Indian Psychiatric Society (IPS) in collaboration with NIMHANS, Bengaluru, and AIIMS New Delhi, has been conducting a series of annual training workshops in this regard. Other institutes such as the Central Institute of Psychiatry, Ranchi, and Kasturba Medical College, Manipal also are providing training in rTMS. In fact, recommendations for training in NIBS have also been put forth and they recommend training not only for clinicians but also for technicians and scientists.<sup>[14]</sup>

### rTMS set-up and the device

An air-conditioned suit with adequate space for the rTMS equipment including the participant sitting arrangement

and space for storage of spare coils is an essential requisite. There should be enough space for the person delivering the sessions. Also, the rTMS suite must have a provision for participant waiting and a washroom. The essential needs for emergency seizure management set-up, including the need for storage of anticonvulsants, and the immediate availability of trained physicians has to be ensured. There has to be a provision for a powerful air conditioning unit to cool the coils, in case cooled coils are not used.

The components of the rTMS device are:

1. Electronic Main Unit
2. Coil (the figure-of-eight coil is most commonly used)
3. Cooling unit and control cable for the cooling unit
4. Power Supply Unit and its cables
5. EMG machine
6. Coil Holder
7. Computer system.

A trolley for the machine and a flexible stand for fixing the coil in the right position near the seating set-up may be acquired. The sitting equipment must preferably be a comfortable recliner chair. The height of its back resting must allow for the coil to be placed for delivering stimulation. Disposable earplugs must be available for participants for each session. A skin marker and a measuring tape will be required for marking the target location.

Sample technical specifications for an rTMS device are given in Table 2.

#### Patient inclusion and pre-rTMS evaluation

Informed consent has to be taken before the start of rTMS sessions and all the possible side-effects and their probability have to be explained. Along with the psychiatric evaluation, detailed medical, treatment and neurological history have to be taken. Particularly, a history of epilepsy (both in the patient and in the family), significant or recent traumatic brain injury, loss of consciousness, stroke, brain tumor or currently taking medication/s that lowers the seizure threshold should be specifically noted. If any of these are reported to be positive, then the patient has to be informed regarding the risk of a possible rTMS-related seizure, and the patient's risk-benefit ratio has to be determined.<sup>[10]</sup> It is important to note that participants who have received rTMS sessions safely in the past are at less risk than those receiving rTMS newly.<sup>[12]</sup> Moreover, the chances of seizures are highest in the first three sessions (62% during the first session and 75% during the first three sessions)<sup>[12]</sup> and therefore rTMS operators/physicians must exercise high precaution during the initial rTMS sessions.

The pre-rTMS evaluation may be supplemented by the use of tools such as the TMS Adult Safety Screen (TASS)<sup>[15]</sup> or the screening standard questionnaire for rTMS candidates [Table 3] suggested by Rossi *et al.*<sup>[16]</sup>

**Table 2: Sample technical specification for TMS**

Tools	Specifications
TMS Stimulator (Essential)	At least 50 Hz capacity with burst mode to deliver theta-burst stimulation (basic model will come with 20 Hz capacity without burst mode)
Coils (Essential)	Air or liquid cooled Figure of 8 coils- 2 in number (placebo coil if keen to do research)
Accessories (Essential)	TMS Trolley TMS coil holder (goose neck) TMS chair; a comfortable simplified dental chair UPS/Stabilizer unit
Others (Desirable)	USFDA/CE/ISO certification. Integrated EMG interface/set-up 'Double cone' coils or 'H' coils will be required for stimulation of deeper structures Upgradable to add neuro-navigation for coil position and orientation in future.

TMS=Transcranial Magnetic Stimulation; UPS=uninterruptible power supply; USFDA=United States Food and Drug Administration; CE=Conformité Européenne; ISO=International Organization for Standardization; EMG=electromyography

**Table 3: Rossi *et al.* (2009)<sup>[16]</sup> screening standard questionnaire for rTMS candidates**

Questions
Do you have epilepsy or have you ever had a convulsion or a seizure?
Have you ever had a fainting spell or syncope? If yes, please describe in which occasion (s)
Have you ever had severe (i.e., followed by loss of consciousness) head trauma?
Do you have any hearing problems or ringing in your ears?
Are you pregnant or is there any chance that you might be?
Do you have metal in the brain/skull (except titanium)? (e.g., splinters, fragments, clips, etc.)
Do you have cochlear implants?
Do you have an implanted neurostimulator? (e.g., DBS, epidural/subdural, VNS)
Do you have a cardiac pacemaker or intracardiac lines or metal in your body?
Do you have a medication infusion device?
Are you taking any medications? (Please list)
Did you ever have a surgical procedures to your spinal cord?
Do you have spinal or ventricular derivations?
Did you ever undergo TMS in the past?
Did you ever undergo MRI in the past?

rTMS=Repetitive Transcranial Magnetic Stimulation; DBS=Deep Brain Stimulation; VNS=Vagal nerve stimulation

Contraindications for the use of rTMS are:

1. Presence of implanted medical devices that is ferromagnetic or magnetic sensitive or any such metal objects in the brain, head, and neck areas.
2. Deep Brain Stimulation (DBS) where subcutaneous leads are placed in the scalp, etc., is also a contraindication, if the coil position is < 10 cm away.
3. Any other metallic medical devices such as chips, pumps, pacemakers, cochlear implants, dental implants, permanent piercings, and tattoos containing ferromagnetic containing ink, if the coil position is < 10 cm away.

X-rays may be helpful for screening but they cannot determine if the metals are ferromagnetic. Metallic implants



below the head and neck, such as knee or hip prosthesis are considered safe.<sup>[12]</sup>

Substance in the past week, the day before the treatment sessions must be documented.

Current drugs and their doses, along with the total duration should be documented. Also, any medication changes during the rTMS treatment course must be noted.

### Patient preparation

The following may be ensured before commencing the rTMS treatment session:

- Adequate sleep (other than in cases of insomnia) has to be ensured.
- Also, absence of any acute medical emergency including high fever, uncontrolled hypertension and elevated blood pressure, uncontrolled diabetes, and hyperglycaemia, acute headache, acute vertigo/giddiness/dizziness, any fresh scalp/facial injury, etc., has to be ascertained. Also ensure that the patient is cooperative and is not acutely violent, aggressive, and suicidal.
- Use of alcohol, tobacco, or any substance prior to the treatment session must be avoided.

### Determining the motor threshold

Determination of the motor threshold (MT) is a must for determining the stimulus intensity of rTMS. Ideally, it has to be measured before every session. However, for the sake of ease the MT and the stimulus intensity that is determined before the start of the first session may be used for all subsequent sessions in the following week. However, in cases where the treatment sessions are lasting more than a week or are given at an interval > 1 week, MT (and therefore the stimulus intensity) has to be ascertained again. Also in cases where there are changes in medication doses or heavy intake of alcohol or any other substance 24 hours prior to the rTMS session or if the participant is complaining of headache or scalp/facial pain, MT must be determined again.

MT is defined as the “minimum stimulus intensity that elicits a response in either the abductor pollicis brevis (APB) or the first dorsal interosseous (FDI) on the contralateral side for  $\geq 50\%$  of applied stimuli (usually defined as  $\geq 5$  of 10 stimuli administered)”<sup>[10]</sup> following single-pulse TMS, that is graded from small to high and delivered every 5 seconds. The muscle response may be either determined by the amplitude of the EMG response or by visual observation of finger twitching. Although finger twitching is a more feasible alternative in busy clinical settings, it may be noted that this method yields “significantly higher MTs than EMG of that muscle.”<sup>[17]</sup>

### Target location

Apart from the conventional scalp i.e., the “5-cm” and “International 10-20 electroencephalography (EEG)”

system-based methods, neuroimaging i.e., magnetic resonance imaging (MRI, both structural & functional, resting & task-based as well as 3D), Single-photon emission computed tomography (SPECT) and positron emission tomography (PET), based methods too have been developed for precise location of target for stimulation.<sup>[18]</sup> TMS equipment with in-built neuronavigation systems, that utilize the neuroimages have been approved by the FDA.<sup>[2]</sup> It is suggested that although neuroimaging-based methods are more accurate, the use of the International 10-20 EEG system for the target location is considered a cost-effective alternative.<sup>[18]</sup>

### Safety issues and monitoring

#### *TMS and hearing*

Following steps shall be addressed for hearing safety during TMS:<sup>[12]</sup>

1. Individuals with pre-existing noise-induced hearing loss or receiving simultaneous treatment with ototoxic medications (aminoglycosides) shall undergo risk/benefit considerations.
2. Use of well-fitted hearing protection such as earplugs by patients and TMS operators
3. ENT referral for any complaints of hearing loss, tinnitus, or ear fullness.
4. Patients with Cochlear implants should not undergo TMS.

#### *Safety of TMS in combination with other devices*

TMS can be safely employed with devices such as implanted stimulators in the central or peripheral nervous system, cardiac pacemakers, and VNS systems given that the coil is not closer than 10 cm to the electronic components like Implanted pulse generator (IPG) in the neck. An important point to consider is that TMS should start with low intensity and progressively increase to the desired intensity. If overall risk-benefit analysis confers risk, then turning the IPG off during TMS may offer some protection against induced electrode currents. TMS in patients with DBS shall only be carried out if there are concrete scientific or medical reasons and shall be overseen by the institute’s ethics committee.<sup>[12]</sup>

#### *Safety of TMS in combination with drugs*

Despite large numbers of patients receiving drugs and TMS in the past decade, no detailed toxicities have arisen from the combination. Moreso, the observed seizure rate is very low despite most of them receiving CNS-activating medications. The situation is very reassuring with the use of traditional stimulation parameters and focal coils. So, currently, no caution shall be entertained. However, documentation of the simultaneous intake of drugs (like clozapine) and additional possible seizure threshold-lowering factors (such as alcohol intake, sleep deprivation, and infection) during the TMS sessions shall be done. All efforts to systematically capture reports of side effects shall be carried out.<sup>[12]</sup>

### TMS safety in special population

**Paediatric:** The majority of TMS studies continue to be single and paired-pulse studies. The most common side effect reported was a headache. No other serious side effects have been reported. With suitable hearing safety measures, single-pulse and paired-pulse TMS use are safe in children with age two years and older.<sup>[12]</sup>

**Pregnancy:** Approximately 100 mV/m of TMS-induced E-field is generated by a figure-of-eight coil (adjacent to the DLPFC) when the coil-uterus distance was 60 cm. This is far less than the safety threshold to stimulate myelinated central and peripheral nerves (800 mV/m). So, it is viable to conclude that rTMS (figure-of-eight coil) has minimal risk for the mother and child.<sup>[12]</sup>

### TMS safety for the operators

Safety issues are seldom addressed for TMS operators, despite being exposed for several hours daily for several years. It is pertinent that the TMS operator should avoid (or minimize) proximity i.e., less than 40 cm distance from the magnetic coil in order to derail exposures. Also, the use of earplugs or earmuffs is mandatory for operators.<sup>[12]</sup>

### TMS safety and protocols intensity

Safety parameters of stimulation defined by Rossi *et al.*<sup>[12]</sup> needs to be adhered to for conventional protocols. But for parameters exceeding these safety guidelines, the use of neurophysiological monitoring (i.e., the appearance of motor twitches during stimulation as a warning for increased cortical stimulation) needs to be carried out. If any de novo seizure arises, kindly reconsider the protocol of the trial. Also, the scientific community needs to be alerted about the unsafety of any new combination of parameters.<sup>[12]</sup>

### Evidence

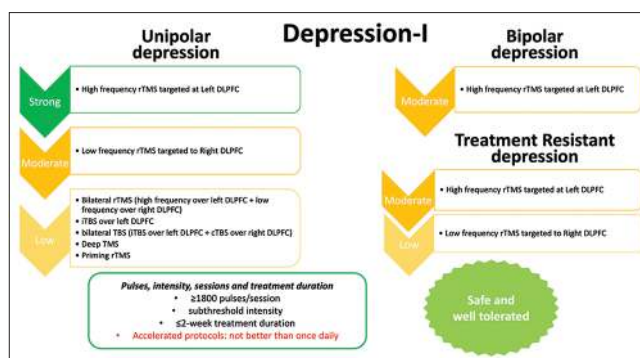
It is important to note at the beginning that in all the meta-analyses reviewed for recommendations on efficacy in this document, for all conditions except headache and a small minority of studies for other conditions, rTMS has been used as an adjunct to the treatment as usual.

### Evidence- depression

We reviewed 23 meta-analyses for depression [Table 4].

#### Efficacy of rTMS in major depression (please see Figure 1 for recommendation)

There is strong evidence for a significant positive effect of the use of rTMS for treating acute depression, especially for unipolar depression. The pooled effect sizes for improvement in depression severity range between 0.302 to 0.83. The odds for response (pooled odds ratios (ORs) ranging between 3.26 and 3.64) and remission rates (pooled ORs ranging between 2.45 and 4.63) were significantly higher for the use of rTMS. The strongest



**Figure 1:** Recommendation A: Depression- I: Unipolar depression, bipolar depression and treatment resistant depression

evidence was for high-frequency rTMS over the left DLPFC (pooled ORs for response ranging from 3.17 to 3.75).

Two network meta-analyses [Supplementary Table 1; sl.no. 6 and 10] compared the odds of response for various rTMS forms. Based on the ORs and narrow confidence intervals, high-frequency rTMS over the left DLPFC has been shown to be superior followed by low-frequency rTMS over the right DLPFC. Bilateral rTMS (high-frequency over left DLPFC + low-frequency over right DLPFC), iTBS over left DLPFC, bilateral TBS (iTBS over left DLPFC + cTBS over right DLPFC), deep TMS and iTBS and priming rTMS have also been found to have a significant positive effect. A meta-analysis focussing on TBS [Supplementary Table 1; sl.no. 3] though claims that the effects of iTBS are similar to high-frequency rTMS.

There is moderate positive evidence for the use of rTMS in acute bipolar depression (effect size 0.302, OR for response 2.72), one meta-analysis that compared unipolar and bipolar depression [Supplementary Table 1; sl.no. 9] found that the significance was restricted to only unipolar depression and not to bipolar depression. For bipolar depression too, the strongest evidence was for high-frequency rTMS over the left DLPFC (pooled ORs for response 2.17). In fact, in bipolar depression, only high-frequency rTMS over the left DLPFC has been shown to cause significant effects. Bilateral rTMS and low-frequency rTMS over right DLPFC have not been shown to have significant effects.

When only treatment-resistant depression (TRD) cases were considered, rTMS was found to have a significant positive effect. Based on the ORs and narrow confidence intervals, high-frequency rTMS over the left DLPFC followed by low-frequency rTMS over the right DLPFC has been shown to be superior. Bilateral TBS and priming rTMS too showed a significant positive effects. One meta-analysis [Supplementary Table 1; sl.no. 11] though showed that both unilateral and bilateral stimulation paradigms did not differ significantly in terms of both response and remission rates.

**Table 4: Meta-analyses on the effect of rTMS in depression**

Article (See supplementary table 1 for full list of references)	Total no of Studies	Age group	Depression type	rTMS type	Reduction in severity	Response	Remission
Valiengo <i>et al.</i> 2022	26	>50	MDD	Any rTMS	SMD 0.36 (0.13-0.60)	OR 3.26 (2.11-5.04)	OR 4.63 (2.24-9.55)
Voigt <i>et al.</i> 2021	10	>18	MDD	Any TBS	NA	RR 2.4 (1.27-4.55)	NA
Chu <i>et al.</i> 2020	10	16-75	MDD	Any TBS	SMD 0.38 (0.29-0.48)	OR 3.64 (1.61-8.23)	2.45 (1.11-5.42)
Nguyen <i>et al.</i> 2021	14	Adult	Bipolar Depression	Conventional rTMS	NA	OR 2.72 (1.44-5.14) overall; 2.57 (1.17-5.66) for HF-LDLPFC	-
Tee and Au 2020	8	Adult	Bipolar Depression	Conventional rTMS	SMD 0.302 (0.055-0.548)	RD 0.104 (0.018-0.190)	Trend 0.074 (-0.003-0.151)
Mutz <i>et al.</i> 2019	53	Adult	Any Depression	Any rTMS	SMD 0.83 (0.66-1.00)	OR 6.02 (2.21-16.38) for pTMS, 4.92 (2.93-8.25) for BL rTMS, 4.44 (1.47-13.41) for BL TBS, 3.65 (2.13-6.24) for LF-RDLPFC, 3.20 (1.45-7.08) for iTBS, 3.17 (2.29-4.37) for HF-LDLPFC.	5.21 (2.64-10.29) for LFR; 4.55 (1.39,14.91) for pTMS; 3.30 (1.38,7.90) for TBS; 2.77 (0.47,16.35) BL TBS; 2.67 (1.79,4.00) HFLDLPFC; 2.21 (0.95,5.18) for dTMS; 1.65 (0.46,5.98) for aTMS; 1.59 (0.52,4.81) for sTMS; 1.02 (0.17,6.02) for LF-LDLPFC; 0.51 (0.06,4.24) for cTBS
Mutz <i>et al.</i> 2018	56	Adult	Both unipolar and bipolar depression	Any rTMS	Hedge's g 0.72 (0.46-0.99) for HF-LDLPFC, 0.29 (0.03-0.55) for deepTMS	OR 3.75 (2.44-5.75) for HF-LDLPFC, 7.44 (2.06-26.83) for LF-RDLPFC, 3.68 (1.66-8.13) for BL TMS, 1.69 (1.003-2.85) for deepTMS, 4.70 (1.14-19.38) for iTBS	OR 2.52 (1.62-3.89) for HF-LDLPFC, 14.10 (2.79-71.42) for LF-RDLPFC, 2.24 (1.24-4.06) for deep TMS; 3.05 (0.87-10.67) for BL-rTMS
Sonmez <i>et al.</i> 2019	8	Any	Any depression	accelerated rTMS & TBS	Hedge's g 1.27 (0.902-1.637)	Accelerated TMS over left DLPFC was not associated with a statistically significantly higher rate of response compared to sham. OR 3.12 (0.98-9.97)	-
Hyde <i>et al.</i> 2022	46	Any	Unipolar (42) & Bipolar (4)	Any rTMS	SMD 0.44 (0.31-0.56) over all; 0.60 (0.42-0.78) significant for unipolar depression; 0.20 (0.11-0.52) not significant for bipolar depression	-	-
Li <i>et al.</i> 2021	49	Any	TRD	Any rTMS	-	RR 5.00 (1.11-22.44) for Bilateral theta burst stimulation, 2.97 (1.20-7.39) for priming TMS, 2.62 (1.56-4.39) for LF-RDLPFC, 2.18 (1.52-3.13) for HF-LDLPFC, 3.08 (1.78-5.31) for BL rTMS	-
Sehatazadeh <i>et al.</i> 2019	23	Any	TRD	Unilateral (19) vs. bilateral (4)	WMD 3.36 (1.85-4.88) for UL; 2.67 (0.83-4.51) for BL	25.1% for UL; 25.4 for BL	16.0% for UL; 16.6% for BL
Shen <i>et al.</i> 2022	a	Any	Poststroke depression	Any rTMS	SMD 4.92 (2.69-7.15) for immediate effects, 7.21 (3.50-10.92) for longterm effects	-	-

Contd...

Table 4: Contd...

Article (See supplementary table 1 for full list of references)	Total no of Studies	Age group	Depression type	rTMS type	Reduction in severity	Response	Remission
Shao <i>et al.</i> 2021	7	Any	Poststroke depression	Any rTMS	SMD 1.15 (0.69-1.62)	-	OR 3.46 (1.68-7.12)
Liu <i>et al.</i> 2019	17	Any	Poststroke depression	HF-rTMS	SMD 1.01 (0.66-1.36)	OR 3.31 (2.25-4.88)	OR 2.72 (1.69-4.38)
Liang <i>et al.</i> 2022	34	Any	Poststroke depression	HF and LF rTMS	SMD 1.44 (1.03-1.86)	-	-
Deng <i>et al.</i> 2017	5	Any	Poststroke depression	Any rTMS	SMD 1.43 (1.06 to 1.79)	OR 5.26 (2.17-12.5)	OR 4.72 (1.29 to 17.24)
Lee <i>et al.</i> 2021	5	Any	Peripartum depression	Any rTMS	SMD 1.394 (0.944-1.843)	-	-
Liu <i>et al.</i> 2020	10	Any	Peripartum depression	Any rTMS	SMD 0.65 (0.31-0.98)	OR 1.47 (0.99-2.17) Not significant	OR 1.83 (1.05-3.18)
Peng <i>et al.</i> 2020	14	Any	Postpartum depression	Any rTMS	SMD 1.02 (0.66-1.37)	-	-
Tsai <i>et al.</i> 2021	5	Any	post TBI depression	Any rTMS	SMD 1.03 (0.20-1.86) over all; 0.98 (0.04-1.92) for LDLPFC	-	-
Chen <i>et al.</i> 2021	12	Any	Parkinson's depression	Any rTMS	SMD 0.62 (0.28-0.96) vs sham	-	-
Li <i>et al.</i> 2020	8	Any	Parkinson's depression	Any rTMS	SMD 0.80 (0.31-1.29) over all; 1.64 (0.20-3.09) for LDLPFC; 1.03 (0.41-1.66) for HF rTMS; 0.74 (0.83-2.31) vs. fluoxetine	-	-
Hai-Jiao <i>et al.</i> 2020	6	Any	Parkinson's depression	Any rTMS	SMD 0.86 (0.43-1.29) for sham	-	-

rTMS=replicative transcranial magnetic stimulation; MDD=Major depressive disorder; TRD=Treatment resistant depression; TBI=traumatic brain injury; TBS=theta burst stimulation; iTBS=intermittent theta burst stimulation; cTBS=continuous theta burst stimulation; HF=high frequency; LF=low frequency; SMD=standardized mean difference; WMD=weighted mean difference; LDLPFC=left dorsolateral prefrontal cortex; UL=unilateral; BL=bilateral; OR=odds ratio; RR=relative risk; RD=relative difference; pTMS=priming transcranial magnetic stimulation; dTMS=deep transcranial magnetic stimulation; aTMS=accelerated transcranial magnetic stimulation; sTMS=synchronized transcranial magnetic stimulation; NA=not available

There is clear evidence that in TRD, response to rTMS was better when it is added as an augment to antidepressants rather than stand-alone.

Accelerated rTMS (including accelerated TBS) paradigm targeted over left DLPPFC was not found to be associated with significant response, in a meta-analysis focussing on accelerated protocols [Supplementary Table 1; sl.no. 8]. Although the more recent, Stanford Accelerated Intelligent Neuromodulation Therapy (SAINT) protocol,<sup>[19]</sup> a high dose- accelerated (10 daily sessions for 5 days), resting-state functional connectivity functional MRI-guided iTBS, has shown to have 86.4% remission rates in patients with treatment-resistant depression, such protocols remain to be tested in controlled studies.

One meta-analysis focussing on unilateral and bilateral stimulation paradigms (both conventional and TBS) [Supplementary Table 1; sl.no. 11] find that only the frequency of stimulation could predict the treatment outcome, while the intensity of stimulation, train duration and a number of treatment sessions did not. However, a meta-analysis involving only TBS studies find that  $\geq 1800$  pulses/session, subthreshold intensity, and  $\leq 2$ -week treatment duration

predict higher response rates [Supplementary Table 1; sl.no. 3]. One meta-analysis focussing on MDD patients aged  $>50$  years found higher age and number of sessions predicted greater response [Supplementary Table 1; sl.no. 1].

#### Which device/coil is better?

The efficacy and acceptability of 3 stimulation devices (NeuroStar, MagPro, and Magstim) for depressive disorders were not significantly different. The response rates, all-cause discontinuation, or remission rates among the devices ( $P = 0.12$ ,  $P = 0.84$ , and  $P = 0.07$ , respectively) were comparable [Supplementary Table 1; sl.no. 24]. The comparison between H1 and F8 coils showed a larger reduction in depression severity in H1-coil vs. F8-coil studies and a trend towards higher remission rates in F8-coil vs. H1-coils. However, authors deem these differences are not clinically-relevant as they were based on a low volume of studies and were not placebo-controlled [Supplementary Table 1; sl.no. 25].

#### How does rTMS fare compared to other non-invasive brain stimulation strategies?

In the comparisons between two active treatments, bitemporal ECT was associated with higher response than

high-frequency left rTMS, continuous theta burst stimulation and deep transcranial magnetic stimulation. High dose right unilateral ECT was associated with a higher response than continuous theta burst stimulation [Supplementary Table 1; sl.no. 6]. In TRD, BL-rTMS was found to be more effective than deep brain stimulation. BL-rTMS was more acceptable than bitemporal ECT. Priming TMS was more acceptable than BT-ECT [Supplementary Table 1; sl.no. 10].

*How sustained is the antidepressant response to rTMS?*

Among initial responders, 66.5 (57.1-74.8)% sustained response in the 3<sup>rd</sup> month, 52.9 (40.3-65)% in the 6<sup>th</sup> month, and 46.3 (32.6-60.7)% in the 12<sup>th</sup> month. The further higher proportion of women, as well as receipt of maintenance treatment, predicted higher responder rates at specific time points. This meta-analysis, which included 19 studies, showed the absence of major bias [Supplementary Table 1; sl.no. 26].

*Maintenance rTMS for MDD*

The evidence base for maintenance rTMS for relapse prevention in MDD is still accumulating and not enough for making specific recommendations. However, it has shown a promise for effectively reducing or preventing the relapses in treatment-resistant MDD patients when scheduled along with rTMS treatment during acute phases.<sup>[20]</sup>

*How much is the placebo effect of rTMS treatment in depression?*

A meta-analysis of randomized controlled trials (RCTs) involving participants with MDD on this issue showed a large placebo response (g = 0.8 (0.65-0.95)). This was regardless of the modality of intervention and was directly associated with depression improvement in the active group, and inversely associated with higher levels of treatment-resistant depression. Most of these studies had low to unclear risk of bias [Supplementary Table 1; sl.no. 27]. Recently, 34 neuroimaging studies of placebo effects were meta-analyzed and showed that the placebo effects are associated with activation in the left dorsolateral prefrontal cortex and left sub-genual anterior cingulate cortex (sgACC)/ventral striatum [Supplementary Table 1; sl.no. 28].

*Safety of TMS for MDD*

A meta-analysis including 53 sham-controlled trials found no increased risk of either serious adverse events or drop-outs due to an adverse event [see Table 5]. However, there is a

significantly greater risk of non-serious adverse events (mild and transient) following rTMS treatment for depression [Supplementary Table 1; sl.no. 29].

Specifically, a Hypomanic/manic switch with rTMS treatment was assessed in a recent meta-analysis of 25 clinical trials where the majority of the studies targeted the left dorsolateral prefrontal cortex. The hypomanic switch was described in 4 studies. Overall, the results suggest that rTMS protocols for the treatment of depression are not related to affective switch [Supplementary Table 1; sl.no. 30].

*Combined rTMS and psychosocial interventions*

Seventeen studies that combined NIBS and psychosocial interventions were meta-analyzed [Supplementary Table 1; sl.no. 31]. Three out of four of these studies using rTMS (2-HF-L and 1-LF-R) as NIBS modality were analyzed. rTMS combined with psychosocial intervention had no significant effect in alleviating depressive symptoms when compared with sham rTMS plus psychosocial intervention (SMD 0.31 (0.76-1.38)). These three studies though included patients where depression was a secondary outcome variable (these included cases of TBI, post-stroke, and fibromyalgia).

*rTMS for suicidality*

A meta-analysis of 10 RCTs showed that rTMS significantly reduced suicidal ideation (Hedges' g 0.390 (0.193 to 0.588) and severity of depressive symptoms (Hedges' g 0.698 (0.372-1.023) in patients with major mental disorders. A subgroup analysis in this meta-analysis found that rTMS reduced suicidal ideation among patients with non-treatment-resistant depression (non-TRD) but not in those with TRD. rTMS as a combination therapy and more than 10 sessions had a larger effect [Supplementary Table 1; sl.no. 32]. Another meta-analysis included only TRD (unipolar as well as bipolar) patients from 16 studies. It found that the reductions in suicidal ideation were not significant (g 0.158 (0.078-0.393) in RCTs. However, uncontrolled trials showed a significant decrease in suicidal ideation scores (g 0.692 (0.463-0.922) [Supplementary Table 1; sl.no. 33]. Godi et al. (2021),<sup>[21]</sup> in a systematic review showed that high-frequency rTMS at the left dorsolateral prefrontal cortex as an adjunct to the antidepressant medication has the highest evidence for reducing suicidal behavior in treatment-resistant depression.

**Table 5: Adverse events with rTMS**

Serious adverse event			No-serious adverse event				Drop out due to adverse event		
Active group	Sham group	OR (95%CI; P)	Type	Active group	Sham group	Pooled OR	Active group	Sham group	OR (95%CI; P)
0.9%	1.5%	0.67 (0.29-1.55;0.35)	Headaches	22.6%	16.2%	1.48 (1.15-1.91;0.002)	3.3%	2.3%	1.30 (0.78-2.16;0.31)
			discomfort	10.9%	5.0%	1.98 (1.22-3.21;0.006)			
			Pain at stimulation site	23.8%	5.2%	8.09 (4.71-13.90;<.001)			

rTMS=repertitive transcranial magnetic stimulation; OR=odds ratio; CI=confidence interval; P=significance

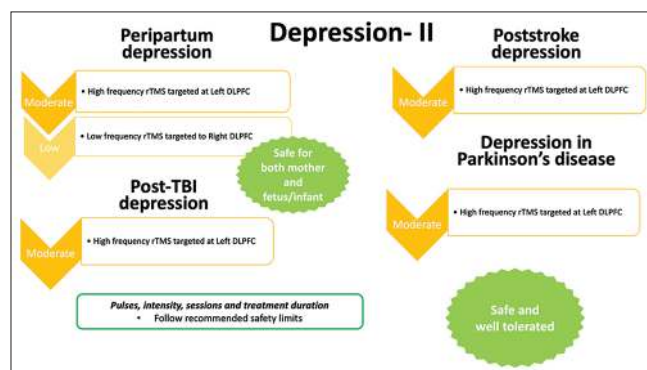
Suicidality has been assessed as a secondary outcome variable in most of the trials considered for the meta-analyses and excluded acutely suicidal patients. Acutely suicidal patients have been considered in some studies using accelerated rTMS, but with a lack of positive evidence. Essentially, therefore, with the evidence so far, we do not recommend rTMS for acutely suicidal patients.

*Efficacy of rTMS in peripartum depression (please see Figure 2 for recommendation)*

Evidence [see Table 4] suggests that rTMS has a significant positive effect on peripartum depression. The pooled effect sizes range between 0.65 and 1.39. However, one meta-analysis has found that the OR for remission rates (i.e. 1.83) but not for response rates is significant for the use of rTMS in peripartum depression. Pooled effect sizes for the use of high-frequency rTMS over the left DLPFC were greater than those for low-frequency rTMS over the right DLPFC. The treatment was deemed safe for both mothers and fetuses/infants.

*Efficacy of rTMS in post-stroke depression (please see Figure 2 for recommendation)*

There is strong evidence for a significant positive effect for the use of rTMS for treating post-stroke depression, both for immediate as well as long-term effects [see Table 4]. The pooled effect sizes for improvement in depression severity range between 1.01 to 4.92. The odds for response (pooled odds ratios (ORs) ranging between 3.31 and 5.26) and remission rates (pooled ORs ranging between 2.72 and 4.72) were significantly higher for the use of rTMS. The most evidence was for high-frequency rTMS over the left DLPFC. There is some evidence that rTMS for post-stroke depression may be more effective in Asian than the North American population; those receiving high-frequency rTMS are more prone to headaches; and that high-frequency rTMS combined with antidepressants may be more effective. rTMS though had no significant effect on cognitive function recovery in post-stroke depression patients.



**Figure 2:** Recommendation B: Depression- II: Peripartum depression, post-stroke depression, post traumatic brain injury (TBI) depression and depression in Parkinson's disease

*Efficacy of rTMS in post-traumatic brain injury depression (please see Figure 2 for recommendation)*

One meta-analysis [see Table 4; *Supplementary Table 1; sl.no. 20*] assessed the efficacy of rTMS in post-traumatic brain injury (TBI) depression and found that it has a significant positive effect (pooled effect size 1.03). The effect was significant for high-frequency rTMS over the left DLPFC (pooled effect size 0.98). However, these effects were short-lasting and they dissipated at a 1-month follow-up.

*Efficacy of rTMS in depression associated with Parkinson's disease (please see Figure 2 for recommendation)*

There is strong evidence for a moderate effect of the use of rTMS for treating depression associated with Parkinson's disease [see Table 4]. The pooled effect sizes for improvement in depression severity range between 0.62 to 0.86. The effect was significant only for high-frequency rTMS (pooled effect size 1.03) and over the left DLPFC (pooled effect size 1.64). The antidepressant effects of rTMS were found to be greater than fluoxetine (pooled effect size 0.74) and found to be statistically compared to when SSRIs were used alone. Age, disease duration, number of pulses, and session durations were shown to influence the efficacy of rTMS on depression associated with Parkinson's disease.

**Evidence- bipolar mania (please see Figure 3 for recommendation)**

A meta-analysis [*Supplementary Table 1; sl.no. 5*] included 3 RCTs of patients with bipolar mania receiving HF-R rTMS, of which only one study reported improvement with rTMS compared to sham. The sham-controlled improvements were not significant (SMD 0.298 (-0.77- 1.37)). Two of the three RCTs included adults and one included adolescent patients. All three studies used high-frequency rTMS targeting the right DLPFC.

**Evidence- anxiety disorders (please see Figure 3 for recommendation)**

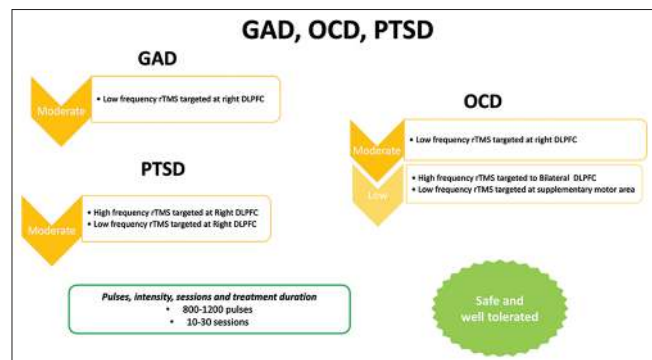
We reviewed four meta-analyses. One of them [*Supplementary Table 1; sl.no. 35*] analyzed other forms of NIBS combined with rTMS and did not provide separate pooled statistics for rTMS, therefore was not considered for synthesis. Evidence [see Table 6] suggests that rTMS has a significant positive effect on the treatment of generalized anxiety disorder. The pooled effect sizes range between 1.45 and 1.87. Moreover, depression associated with a generalized anxiety disorder also shows significant improvement (SMD 1.65). However, rTMS was not found to be effective in the treatment of the panic disorder. Evidence in this regard has been shown to be homogenous.

Among the rTMS forms, both conventional rTMS and TBS have been used. The most commonly used stimulation paradigm is low-frequency rTMS targeted to the right DLPFC. High-frequency rTMS has also been used to target the right DLPFC. A few studies have targeted left DLPFC using iTBS.

### Evidence- obsessive-compulsive disorder (OCD) and Tourette syndrome

There is moderately positive evidence for use of rTMS (10 to 30 sessions; 1 to 12 weeks) for treating OCD (Pooled SMDs for YBOCS scores range from .501 to 0.79) [see Table 7]. Both high and low-frequency protocols have been equally effective than sham stimulation. There are 3 preferred target

sites for stimulation i.e., low-frequency right DLPFC (most effective), high-frequency bilateral DLPFC, and low-frequency supplementary motor area (SMA). High-frequency bilateral DLPFC (SMD: 1.52) and low-frequency right DLPFC (SMD:.83) stimulations have reported the most global improvements. Effects of stimulation are evident earliest by 2 weeks of stimulation and would have short-lasting effects (till 4 weeks). Maximum robust effects were found with 800 to 1200 pulses per session. TBS was found to be ineffective, though data is insufficient. There is inconclusive as well as insufficient evidence with respect to the effect of deep TMS in OCD [Supplementary Table 1; sl.no. 39]. Common adverse effects reported were headache, concentration difficulties, scalp pain, sedation, weakness, fatigue, fainting, and facial nerve stimulation. There were no major side effects reported and no difference between dropout rates for active vs sham rTMS.



**Figure 3:** Recommendation C: Generalized Anxiety Disorder (GAD), Obsessive Compulsive Disorder (OCD) and Post Traumatic Stress Disorder (PTSD)

We reviewed one meta-analysis, which included 8 RCTs and open-label trials [Supplementary Table 1; sl.no. 43], and found that rTMS improves tics severity (SMD:.61) but not when controlled for placebo response in Tourette’s disorder.

**Table 6: Meta-analyses for rTMS in anxiety disorders**

Study (See supplementary Table 1 for full list of references)	Diagnosis	Number of studies included	rTMS forms	Pooled Effect size
Cox et al. 2022	Generalized anxiety disorder & Panic disorders	13	Any rTMS	SMD 1.45 for anxiety in GAD; SMD 1.65 for depression in GAD; anxiety and panic severity did not improve in PD
Parikh et al. 2022	Generalized anxiety disorder	6	Any rTMS	SMD 1.857 (1.494-2.219)
Hyde et al. 2022	Generalized anxiety disorder	5	Any rTMS	SMD 1.8 (1.0-2.6)

rTMS=repitive transcranial magnetic stimulation; SMD=standardized mean difference; GAD=generalized anxiety disorder; PD=panic disorder

**Table 7: Meta-analyses for rTMS in obsessive compulsive disorder (OCD)**

Article (See supplementary table 1 for full list of references)	Total no of Studies	rTMS type	Reduction in severity	Predictors of response
Hyde et al. 2022	26	Any rTMS	-0.66 (-0.91 to-0.41)	BLDLPFC, LF-RDLPFC and LF-SMA sessions were superior to sham.
Fitzsimmons et al. 2022	21	Any rTMS	Hedges’ g = -0.502 [95% CI = -0.708, -0.296	Network Meta-analysis: LF pre-SMA, HF-LDLPFC, and LF-RDLPFC were all efficacious . LF- RDLPFC was ranked highest in terms of efficacy. 10 TO 30 sessions; 1 to 6 weeks
Liang et al. 2021	22	Any rTMS	LF-RDLPFC (MD=6.34 (2.12-10.42)); LF-SMA-(MD=4.18 (0.83-7.62)); HF-LDLPFC (MD=3.75 (1.04-6.81));	LF-RDLPFC was most effective All LF-RDLPFC, LF-SMA and HF-LDLPFC were more effective than sham rTMS.
Perera et al., 2021	26	Any rTMS	YBOCS scores (Hedges’ g=0.77, 95% CI=0.41, 1.14; P<0.0001	The largest significant effect size=BL-DLPFC; HF and LF rTMS showed comparable effects; highest improvements with 800 pulses per session; highest improvement within 2 weeks and effects lasting till 4 weeks
Rehn et al. 2018	18	Any rTMS	Hedge’s g of 0.79 (95% CI=0.43-1.15, P<0.001	LF rTMS was more effective than HF rTMS. The effectiveness of rTMS was also greater at 12 weeks follow-up than at 4 weeks; TBS: Ineffective
Gao et al. 2022	NA	Any rTMS	NA	Both high-frequency and the low-frequency stimulation showed significantly positive effects, with no statistical difference. Targeting the DLPFC showed significant improvements over sham stimulation, but no such improvement was found in the SMA

rTMS=repitive transcranial magnetic stimulation; TBS=theta burst stimulation; SMD=standardized mean difference; CI=confidence intervals; P=significance; MD=mean difference; YBOCS-Yale Brown obsessive compulsive scale; LDLPFC=left dorsolateral prefrontal cortex; RDLPFC=right dorsolateral prefrontal cortex; BLDLPFC=bilateral dorsolateral prefrontal cortex; SMA=supplementary motor area; HF=high frequency; LF=low frequency

Younger age and bilateral supplementary motor area stimulation predicted a better treatment effect.

the right DLPFC show significant improvements, without significant differences between them.

**Evidence- Post-traumatic stress disorder (PTSD) (please see Figure 3 for recommendation)**

We reviewed three meta-analyses. Evidence [see Table 8] suggests that rTMS has a significant positive effect on the treatment of post-traumatic stress disorder. The pooled effect sizes range between 0.68 and 1.16. Both high-frequency rTMS and low-frequency rTMS targeted at

**Evidence- Schizophrenia (please see Figure 4 for recommendation)**

*Efficacy of rTMS in auditory hallucinations*

There is moderate positive evidence for use of rTMS (4 to 40 sessions delivered till 8 weeks) for treating resistant auditory hallucinations (AH) (Pooled SMDs range from .24 to 0.51) [see Table 9]. Low-frequency (LF) rTMS

**Table 8: Meta-analyses for rTMS in post-traumatic stress disorder (PTSD)**

Study (See Supplementary Table 1 for full list of references)	Number of studies	rTMS forms	Outcome measure	Pooled Effect size
McGirr et al. 2022	10	Any rTMS	PTSD symptoms	SMD 0.70 (0.22 to 1.18) for LF-RDLPFC and 0.71 (0.11-1.31) for HF-RDLPFC
Kan et al. 2020	11	Any rTMS	PTSD symptoms	SMD 0.975 (0.58-1.37) overall; 1.16 (0.50-1.82) for excitatory (4 HF-RDLPFC, 2 HF-LDLPFC, 1 dTMS at MPFC, 1 HF-LDLPFC); 0.68 (0.32-1.04) for inhibitory (all LF-RDLPFC); no significant difference between HF-RDLPFC and LF-R DLPFC
Hyde et al. 2022	8	Any rTMS	PTSD symptoms	SMD 1.03 (0.45-1.61)

rTMS=replicative transcranial magnetic stimulation; PTSD=post-traumatic stress disorder; SMD=standardized mean difference; LDLPFC=left dorsolateral prefrontal cortex; RDLPFC=right dorsolateral prefrontal cortex; MPFC=medial prefrontal cortex; HF=high frequency; LF=low frequency; dTMS=deep transcranial magnetic stimulation

**Table 9: Meta-analyses on the effect of rTMS in schizophrenia**

Article (See Supplementary Table 1 for full list of references)	Total no of studies	Symptom group/ outcome	rTMS type	Reduction in severity	Predictors of response	Adverse events
Guttesen et al. 2021	27	Medication resistant auditory verbal hallucinations	Any rTMS	Cohen D SMD -0.24 (-0.61 to 0.13) (one month)	not reported	OR: 6.39 [3.13, 13.05] (headache) OR: 16.60 [4.24, 65.09] (facial twitching); 60 dropouts (OR: 1.00, 3.17], P=0.05)
Sloan et al. 2021	9	Working Memory: Accuracy/ Speed	HF rTMS to LDLPFC	Accuracy: Hedges' g=0.112, CI95: -0.082, 0.305, = 0.257; Speed: Hedges' g=0.233, CI95: -0.212, 0.678, P=0.305)	reported; no predictor variables found	not reported
Li et al. 2020	11	Auditory Hallucinations	LF rTMS to RTPC	Cohen D SMD -0.27, 95%CI = -0.51 to -0.03	not reported	not reported
Siskind et al. 2019	3	clozapine refractory schizophrenia	LF & HF rTMS	No benefit PS/NS/Composite	no predictors found on sensitivity analyses	headache (no difference in active/placebo)
Aleman et al. 2018	19	NS	Any rTMS	Cohen D SMD: 0.64 (0.32-0.96)	Studied; HF rTMS to LDLPFC containing more than 7500 stimuli per week at an intensity of >100% motor threshold, may be more effective than other protocols. The treatment may be more effective in younger patients with a shorter duration of illness.	not reported
Kennedy et al. 2018	30	Composite Hallucinations/ PANSS-P/N/ Total	Any rTMS	Hallucinations (Hedge's g=0.51, P<0.001); NS: (Hedge's g=0.49, P=0.01)	not reported	not reported
Osoegawa et al. 2018	31	NS	Any rTMS	Hedges' g=0.19 (0.07-0.32)	not reported	not reported
Hyde et al. 2022	59	PANSS-PS/ NS/Total scores	Any rTMS	NS SMD: -0.49 (-0.73 to -0.26); Total scores SMD: -0.50 (-0.66--0.33)	For NS, HF-LDLPFC was superior to sham	not reported

rTMS=replicative transcranial magnetic stimulation; NS=negative symptoms; PS=positive symptoms; PANSS=positive and negative syndrome scale; SMD=standardized mean difference; LDLPFC=left dorsolateral prefrontal cortex; RTPC=right temporo-parietal cortex; HF=high frequency; LF=low frequency



stimulation at left temporoparietal cortices (T3P3) is the preferred site.

*Efficacy of rTMS in negative symptoms (NS)*

There is moderate to large positive evidence for use of rTMS for treating NS in schizophrenia (SMD: .49 to .64) [Table 9]. High-frequency (HF) stimulation to left DLPFC and more than 10 sessions were found to be superior to sham. Stimulation protocols containing more than 7500 stimuli per week at an intensity of >100% motor threshold, may be more effective than other protocols.

*Efficacy of rTMS in cognitive dysfunction*

rTMS has been shown to have minimal efficacy of active over sham in improving attention, processing speed, executive functioning, and working memory.

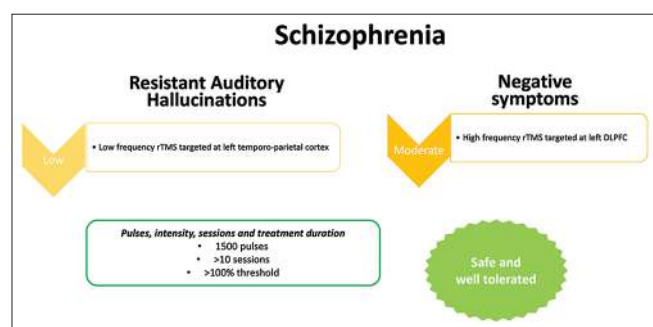
*Efficacy of rTMS in clozapine refractory schizophrenia*

We reviewed one meta-analysis [Supplementary Table 1; sl.no. 49] that included 3 RTCs employing rTMS as an augmentation strategy in clozapine refractory

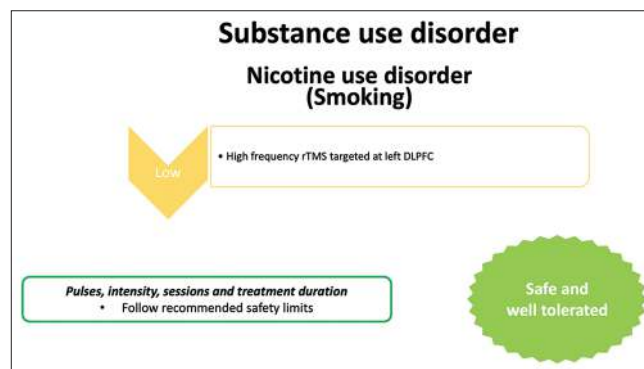
schizophrenia. It was found that the effects of rTMS were not significant for either positive symptoms, NS, or cognition in schizophrenia.

**Evidence- Substance use disorders (please see Figure 5 for recommendation)**

We reviewed six meta-analyses. Two of them [Supplementary Table 1; sl.no. 53 and 54] assessed other NIBS together with rTMS and did not provide pooled statistics either for rTMS or for substance use disorders, separately, therefore were not considered for synthesis. Evidence [see Table 10] suggests that high frequency rTMS targeted at left DLPFC, respectively) and high-frequency deep TMS targeted over bilateral DLPFC has a significant positive effect on reducing cigarette smoking frequency (pooled effect size 1.22 (0.66-1.77), 0.77 (0.34-1.20), reducing craving in general in substance use disorders (pooled effect size 0.62 (0.35-0.89)), also in nicotine (pooled effect size 0.47 (0.12-0.82) and illicit drug dependence (pooled effect size 0.81 (0.37-1.24)). High-frequency rTMS targeted at left



**Figure 4:** Recommendation D: Schizophrenia: Resistant auditory hallucinations and negative symptoms



**Figure 5:** Recommendation E: Substance Use Disorder: Smoking Cessation

**Table 10: Meta-analyses for rTMS in substance use disorders**

Study (See supplementary table 1 for full list of references)	Diagnosis/condition	Number of studies	rTMS forms	Outcome measure	Pooled Effect size	Other remarks
Tseng et al. 2022	Cigarette smoking	12	Any rTMS	Cigarette smoking frequency	SMD 1.22 (0.66-1.77) for HF-LDLPFC rTMS; 0.77 (0.34-1.20) for HF deep TMS over BL DLPFC	No study was associated with improvement in craving and overall severity of nicotine dependence. All targeting RDLPFC
Mostafavi et al. 2020	Alcohol use disorder	5	Any rTMS	Alcohol craving	Not significant SMD 0.07 (-0.27-0.40)	
Zhang et al. 2019	Nicotine, Alcohol, Cannabis, Cocaine, Methamphetamine, Opioid use disorders	19	Any rTMS	Craving Substance consumption	SMD 0.62 (0.35-0.89) for HF-LDLPFC for all substances; 0.47 (0.12-0.82) for HF-LDLPFC for nicotine; 0.81 (0.37-1.24) for HF-LDLPFC for illicit drugs	Not significant for other forms
Hyde et al. 2022	Substance use disorders in general	4	Any rTMS	Symptoms of SUDs	SMD 0.77 (0.03-1.53) for HF-LDLPFC for nicotine/cocaine; 1.16 (0.68-1.64) for BL DLPFC and Insula deep TMS for nicotine/alcohol	
					SMD 1.46 (0.42-3.35) not significant	

rTMS=repitive transcranial magnetic stimulation; SUD=substance use disorders; SMD=standardized mean difference; LDLPFC=left dorsolateral prefrontal cortex; RDLPFC=right dorsolateral prefrontal cortex; HF=high frequency; LF=low frequency

DLPFC and deep TMS targeted to B/L DLPFC and insula also have been found to reduce substance consumption for nicotine/cocaine (pooled effect size 0.77 (0.03-1.53)) and nicotine/alcohol (pooled effect size 1.16 (0.68-1.64)). Apart from the positive evidence for high-frequency rTMS targeted at left DLPFC to reduce symptoms of a tobacco use disorder, both craving and consumption amounts, none of the other evidence is consistent.

**Evidence- Eating disorders**

We reviewed three meta-analyses for eating disorders. All three of them [Supplementary Table 1; sl.no. 53, 54, and 58] did not provide effect sizes separately for eating disorders and for rTMS (they included persons with drug addiction and overeating together, and rTMS and other NIBS together). One study also included sub-clinical and clinical eating disorders together [Supplementary Table 1; sl.no. 58]. No recommendation could therefore be drawn.

**Evidence- Neurodevelopmental disorders- Autism spectrum disorder and attention deficit hyperactivity disorder**

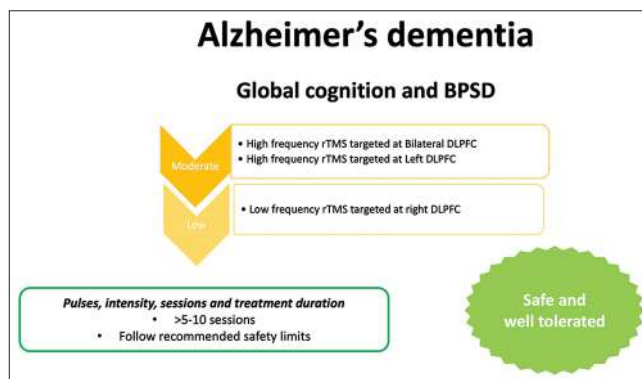
We found one meta-analysis [Supplementary Table 1; sl.no. 59] for attention deficit hyperactivity disorder (ADHD) and two meta-analyses [Supplementary Table 1; sl.no. 60 and 61] for autism spectrum disorders (ASD). The meta-analysis for ADHD included all NIBS studies on both adults and children with ADHD, and did not include any rTMS study for the quantitative synthesis. Therefore, no conclusions are drawn from it.

Of the two meta-analyses on ASD [see Table 11], one quantitatively synthesized studies on the effects on various symptom domains, and the other one exclusively focussed on adverse events associated with rTMS in ASD. Moderate improvements were reported in the domains of repetitive and restricted behavior (pooled effect size 0.50) and social behavior deficits (pooled effect size 0.47). One of the included studies did report that the effects on social behavior deficits persisted till one month after the rTMS sessions. There is a large variability in the stimulation parameters, especially the intensity and the target location in the included studies. This makes suggesting specific recommendations for the use of rTMS in ASD difficult.

The reported adverse effects were all mild and transient. Commonest of them are irritability, facial discomfort, and headaches.

**Evidence- Dementia and mild cognitive impairment (MCI) (please see Figure 6 for recommendation)**

We reviewed 12 meta-analyses on the effects of rTMS in patients with dementia (all articles were focussed on Alzheimer’s dementia) or MCI. One of them, which did not assess global cognition, was not included for synthesis; this study assessed only individual cognitive functions- attention and executive function; both of which were found not to improve with rTMS [Supplementary Table 1; sl.no. 73]. The synthesis of the other 11 studies is shown in Table 12. Evidence suggests that rTMS has a significant positive effect in the management of dementia- for both cognitive functions (pooled effect sizes ranged between 0.42 and 1.14) and neuropsychiatric/behavioral and psychological symptoms (pooled effect sizes ranged between 0.47 and 0.82). While all studies favor high-frequency rTMS targeted at left or bilateral DLPFC, for both cognitive functions and neuropsychiatric symptoms, low-frequency rTMS targeted at right DLPFC has also been suggested in some analyses. Subgroup analyses showed improvements in sub-domains of cognition, specifically memory, language, and executive functions with high-frequency rTMS. Treatment with high-frequency rTMS shows improvement in global cognition in both the short-term and also long-term.



**Figure 6:** Recommendation F: Alzheimer’s Dementia: Global cognition and Behavioral and Psychological Symptoms of Dementia (BPSD)

**Table 11: Meta-analyses for rTMS in autism spectrum disorder (ASD)**

Study (See supplementary Table 1 for full list of references)	Year	Number of studies	rTMS forms	Outcome measure	Pooled Effect size
Barahona-Corrêa et al.	2018	5 (only controlled studies)	Any rTMS	Repetitive and restricted behaviour Social behaviour deficits irritability	SMD 0.50 (0.16-0.85) SMD 0.47 (0.04-0.98) not significant SMD 0.30 (-0.72-1.32)
Huashuang et al.	2022	11	Any rTMS	Adverse events	Overall AEs: 25% (18-33%); headache: 10% (3-19%); facial discomfort: 15% (4-29%); irritability 21% (8-37%); pain at the application site: 6% (0-19%); headedness or dizziness: 8% (0-23%)

rTMS=repertitive transcranial magnetic stimulation; ASD=autism spectrum disorders; SMD=standardized mean difference; AEs=adverse effects

**Table 12: Meta-analyses for rTMS in dementia**

Study (See supplementary table 1 for full list of references)	Year	Number of studies	Condition	rTMS forms	Outcome	Pooled effect size	Remarks
Teselinck <i>et al.</i>	2021	19	AD, MCI	Any rTMS	Global cognition Neuro-psychiatric symptoms	SMD 1.13 (0.44-1.82) SMD 0.78 (0.03-1.53)	These effects restricted were to rTMS and to patients with AD but not MCI. Younger populations show significantly more improvement.
Wang <i>et al.</i>	2021	28	AD, MCI	Any rTMS	Cognition	NA	LF-RDLPFC, HF-LDLPFC significantly improve the memory. HF-LDLPFC, RDLPFC, BLDLPFC significantly improve the language. HF-LDLPFC improve the executive function Multiple sessions of rTMS with 80% to 100% significantly better
Chu <i>et al.</i>	2021	27	AD, MCI	Any rTMS	Global cognition	SMD 1.08 (0.37-1.79) for HF-LDLPFC and short term; 1.65 (0.80-2.50) HF-LDLPFC-1 month; no improvements with LF-RDLPFC; HF rTMS had both short-term (1.50, 0.61-2.40) and long-lasting (1.71, 0.86-2.56) positive effects in only AD. not MCI	For short term & 1 month for HF-LDLPFC- Memory (0.72;0.52), working memory (0.32, 0.68). HF-LDLPFC ranked as the best intervention
Chou <i>et al.</i>	2020	17	AD, MCI	Any rTMS	Global cognition	SMD 0.77 (0.574-0.967); both MCI (0.91) and AD (0.75) were significant. Both short term (0.71) and long term (0.71) significant.	HF-LDLPFC (0.68) and LF-RDLPFC (1.53) significant for memory; HF-rIFG improved executive functions. No serious adverse events, only one study reported dropout due to adverse events
Wang <i>et al.</i>	2020	15	AD	Any rTMS	Cognition	SMD 0.42 (0.18-0.67)	Stimulation at multiple sites (0.47), >10 sessions (0.59), HF (20 Hz) stimulation (0.41), cotherapy with cognitive training (0.55) and mild-moderate cognitive impairment (0.45) showed significant improvements
Lin <i>et al.</i>	2019	12	AD	Any rTMS	Cognition	SMD 0.60 (0.35-0.85)	Stimulation at multiple sites (0.86), >5 sessions (2.77) showed significant improvement. Combined CT was not found significantly different
Dong <i>et al.</i>	2018	5	AD	Any rTMS	Cognition	MD 3.65 (1.48-5.82) FOR HF-LDLPFC	Significant improvements in global impression with HF-LDLPFC also (0.79). NS for mood, functional performance and LF. Adverse effects mild and few
Zhang <i>et al.</i>	2021	12	MCI	Any rTMS	Cognition	SMD 0.83 (0.48-0.97)	HF stimulation, multiple sites (i.e. BLDLPFC), and >10 sessions produced higher improvements
Cheng <i>et al.</i>	2018	7	MCI, Probable AD, AD	Any rTMS	Cognition	SMD 0.48 (0.12-0.84)	High-frequency rTMS showed more benefit and mild-moderate AD were more benefitted. Concurrent cognition enhancement drugs (0.66), cognitive training (0.94) and stimulation at multiple sites (0.94) produced greater effect.
Wang <i>et al.</i>	2020	7	AD	Any rTMS	BPSD	SMD 0.47 (0.16-0.79) immediately after treatment; 0.57 (0.18-0.96)	HF at BL or LDLPFC
Vacas <i>et al.</i>	2019	2	AD	Any rTMS	BPSD	SMD 0.58 (0.14-1.02)	HF at BL or LDLPFC

rTMS=repitive transcranial magnetic stimulation; AD=Alzheimer's Dementia; MCI=mild cognitive impairment; BPSD=behavioural and psychological symptoms of dementia; SMD=standardized mean difference; MD=mean difference; LDLPFC=left dorsolateral prefrontal cortex; RDLPFC=right dorsolateral prefrontal cortex; BL=bilateral; BLDLPFC=bilateral dorsolateral prefrontal cortex; rIFG=right Inferior Frontal Gyrus; HF=high frequency; LF=low frequency; CT=cognitive therapy; NS=not significant

Studies including both Alzheimer's Dementia (AD) and MCI found that the positive effects were restricted to only

AD. Younger age, multiple sites, more sessions (>5-10), concurrent cognitive training or cognitive enhancers, and

mild-moderate severity of cognitive impairment have been found as possible factors involved in a greater response.

### Evidence- Cognitive function in other psychiatric disorders

We reviewed two meta-analyses [Table 13] that assessed the effect of rTMS on cognitive functioning in various psychiatric disorders- depression, schizophrenia, and substance use disorders. rTMS has been found to have a significant effect on working memory improvement only in substance use disorders. One meta-analysis, which specifically examined the effects of rTMS on executive function with advancing age, found that the effects of rTMS on executive functions are not greater as age advances, but found that the benefits in executive functions are positively related to improvement in depression [Supplementary Table 1; sl.no. 74]. Two meta-analyses (that investigated the effects of rTMS for cognitive enhancement in healthy participants were not included in the synthesis [Supplementary Table 1; sl.no. 75 and 76].

### Evidence- Insomnia (please see Figure 7 for recommendation)

We reviewed three meta-analyses. Evidence from sham-controlled studies [see Table 14] suggests that rTMS has a significant positive effect in the treatment of insomnia, rated on the standard instrument- the Pittsburgh Sleep Quality Index (PSQI). The pooled effect sizes range between 1.44 and 3.94. The pooled effect sizes for all seven subscales of PSQI- sleep quality (1.28), sleep latency (1.34), sleep time (0.70), sleep efficiency (0.67), sleep disturbance (1.35), hypnotic usage (1.57) and daytime dysfunction (1.13) suggested significant improvements. Similarly, except for non-REM 2, pooled effect sizes for all 8 polysomnography (PSG) parameters – sleep efficiency (0.57), sleep onset latency (0.95), total sleep time (0.49), wakefulness after sleep onset (0.65), non-REM 1 (0.68), non-REM 3 (0.49) and REM sleep (0.77) suggested significant improvements. It has been noted that improvement in sleep

parameters increases significantly with treatment duration (from 10 days to 30 days) too. It has also been shown that the significant improvements in insomnia with rTMS persist even at 1-4 weeks follow-up (pooled effect size 3.41). The majority of these studies have used low-frequency rTMS targeted at the right DLPFC. Therefore, low-frequency rTMS targeted at the right DLPFC is suggested for the treatment of insomnia.

### Evidence- Migraine (please see Figure 7 for recommendation)

Three meta-analyses were reviewed. One of them did not report effect sizes for rTMS, separately and therefore not used for synthesis [Supplementary Table 1; sl.no. 80]. The other two studies [see Table 15] provided evidence for a significant reduction in the number of 'migraine days', especially with high-frequency rTMS targeted at the primary motor cortex. There was inconsistent evidence for the use of high-frequency rTMS targeted at the left prefrontal cortex in the treatment of migraine. There was evidence that the response for chronic migraine and episodic migraine were similar.

### Evidence- Fibromyalgia and chronic pain (please see Figure 7 for recommendation)

Three meta-analyses for fibromyalgia and two for other chronic pain syndromes were reviewed [Table 16]. It was found that high-frequency rTMS targeted at the primary motor cortex was significantly effective for reducing pain intensity (pooled effect sizes ranged between 0.35 to 0.49), both immediately and also till 4 weeks post-intervention. Fibromyalgia-related impact on quality of life also showed improvement with rTMS, especially between 5-12 weeks. High-frequency rTMS targeted at the left prefrontal cortex was not found to be effective. For other chronic pain syndromes, we reviewed two meta-analyses [Table 16]. While, one reported that high-frequency rTMS targeted at the primary motor cortex and iTBS at the cerebellum

**Table 13: Meta-analyses for rTMS for cognitive functions in various psychiatric disorders**

Study (See Supplementary Table 1 for full list of references)	Year	Cognitive function	Depression (number of studies)	Schizophrenia (number of studies)	Substance use disorders (number of studies)
Hyde <i>et al.</i>	2022	Attention	Not significant (3)	Not significant (3)	-
		Executive functions	Not significant (8)	Not significant (5)	-
		Processing speed	Not significant (7)	Not significant (5)	-
		Working memory	Not significant (7)	Not significant (10)	SMD 0.66 (0.55-1.87)
Begemann <i>et al.</i>	2020	Working memory	Not significant (11)	Not significant (9)	

rTMS=replicative transcranial magnetic stimulation; SMD=standardized mean difference

**Table 14: Meta-analyses for rTMS in insomnia**

Study (See supplementary table 1 for full list of references)	Year	Number of studies	Condition	rTMS form	Outcome	Pooled effect size
Sun <i>et al.</i>	2021	13	Insomnia	Any rTMS	PSQI total score	SMD 2.31 (1.66-2.95)
Jiang <i>et al.</i>	2019	9	Primary Insomnia	Any rTMS	PSQI total score	SMD 1.44 (1.26-1.63)
Ma <i>et al.</i>	2021	23	Insomnia	Any rTMS	PSQI total score	SMD 3.94 (3.16-4.73)

rTMS=replicative transcranial magnetic stimulation; SMD=standardized mean difference; PSQI=Pittsburgh Sleep Quality Index

**Table 15: Meta-analyses for rTMS for migraine**

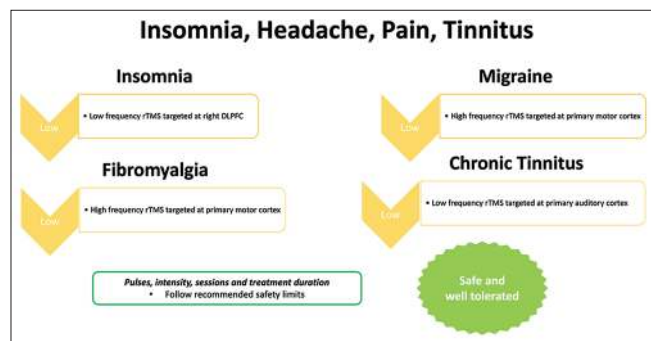
Study (See supplementary table 1 for full list of references)	Year	Number of trials	rTMS form	Outcome	Pooled effect size	Remarks
Cheng <i>et al.</i>	2022	19	Any rTMS	Migraine days	MD 8.7 (2.95-14.45) for HF-LMC; 6.28 (1.08-11.47) for HF-LFC	Chronic migraine and episodic migraine similar results
Moisset <i>et al.</i>	2020	5	Any rTMS	Migraine days	SMD 0.533 (0.126-0.940) for HF-LMC; not significant for HF-LFC	

rTMS=repitive transcranial magnetic stimulation; SMD=standardized mean difference; MD=mean difference; LMC=left motor cortex; LFC=left frontal cortex; HF=high frequency

**Table 16: Meta-analyses for rTMS for fibromyalgia and chronic pain**

Study (See supplementary table 1 for full list of references)	Year	Number of studies	Condition	rTMS form	Outcome	Pooled effect size	Remarks
Toh <i>et al.</i>	2022	11	Fibromyalgia	Any rTMS	Pain intensity	SMD 0.35 (0.08-0.62)	HF - LMC was best (0.57 (0.23-0.91)). Quality of life also showed significant improvement (0.51 (0.23-0.78))
Choo <i>et al.</i>	2022	10	Fibromyalgia	Any rTMS	Pain intensity	NA	HF-LMC had significant effect immediately and also 1-4 weeks. Quality of life improved at 5-12 weeks. HF-LFC not effective
Sun <i>et al.</i>	2022	14	Fibromyalgia	Any rTMS	Pain intensity	SMD 0.49 (0.13-0.86)	Fibromyalgia impact (Quality of life) also improved significant (0.50 (0.25-0.75))
Cardenas-Rojas <i>et al.</i>	2020	2	Chronic regional pain syndrome (arm), cervical dystonia	rTMS and Exercise	Pain intensity	SMD 0.76 (0.11-1.41)	one study HF-LMC and another cerebellar iTBS
O'Connel <i>et al.</i>	2018	27	Chronic pain	Any rTMS	Pain intensity	SMD 0.22 (0.16-0.29)	Low quality of evidence; Quality of Life (0-1 week) SMD 10.80 (6.55-15.04) not significant

rTMS=repitive transcranial magnetic stimulation; iTBS=intermittent theta burst stimulation; SMD=standardized mean difference; LMC=left motor cortex; LFC=left frontal cortex; HF=high frequency; NA=not available



**Figure 7:** Recommendation G: Insomnia, Migraine, Fibromyalgia and Chronic Tinnitus

significantly improved pain intensity (SMD 0.76) in patients with chronic regional pain syndrome (arm), cervical dystonia, the other one found that the effectiveness was not significant in other chronic pain syndromes.

**Evidence- Chronic tinnitus (please see Figure 7 for recommendation)**

We reviewed 5 meta-analyses for the use of rTMS in chronic tinnitus [Table 17]. Short term i.e., at 2 and 6 months, and not immediately, the tinnitus severity was shown to reduce significantly with rTMS (pooled effect sizes ranged between 0.42 and 0.79. Tinnitus-related disability (tinnitus handicap) also showed improvements (pooled mean differences ranged

between 8.81 to 8.52). The most common modality used was low-frequency rTMS targeted at the primary auditory cortex, which was found to be better than other sites too. Moreover, it was found that stimulation of bilateral auditory cortices, compared to left-alone, and priming paradigms would lead to greater effects. The rTMS sessions were found to be well tolerated in this population.

**Evidence- Essential tremors**

One meta-analysis [Supplementary Table 1; sl.no. 91]. that included 8 studies, of which 7 were rTMS, showed a significant positive effect of rTMS on essential tremors (SMD 0.61 (0.42-0.79)). The rTMS form was either low-frequency rTMS or cTBS targeted at the cerebellum (right or BL posterior cerebellum) or pre-supplementary motor area or left the motor area.

**Evidence- Others**

One meta-analysis showed that there is a lack of positive evidence for the effects of rTMS on impulsivity [Supplementary Table 1; sl.no. 94]. A meta-analysis [Supplementary Table 1; sl.no. 95] synthesizing evidence for brain stimulation interventions in borderline personality disorder found no randomized controlled trials assessing the effects of rTMS. Albeit in healthy participants, rTMS was found to have small but significant effects on various aspects of empathy [Supplementary Table 1; sl.no. 96].

**Table 17: Meta-analyses for rTMS for chronic tinnitus**

Study (See supplementary table 1 for full list of references)	Year	Number of studies	rTMS forms	Outcome	Pooled effect sizes	Remarks
Yin <i>et al.</i>	2021	12	Any rTMS	Tinnitus handicap-short term	MD 7.05 (2.44-11.65); Was significant at 1 (MD 6.81) and 6 months (MD 7.01) not for immediate	Majority studies used LF-rTMS to Left auditory cortex. No significant impact on tinnitus score and depression
Lefebvre-Demers <i>et al.</i>	2021	28	Any rTMS	Tinnitus severity	SMD 0.45 (0.24-0.66) immediate; 0.42 (0.15-0.68) 1 week to 6 months)	Auditory cortex better than others (0.35)
Liang <i>et al.</i>	2020	29	Any rTMS	Tinnitus handicap Tinnitus severity	MD 7.92 (1.66-14.18) for 1 week; 8.52 (4.55-12.49) for 1 month; 6.53 (1.66-11.41) for 6 months MD 8.54 (1.52-15.56) for only 1 week, not for long term	NA
Dong <i>et al.</i>	2020	10	LF rTMS	Tinnitus handicap, severity, loudness	None were significant	Well tolerated but not effective
Chen <i>et al.</i>	2020	13	Any rTMS	Tinnitus severity	SMD 0.79 (0.01-1.57) for cTBS on BL AC; 0.70 (0.02-1.38) BL (i.e. HF LFC+LF BL AC)	BL better than UL AC, priming superior to non-priming

rTMS=replicative transcranial magnetic stimulation; cTBS=continuous theta burst stimulation; SMD=standardized mean difference; MD=mean difference; AC=auditory cortex; LFC=left frontal cortex; HF=high frequency; LF=low frequency; UL=unilateral; BL=bilateral; NA=not available

We found no meta-analyses for dissociative (and conversion; psychogenic non-epileptic seizures) disorders. Recently, studies are using many newer forms of rTMS i.e., deep TMS (dTMS), prolonged iTBS (piTBS), synchronized TBS (sTBS), along with priming TBS (pTBS) and accelerated TMS (aTMS),<sup>[22]</sup> and are targeting many alternate brain areas such as cerebellum for schizophrenia,<sup>[23]</sup> orbitofrontal cortex for OCD,<sup>[24]</sup> etc. The meta-analyses we included do not systematically review many of these studies.

### Indian evidence

A very recent meta-analysis<sup>[25]</sup> conducted on 52 Indian studies investigating the safety and efficacy of rTMS in various neuropsychiatric disorders suggested a significant positive effect for all outcomes, with moderate to large effect sizes, at both end of treatment as well as at follow-up compared to pre-intervention scores for groups that received active rTMS. However, rTMS was not found to be effective for any outcome in the series of “active vs sham-controlled” meta-analyses, except for migraine (headache severity and frequency) and craving in alcohol dependence. Many studies had a significant risk of bias and the two conditions that showed positive sham-controlled evidence lost significance in sensitivity analysis. Also, significant heterogeneity was seen. Indian evidence however suggests that serious adverse events with rTMS were rare. The frequency of occurrence of both seizures and the affective switch was <0.5%. Headache and scalp pain were the common non-serious adverse events reported with the use of rTMS.

### EVIDENCE- SUMMARY

There are many other psychiatric disorders where rTMS has been used, but there is insufficient evidence. The figure below shows disorders where there are sufficient and positive disorders, and those having either insufficient

evidence for the rTMS or the evidence is not significant or significantly lower, compared to sham stimulation. It is important to note that rTMS is to be used as an adjunct to other conventional treatments.

Table 18 shows the list of all indications and recommendations for rTMS in the treatment of various psychiatric disorders. Also see Figure 8 for list of indications i.e., conditions with available positive evidence, and conditions where there is insufficient evidence.

### Limitations

The strategy we chose i.e., umbrella review of meta-analyses, in formulating the clinical recommendations is constrained by certain limitations. While the extant available information is limited, selective reporting of outcomes often overlooks negative evidence and tends to provide positive biased evidence.<sup>[26]</sup> Further, regional variations may be missed in such an approach. Moreover, the umbrella review we conducted was a qualitative one and we did not conduct quantitative analyses and therefore pose an important limitation. The recommendations we make, although primarily based on this overview, they were supplemented by existing guidelines and recommendations and, the meta-analysis of Indian evidence. Although informed regarding the GRADE framework, we could not follow the suggested methodology of grading the evidence and therefore our recommendations might have been influenced by subjectivity, to an extent.

### CONCLUSION

This CPG for the use of rTMS in psychiatry highlights its usefulness across various psychiatric disorders and conditions. We provide an overview of the latest and emerging evidence in this regard for the safe and effective application of rTMS. We also mention the basic aspects of

**Table 18: Indications and recommendations for rTMS in treatment of various psychiatric disorders**

Disorder/Condition	Mode	Target	Recommendation	FDA
Depression Acute/Unipolar	HF	Left DLPFC	Strong	Yes
	LF	Right DLPFC	Moderate	
	Bilateral (HF to Left and LF to Right DLPFC)		Low	
	iTBS	Left DLPFC		
	Bilateral (iTBS to Left and cTBS to Right DLPFC)			
	Deep 'H1' HF	Left DLPFC		
	Priming (HF followed by LF)	Right DLPFC		
Bipolar depression	HF	Left DLPFC	Moderate	Yes
Treatment resistant depression	HF	Left DLPFC	Moderate	Yes
	LF	Right DLPFC	Low	Yes
Peripartum depression	HF	Left DLPFC	Moderate	No
	LF	Right DLPFC	Low	
Post-stroke depression	HF	Left DLPFC	Moderate	No
Depression in Parkinson's Disease	HF	Left DLPFC	Moderate	No
Generalized Anxiety Disorder	LF	Right DLPFC	Moderate	No
Obsessive Compulsive Disorder	LF	Right DLPFC	Moderate	Yes
	HF	Bilateral DLPFC	Low	
	LF	SMA	Low	No
Post-Traumatic Stress Disorder	HF	Right DLPFC	Moderate	No
	LF	Right DLPFC		No
Schizophrenia- Auditory Hallucinations	LF	Left TPC (TPJ + STG)	Low	No
Schizophrenia- Negative symptoms	HF	Left DLPFC	Moderate	No
Nicotine Use Disorder (Smoking Cessation)	HF	Left DLPFC	Low	No
Alzheimer's Dementia	HF	Bilateral DLPFC	Moderate	No
	HF	Left DLPFC		No
	LF	Right DLPFC	Low	No
Insomnia	LF	Right DLPFC	Low	
Migraine	HF	Primary Motor Cortex	Low	
Fibromyalgia	HF	Primary Motor Cortex	Low	
Chronic Tinnitus	LF	Primary Auditory Cortex	Low	

rTMS=repulsive transcranial magnetic stimulation; iTBS=intermittent theta burst stimulation; cTBS=continuous theta burst stimulation; HF=high frequency; LF=low frequency; DLPFC=dorsolateral prefrontal cortex; TPC=temporoparietal cortex; TPJ=temporoparietal junction; STG=superior temporal gyrus; FDA=Food and Drug Administration

Available positive evidence/indications	Insufficient or negative sham-controlled evidence
Depression (unipolar, bipolar treatment resistant depression)	Suicidality
Peripartum depression	Maintenance treatment of depression
Post-stroke depression, depression associated with Parkinson's disease	Mania/ Bipolar mania
Generalized Anxiety Disorder	Panic disorder
Obsessive Compulsive Disorder	Tourette disorder
Post Traumatic Stress Disorder	Positive symptoms (except resistant auditory hallucinations) of schizophrenia
Schizophrenia (negative symptoms and resistant auditory hallucinations)	Treatment resistant schizophrenia
Nicotine use disorder (smoking cessation)	Substance use disorders except smoked nicotine
Alzheimer's Dementia	ADHD
Insomnia	Autism Spectrum Disorder (Lack of evidence for uniformity in rTMS form and target location)
Migraine	Specific learning disorder; Intellectual disability
Fibromyalgia, Tinnitus	Tension type Headache
	PNES (Dissociative disorders)

**Figure 8:** Recommendation H: List of neuropsychiatric conditions with available positive evidence/indications and insufficient or negative sham controlled evidence

rTMS set-up, delivery, and monitoring of rTMS sessions. The evidence for the use of rTMS still emerging and is not thorough. So far, recommendations for its use are only in certain clinical situations. More research is required for preparing comprehensive algorithms for the implementation the use of rTMS across different disorders, especially in various phases of illnesses, various sub-samples, etc., and also in terms of specific rTMS protocols in terms of the number of pulses, trains, sessions, for each of the disorders.

Perhaps, there is no sufficient evidence with respect to stimulation with what number of sessions to be considered for a patient to be termed non-responder for a particular outcome. There is meager evidence in terms of rTMS effects in comorbid conditions such as depression with OCD, schizophrenia with OCD, etc. Evidence with respect to alternate target sites for depression, OCD, schizophrenia, and other conditions has begun accumulating, but is not sufficient for quantitative synthesis.

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**Conflicts of interest**

There are no conflicts of interest.

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**Supplementary Table 1: List of all meta-analyses included for umbrella review**

Authors	Title	Citation
Valiengo L, Maia A, Cotovio G, Gordon PC, Brunoni AR, Forlenza OV, Oliveira-Maia AJ, Voigt JD, Leuchter AF, Carpenter LL.	Repetitive Transcranial Magnetic Stimulation for Major Depressive Disorder in Older Adults: Systematic Review and Meta-analysis	J Gerontol A Biol Sci Med Sci. 2022 Apr 1;77(4):851-860. doi: 10.1093/gerona/glab235.
Chu HT, Cheng CM, Liang CS, Chang WH, Juan CH, Huang YZ, Jeng JS, Bai YM, Tsai SJ, Chen MH, Li CT, Nguyen TD, Hieronymus F, Lorentzen R, McGirr A, Østergaard SD.	Theta burst stimulation for the acute treatment of major depressive disorder: A systematic review and meta-analysis	Transl Psychiatry. 2021 May 28;11(1):330. doi: 10.1038/s41398-021-01441-4.
Tee MMK, Au CH.	Efficacy and tolerability of theta-burst stimulation for major depression: A systematic review and meta-analysis	Prog Neuropsychopharmacol Biol Psychiatry. 2021 Mar 2;106:110168. doi: 10.1016/j.pnpbp.2020.110168. Epub 2020 Nov 7.
Mutz J, Vipulanathan V, Carter B, Hurlemann R, Fu CHY, Young AH.	The efficacy of repetitive transcranial magnetic stimulation (rTMS) for bipolar depression: A systematic review and meta-analysis	J Affect Disord. 2021 Jan 15;279:250-255. doi: 10.1016/j.jad.2020.10.013. Epub 2020 Oct 8.
Mutz J, Edgumbe DR, Brunoni AR, Fu CHY.	A Systematic Review and Meta-Analysis of Randomized Sham-Controlled Trials of Repetitive Transcranial Magnetic Stimulation for Bipolar Disorder	Psychiatr Q. 2020 Dec; 91(4):1225-1247. doi: 10.1007/s11126-020-09822-6.
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Shao D, Zhao ZN, Zhang YQ, Zhou XY, Zhao LB, Dong M, Xu FH, Xiang YJ, Luo HY.	Efficacy of neurostimulation across mental disorders: systematic review and meta-analysis of 208 randomized controlled trials	Mol Psychiatry. 2022 Jun; 27(6):2709-2719. doi: 10.1038/s41380-022-01524-8. Epub 2022 Apr 1.
Liu C, Pan W, Jia L, Li L, Zhang X, Ren Y, Ma X.	Comparative efficacy and acceptability of neuromodulation procedures in the treatment of treatment-resistant depression: a network meta-analysis of randomized controlled trials	J Affect Disord. 2021 May 15;287:115-124. doi: 10.1016/j.jad.2021.03.019. Epub 2021 Mar 11.
Liang J, Feng J, He J, Jiang Y, Zhang H, Chen H.	Unilateral and bilateral repetitive transcranial magnetic stimulation for treatment-resistant depression: a meta-analysis of randomized controlled trials over 2 decades	J Psychiatry Neurosci. 2019 May 1;44(3):151-163. doi: 10.1503/jpn.180056.
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Osoegawa C, Gomes JS, Grigolon RB, Brietzke E, Gadelha A, Lacerda ALT, Dias AM, Cordeiro Q, Laranjeira R, de Jesus D, Daskalakis ZJ, Brunelin J, Cordes J, Trevizol AP.	Moderate effects of noninvasive brain stimulation of the frontal cortex for improving negative symptoms in schizophrenia: Meta-analysis of controlled trials	Neurosci Biobehav Rev. 2018 Jun; 89:111-118. doi: 10.1016/j.neubiorev. 2018.02.009. Epub 2018 Feb 19.
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	Efficacy of non-invasive brain stimulation interventions in reducing smoking frequency in patients with nicotine dependence: a systematic review and network meta-analysis of randomized controlled trials	Addiction. 2022 Jul; 117 (7):1830-1842. doi: 10.1111/add. 15624. Epub 2021 Aug 4.
	Noninvasive brain stimulation in alcohol craving: A systematic review and meta-analysis	Prog Neuropsychopharmacol Biol Psychiatry. 2020 Jul 13;101:109938. doi: 10.1016/j.pnpbp. 2020.109938. Epub 2020 Mar 29.

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<b>Authors</b>	<b>Title</b>	<b>Citation</b>
Zhang JJQ, Fong KNK, Ouyang RG, Siu AMH, Kranz GS.	Effects of repetitive transcranial magnetic stimulation (rTMS) on craving and substance consumption in patients with substance dependence: a systematic review and meta-analysis	Addiction. 2019 Dec; 114 (12):2137-2149. doi: 10.1111/add. 14753. Epub 2019 Aug 16.
Xu K, Yi P, Liu J, Ren J, Zhang Q, Yu L, Yang Y, Wang Y, Ma L, Zhang Y, Li X.	Non-invasive brain stimulation interventions for treating Clinical and Sub-clinical eating disorders: A meta-analysis of randomized controlled trials and nonrandomized studies	Psychiatry Res. 2022 Jul; 313:114592. doi: 10.1016/j.psychres. 2022.114592. Epub 2022 May 1.
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# Clinical Practice Guidelines for the Use of Transcranial Direct Current Stimulation in Psychiatry

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## INTRODUCTION

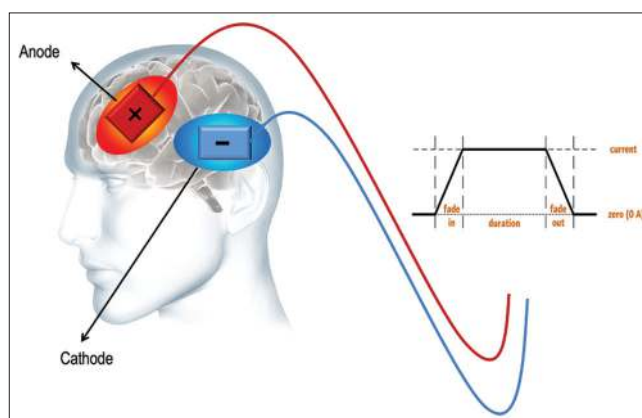
Transcranial direct current stimulation (tDCS), a safe and non-invasive neuromodulation technique, has re-emerged over recent years with several technical optimizations. Given the limits of extant therapeutic options in psychiatry, mainly because of its tolerability and safety profile, tDCS has elicited significant interest in clinical research studies in psychiatry, neurology, and several other medical specialties. These studies are also matched with cutting-edge investigative neuromodulation research using tDCS that has revealed critical insights advancing our knowledge about the brain in health and disease.<sup>[1]</sup> In psychiatry, tDCS has been evaluated in treating major depressive disorder, schizophrenia, alcohol use disorder, obsessive-compulsive disorder, mild cognitive impairment/dementia, and several other disorders. Given its portability and cost-effectiveness, tDCS offers the option of the remotely supervised, home-based (domiciliary) application as well.

## tDCS - DEFINITION

tDCS uses the application of low-intensity, direct (time-invariant) current (usually in the range of 1-2 milliampere [mA]). This non-invasive neuromodulation technique, if administered as per recommended standard operating procedures, is extremely safe. The current delivery is ensured through the placement of electrodes (25-35 cm<sup>2</sup> size [i.e., 5 X 5 cm or 7 X 5 cm]) that are made of bioconducting material (e.g., conductive rubber) placed on the scalp (corresponding to the underlying target brain area) leading to polarity-specific neuromodulation and adaptive neuroplasticity changes in the neural regions [Figure 1].

## tDCS - MECHANISM OF ACTION

The therapeutic utility of tDCS in disorders can be best understood when both the neuroplasticity mechanisms and how tDCS modulates those mechanisms are adequately deciphered. Studies have noted that the observed changes on account of tDCS are secondary to the adaptive neuroplasticity of the human brain.<sup>[2]</sup> Simply speaking, the mechanism through which tDCS can modify neuroplasticity



**Figure 1:** Schematic illustration of tDCS application

is either by increasing or decreasing neuronal conductivity, differentially acting on the neuronal sites, modulating the local blood flow, and brain-derived neurotrophic factor (BDNF)-dependent mechanisms as well as glutamatergic, GABA-ergic/other neurotransmitter-mediated effects.

Alteration of the neuronal resting membrane potential by varying the cation permeability is postulated to be one of the primary mechanisms through which tDCS is claimed to act. When a strong depolarizing signal is applied, it leads to more than the usual influx of calcium ions pre-synaptically. A more significant influx of calcium ions results in a greater release of glutamate post-synaptically, which subsequently causes extensive NMDA receptor activation. This cascade eventually causes an increased calcium influx post-synaptically, activating protein kinases responsible for the phosphorylation of AMPA receptors. Phosphorylation of AMPA receptors further activates more AMPA receptors resulting in further cation permeability in the postsynaptic neuron and better synaptic conductivity. The effects of tDCS on neuroplasticity can be summarized as follows: tDCS causes an increase in synaptic conductivity, both immediate and long-term. The polarity of the tDCS plays a vital role in determining the local effects of the procedure, both at the regional and neuronal levels. tDCS has been shown to induce long-lasting synaptic potentiation via augmented BDNF secretion. The long-term effects are also

believed to be secondary to gene transcription secondary to tDCS. tDCS is also likely to show effects by polarity-based modulation of local blood flow. Polarity-specific effects are time-dependent, with longer duration (generally more than 40 minutes) of stimulation session provoking compensatory mechanisms and reversal of effects.<sup>[3,4]</sup>

**tDCS: DEVICE ASPECTS**

There are several types of tDCS devices. In each one, electrodes are connected to a device capable of delivering a constant low-intensity direct current (0.5 to 3.0 mA). In conventional tDCS, two large conductive siliconized rubber electrodes (typically 7 × 5 cm<sup>2</sup>), anode and cathode, complete the circuit. This administration is polarity-specific in effect, in which inhibitory stimulation at one region is counterbalanced for an excitatory stimulation of equal intensity at another region and vice versa. With this montage arrangement, we can deliver bipolar stimulation; that is, the nature of stimulation is anodal and cathodal in effect because of the electrode type and montage configuration.

The tDCS devices deliver constant current – the intensity of current remains steady over time (e.g., 1 mA or 2 mA). As per Ohm’s law, the current intensity is directly proportional to voltage and inversely related to the resistance in the circuit.

Ohm’s law: Voltage = Current Intensity x Resistance  
 $[V = I * R]$

Living biological tissue reacts to electric current as a way of adaptation, along with the flow of tissue fluids and alters the resistance being offered in the circuit. Hence, effective resistance in the circuit involves biological tissue as a combination of ohmic resistance and reactance. This effective resistance is called impedance.

To keep the current constant, where changes in impedance happen dynamically, the device adjusts the voltage at every given time point. As a safety precaution, most medical-grade devices maintain a cutoff of impedance (generally 10–15 kohms) to avoid voltage surge. When the resistance increases beyond a certain threshold or when voltage reaches its limit, the device pauses/terminates the stimulation. Resistance indicators would generally be available and display the contact conditions between electrodes and the scalp during the sessions. Thus, it is recommended to use only those tDCS devices that are certified for human administration that complies with the required safety standards.<sup>[5,6]</sup>

**tDCS: STANDARD OPERATING PROCEDURES**

**Checking for contraindication to tDCS during subject recruitment**

1. Choose the patients by ascertain the indication and any necessary precautions for tDCS administration [Table 1].

2. Explain to the subject the tDCS procedure in detail. Use of video would assist in annihilating the apprehensions.
3. Ask the subject the following questions in the screening questions [Table 2] to enquire about the potential factors influencing the safe application of tDCS procedure.

Although there are no absolute contraindications for tDCS, administrators had to be cognizant of the above factors while planning the sessions. Past history of adverse effects should enable the administrators to take appropriate steps, as discussed later. Any brain-related injury, surgery, or space-occupying lesions can affect how the effect of electrical distribution and its consequent effects. History of epilepsy can theoretically increase the risk of seizures, specifically if the seizurogenic foci underlie the anode. Though tDCS has been administered safely in individuals with metallic/electrical implants, the distance from the stimulation site and the sensitivity of these devices to the electric field has to be considered. As medications can be a major confounding variable influencing the tDCS effects, it is always prudent to document it. Few patients develop headaches after tDCS, and awareness of the details of headache history in the patients will assist in its appropriate management.

**Table 1: tDCS indications and precautions**

Indications	Precautions
1. Major depressive disorder	a. Structural head injury
2. Persistent auditory hallucinations in schizophrenia. Possibly for positive and negative symptoms.	b. Epilepsy in patient/family
3. Craving in alcohol dependence and tobacco smoking: Relapse prevention	c. Scalp injury/skin lesions
4. Obsessive-compulsive disorder	d. Implanted medical devices
5. Mild cognitive impairment and dementia	e. Foreign body in head/eyes
	f. Past history of adversities with tDCS/rTMS

**Table 2: Screening questions to identify potential factors influencing tDCS procedure**

Questions	Remarks
Had any adverse reaction to TMS/tDCS, if received earlier?	
Had a seizure/epilepsy?	
Had an unexplained loss of consciousness?	
Had a stroke?	
Had a serious head injury?	
Had a surgery to your head?	
Had any brain-related, neurological illnesses?	
Had any illness that may have caused brain injury	
Do you suffer from frequent or severe headaches?	
Do you have any metal in your head (outside the mouth) such as shrapnel, surgical clips, or fragments from welding?	
Do you have any implanted medical devices such as cardiac pacemakers or medical pumps?	
Are you taking any medications?	
Are you pregnant?	
Does anyone in your family have epilepsy?	
Do you need any further explanations on tDCS/HD-tDCS or its associated risk?	



**Preparation<sup>[4]</sup>**

Written informed consent has to be taken.

- Information regarding presence of minimal evidence for acute short-term efficacy and absence of strong evidence for long-term clinical efficacy of tDCS in the above-mentioned indications has to be clearly stated.
- Safety of multisession tDCS in clinical patients can be reassured. The provision of aborting the session in the event of intolerable side effects would further annihilate the patient's safety concerns.

Instruction to visit for tDCS with the dry, clean, non-oily scalp for tDCS session should be provided.

Patients (and caregivers) have to be informed that fasting or other lifestyle changes are not needed for tDCS administration.

**Materials and their description (see Table 3 for reference)**

1. Check if you have all materials needed before starting the procedure.
2. The tDCS device is a battery-driven current generator capable of providing constant current stimulation to the brain with a maximum output (of  $\pm 2.5$ ) in milliamperes (mA) range. It operates on a rechargeable power bank.
3. Electrodes used for tDCS are conductive rubber electrodes. These can deliver DC of either polarity - anode and cathode depending on how they are plugged into the machine.
4. Measurement tape and skin marker can be used to mark the desired location on the subject's scalp. The measuring tape can be further used to ascertain adequate distance between the anode and return cathodal electrode as per the study protocol requirements (minimum 3-finger distance).

**Table 3: List of materials for conventional tDCS**

**Materials**

tDCS Device and related components

- Battery-operated tDCS device
- Rubber electrodes (minimum 2)
- Specially designed sponges meant to keep the electrodes in the scalp
- Rubber bands (non-conductive)
- Cable to connect the rechargeable battery (power bank) with the tDCS machine
- One rechargeable battery
- An adapter for recharging the power bank battery

Other Materials

- Saline (9 mmol)
- Conductive electrode paste (if needed to decrease impedance by effectively parting the hair)
- Suction pipette and trough to keep the saline.
- Cotton to clean the contact surface
- Measurement tape
- Marker (for marking measurement marks on subject's scalp)
- Comfortable chair (without exposed electrically conductive surface)
- Tissue for wiping the skin region where electrodes were placed after the session

5. A comfortable chair is required to seat the subject in relaxed manner throughout the preparation and administration of tDCS procedure.
6. Tissue or paper towels can come in handy for cleaning off either electrode due to excessive saline or cleaning the subject's scalp after administration.

**Pre-administration preparations**

1. Turn on the tDCS device. Ensure the device has enough power for completion of the session.
2. Visually inspect the rubber electrodes for signs of wear and tear.
3. Place the rubber electrodes in sponge casings to improve tolerability and reduce adverse events like tissue injury. Never place the electrodes directly on the scalp.
4. Apply the non-conductive water-proof bands for holding electrodes securely on the subject's head.
5. The placement of electrodes is described in the following sections.

**Administration procedure**

1. Seat the subject comfortably in a chair.
2. Thoroughly inspect the subject's scalp for signs of skin lesions, cuts, signs of inflammation or other cutaneous abnormalities.
3. Localize the stimulation target regions on the subject's head
  1. 10-20 EEG system
  2. Using tools like BeamF3
  3. Neuro-targeting using structural with/without functional magnetic resonance imaging
4. Mark the point on the subject's scalp that corresponds to target locations.
5. Part the hair at this marking. EEG paste can be used to keep hair parted - thick hair can cause higher impedance.
6. Switch on the device before placing the electrodes on the scalp surface. This is to avoid sudden surge of current in the circuits that can lead to adverse effects.
7. During the electrode placement, make sure that the smooth surface of the electrode (and not the wired-connected electrode surface) is in contact with the scalp.
8. Sponge preparation: Add saline to the sponge (around 6 ml on either sides) to make it damp. Ensure it is sufficiently damp and not dry to be properly conductible. It should also not be dripping with saline, which may result in the shortening of circuit. Once prepared, place the electrode inside the sponge. Inspect the sponges for reusability in multisession administrations.
9. Carefully place the cathodal and anodal electrodes kept inside the sponge case on the mark for desired/marked target regions on the cleaned subject's scalp at an appropriate orientation. For example, tDCS electrodes

for auditory hallucinations should be placed in a horizontal orientation with 7 cm as the length for the left temporoparietal junction and a vertical orientation with 5 cm as the length for the left dorsolateral prefrontal cortex. The wire connected to the electrode should be posteriorly directed in the attachment.

10. Ascertain the distance between the two electrodes is minimum 7 cm (3 finger distance).
11. Check for the subject's comfort level with the attached headbands over the electrodes (This can be ascertained by asking the patients, "Is the setup too tight?")
12. Set-up the electrical parameters, including peak intensity, duration of stimulation, ramp-up and ramp-down rate/duration.
13. Initiate the treatment. Ensure the impedance is below 10–15 k $\Omega$  - with further increase in resistance, the machine will auto-terminate the session. \*
14. Check for any sensations and reassure the pain will reduce in a few seconds with the completion of ramping up and development of tolerance.
 

\*Note: In situations of high impedance or in case of more pain, check for the following causes:

  - a. Check if the electrodes are in full contact with the scalp. Make appropriate changes to establish better contact.
  - b. Check if the saline is too less. Add saline as required.
  - c. Check if the saline is too much and the current is being shunted. Use tissue to remove the extra dripping saline.
  - d. Check if the hair parting. Remove the electrodes entirely, part the hair, apply EEG paste, and then re-attach the electrodes. In most circumstances, the above steps will resolve the impedance issues.
15. After the session is over, remove the electrodes. Switch off the machine only after the electrodes are removed.
16. Electrodes need to be removed from the sponge pads. Wipe the electrodes with the tissue (since dry saline over the electrodes can damage them and decrease its shelf life.)
17. Clean the sponges with running water and allow them to completely dry before the next session. Ensure the salt deposits won't stay for the next session.

#### After the tDCS procedure

1. Carefully inspect the skin regions where electrodes were placed for signs of skin irritation and/or skin damage. Any skin deterioration should be addressed in a medically appropriate way.
2. Document the session-specific details in the session record sheet.
3. Enquire from the subject about any possible side effects and fill in the details in the side-effect record sheet after every session.
4. Inform the subject and their relative (or caregiver) about the timings of the next session and brief them if there were any major issues during or from the session (like

appearance of skin lesion after the session, repeated sudden cessations throughout the session, difficulty in initiating stimulation due to abnormally high impedance, persistent moderate to severe side effect, etc.)

5. Check the power status. If required, charge the device.

#### Precautions

1. Make sure that the subject takes regular head-bath, refrains from oiling hair/scalp, and has a clean scalp when he/she comes for tDCS session.
2. Carefully inspect skin regions where electrodes are placed before and after every session.
3. The subject should be relaxed, comfortable, and awake throughout the tDCS procedure.
4. Uncontrolled interference with ongoing cortical activity during tDCS sessions should be avoided. Intensive cognitive effort or doing unnecessary motor activities should be avoided during the session.
5. Do not turn on the tDCS device before setting up or the electrodes for safety reasons. In a similar vein, the device should be switched off after the administrators have unmounted the electrode set-up, following completion of the stimulation.
6. Before starting the stimulation make sure that the electrodes wires are uncoiled or untangled where they connect to the machine. Coiled wires may interfere with and increase the overall resistance in the circuit.

#### Monitoring of adverse effects due to tDCS

tDCS is a safe, well-tolerated intervention if applied using the standard procedures and protocols. The safety report is based on the stimulation parameters that are commonly examined in patients. The adverse events are assessed using a checklist/questionnaire which evaluates the severity as well as the grade of attribution of these adverse effects to the tDCS<sup>[7,8]</sup> [Table 4].

### APPLICATION OF tDCS IN PSYCHIATRY DISORDERS

#### Schizophrenia

Schizophrenia is a debilitating, chronic neuropsychiatric disorder, which also is a leading cause of disability burden. The symptom components of schizophrenia involve delusions, hallucinations, significant cognitive and motivational impairments. Despite treatment with best of the available antipsychotic medications, about 30% of schizophrenia patients show partial or no clinical improvement and they persist to have symptoms. Significantly, treatment resistance contributes to about 80% of total healthcare cost burden due to schizophrenia. Contextually, alternative paradigms that involve non-invasive brain stimulation techniques attract increasing application in treating resistant symptoms in schizophrenia patients. Among several neuromodulatory

**Table 4: tDCS adverse effect questionnaire**

Adverse effect	Severity	Related to tDCS
Headache		
Neck pain		
Scalp pain		
Tingling		
Itching		
Burning sensation		
Skin redness		
Sleepiness		
Trouble concentrating		
Acute mood changes		
Skin lesion		
Disturbed visual perception		
Discomfort (during tDCS)		
Dizziness		
Pressure		
Flashes (Phosphenes): during initiation	(Yes=1/No=0)	
Flashes (Phosphenes): during termination	(Yes=1/No=0)	
Other (Please specify)		
Severity: 1-Absent, 2-Mild, 3-Moderate, 4-Severe. Related to tDCS: 1-No, 2-Remote, 3-Possible, 4-Probable, 5-Definite		

techniques, tDCS has been gaining an increasing evidence base to support its clinical utility in treatment-resistant schizophrenia.

The tDCS protocols in schizophrenia have been informed by neuroimaging studies that demonstrated association between left temporoparietal region hyperactivity and auditory hallucinations as well as relationship between hypofrontality and the pathogenesis of negative symptoms. The commonly used tDCS electrode montage applies cathodal stimulation over the left temporoparietal junction and anodal stimulation over the left prefrontal cortex to target auditory hallucinations and negative symptoms, respectively.

A pioneering study that applied a randomized, double-blind sham-controlled design on tDCS for treatment-resistant auditory hallucinations in schizophrenia demonstrated a 30% improvement in hallucination scores which persisted for about 3 months. Comparable effects were reported in a couple of open-labeled studies and multiple case reports. Beyond the ameliorative effects on auditory verbal hallucinations, clinical research studies have described evidence to support beneficial effects of tDCS on negative symptoms, other general symptoms related to psychopathology as well as illness awareness.<sup>[9-12]</sup>

#### Major depressive disorder

Major depressive disorder (MDD), the leading cause of disability burden, is a healthcare challenge. The myriad dimensions of symptoms, coexistent psychiatric and other medical morbidities further add to the complexity toward management. The recalcitrant symptoms in MDD warrant newer treatment modalities, and tDCS is increasingly seen as a useful avenue.

A key dysfunctional brain region in MDD is the prefrontal cortex – especially the dorsolateral region – of the left side (DLPFC); hypoactive left DLPFC and hyperfunctional right DLPFC is postulated as one of the contributory components to MDD. This offers a suitable opportunity to apply anodal current to enhance the hypoactive left DLPFC and cathodal current to optimize the right DLPFC.

MDD is perhaps the most extensively examined psychiatric disorder with treatment studies using tDCS. Summary evidence from these large numbers of studies suggest better efficacy of tDCS for first-episode/early course MDD and lesser benefits in treatment-resistant depression. Increasingly, evidence supports sustained effects of tDCS in MDD beyond the intervention period. Interestingly, studies have supported the feasibility of home-based application as well. Other special situations that warrant the consideration of tDCS in MDD include pregnancy (especially the first trimester), multiple medical co-morbidities with serious risk even in the context of minor side-effects/drug interactions that render stiff challenges to psychopharmacological approaches.<sup>[9,13,14]</sup>

#### Obsessive-compulsive disorder

Obsessive-compulsive disorder (OCD), with a lifetime prevalence of 1–3%, is among the leading causes of neuropsychiatric disability. Animal models and human neuroimaging studies implicate a dysfunction in the parallel and partially segregated cortico-striato-thalamo-cortical (CSTC) circuits as well as the fronto-limbic circuits in the pathogenesis of OCD. These circuits modulate various cognitive, affective, and motivational processes, which are affected in patients with OCD. Recent studies also suggest cerebellar involvement in pathogenesis. Although selective serotonin reuptake inhibitors (SSRI) and cognitive-behavior therapy (CBT) are the first-line treatments for OCD, a sizable proportion of patients do not respond adequately to these interventions. Invasive and non-invasive neuromodulatory interventions have been attempted to modulate the above circuits in patients with treatment resistant illness, usually as an augmentation strategy.

Functional imaging studies have shown hyper as well as hypoactivity in various cortical regions and cerebellum, which are potential targets of non-invasive neuromodulatory interventions such as tDCS. However, it is unclear whether the dysfunction is primarily related to the pathogenesis or is compensatory. Hence, both anodal and cathodal tDCS have been attempted, with mixed results. Among the various protocols, RCTs have shown significant improvement with active tDCS protocols targeting the supplementary motor area/pre-supplementary motor area (SMA/pre-SMA) and the right cerebellum as compared to sham stimulation. Although the SMA/pre-SMA target has been studied by independent groups showing positive results, studies have employed varied targeting strategies, stimulating either on the left

side or bilaterally. Anodal as well as cathodal tDCS over the SMA have shown encouraging results in sham-controlled studies. A crossover study showed superior response to cathodal compared to anodal stimulation. A recent evidence-based guideline recommended anodal tDCS with Level-C recommendation. Thus, there is a need for larger studies to compare the efficacy of cathodal vs anodal tDCS targeting SMA/pre-SMA. Anodal tDCS over cerebellum with cathodal stimulation over left orbitofrontal cortex has also been shown to be helpful in two independent RCTs. Sham-controlled trials employing anodal tDCS over left DLPFC have shown inconsistent results, although the studies employed varied methodologies. Protocols targeting the orbitofrontal cortex have not been evaluated in sham-controlled studies. There is also preliminary evidence for augmentation of CBT with anodal tDCS over medial prefrontal cortex (mPFC). Overall, systematic evidence exists for protocols employing anodal or cathodal stimulation of SMA/pre-SMA and anodal stimulation of the right cerebellum. Larger studies are required to confirm these findings as well as to evaluate the diverse targeting strategies and stimulation protocols.<sup>[9,15,16]</sup>

### Tourette syndrome

Tourette syndrome is a childhood-onset neuropsychiatric condition characterized by motor and vocal tics. The disorder wanes off during adolescence in most individuals, although dysfunctional tics persist in a subset of patients. Cathodal tDCS targeting the supplementary motor area has been employed as an augmentation strategy in pharmacotherapy resistant Tourette syndrome. However, the available evidence is preliminary in the form of case reports/series or single-session treatment. Given the preliminary evidence for low frequency rTMS over the same region in Tourette syndrome, cathodal tDCS may be a promising protocol that requires evaluation in larger systematic studies. At present, the evidence is preliminary at best.<sup>[9]</sup>

### Anxiety disorders

Anxiety disorders are among the most common and disabling psychiatric disorders. CBT and SSRIs are the first-line treatments. Mesocortico-limbic pathways involving the DLPFC, anterior cingulate cortex (ACC), amygdala, and hippocampus are implicated in the pathogenesis. Emotional regulation, fear processing, and extinction are neuropsychological functions that may be deranged in these disorders. Non-invasive neurostimulation of cortical regions modulating these functions including dorsolateral prefrontal cortex (emotional regulation) and ventromedial prefrontal cortex (fear extinction) may thus be helpful. tDCS over these regions has been attempted as a standalone treatment or as an augmenter for CBT/other psychological interventions. Similar to depression, anodal stimulation of left DLPFC and/or cathodal stimulation of right DLPFC are the commonly employed protocols, while mPFC anodal stimulation is sometimes used for augmenting

fear extinction in exposure therapies. Preliminary evidence from single studies on individual disorders have shown some encouraging results, although some studies have not shown benefit. In the absence of additional data, tDCS may currently be recommended only as experimental treatments for these conditions.<sup>[9]</sup>

### Substance use disorders

Substance use disorders are a group of highly prevalent chronic relapsing conditions, characterized by craving or irresistible urges to take particular substances, emergence of physical as well as negative emotional affective state in the absence of the substance and inability to cut down on the use. The above manifestation is modulated by distinct neuronal pathways - reward/incentive salience (basal ganglia), negative emotional (extended amygdala/habenula), and craving/executive function pathway (prefrontal cortex/insular), respectively. Although standard pharmacological and psychological interventions are effective, they have their limitations in terms of acute and long-term efficacy. tDCS has been employed to boost the outcomes, sometimes combined with other psychological interventions. The executive function pathway involving prefrontal cortex is particularly amenable to non-invasive stimulation and has been the target in many tDCS studies.

For alcohol use disorders, a protocol involving anodal tDCS of right DLPFC and cathodal tDCS of left DLPFC has shown the most consistent results in sham-controlled trials. This protocol has been found to reduce craving, long-term relapse and improve network efficiency/inter-regional connectivity in the brain. The abstinence efficacy of the above protocol can be augmented employing alcohol-specific inhibitory control training. It is to be noted that the above protocol is reverse of that used in depression, where anodal tDCS of left DLPFC is combined with cathodal stimulation of right DLPFC. The “depression protocol” has not been found to be helpful in sham-controlled clinical trials in alcohol use disorders when combined with bias modification. Anodal tDCS of the right inferior frontal gyrus has not been found to be helpful in mindfulness-based relapse prevention. Thus, the most promising tDCS protocol for alcohol use disorders involves anodal stimulation of right DLPFC and cathodal stimulation of left DLPFC.

For tobacco smoking, recent network meta-analyses have shown significant effect of bifrontal tDCS as compared to sham stimulation. Meta-analyses and individual RCTs have shown more consistent efficacy on craving and smoking with right DLPFC anodal tDCS and left DLPFC cathodal tDCS. Studies employing the reverse protocol, i.e., left DLPFC anodal and right DLPFC cathodal stimulation, have yielded inconsistent results. There is also preliminary evidence that bilateral cathodal stimulation of fronto-parietal cortices might decrease smoking consumption. Overall, the best available evidence is for anodal stimulation of right

DLPFC and cathodal stimulation of left DLPFC for smoking cessation, which is similar to the protocol for alcohol dependence. A similar protocol has been used for cocaine and methamphetamine use, which have shown inconsistent results. Larger studies are warranted to evaluate the efficacy of tDCS in these conditions.<sup>[9]</sup>

### Dementia/Mild cognitive impairment

Cognitive disorders in the elderly are yet another condition in which tDCS studies have been conducted. These studies have shown mixed results. However, there is emerging evidence for anodal stimulation of left DLPFC to be beneficial. Moreover, given the safety and tolerability of tDCS as well as other challenges in the elderly population in the context of medical co-morbidities, potential for poor tolerability of psychotropics, tDCS is an attractive option.<sup>[9,17]</sup>

### Child and adolescent conditions

tDCS is evaluated in ADHD and autism as well as in learning disorders. But the site of stimulation and protocol is varied, and hence, the evidence base is minimal. Larger studies are warranted to evaluate the efficacy of tDCS in these conditions. Also, the long-term consequences of modulation of the evolving brain are not known. Hence, application of tDCS in this population is experimental and with a word of caution.

## EVIDENCE-BASED RECOMMENDATIONS

The available evidence for tDCS in most disorders (in Table 5) are as add-on treatment to ongoing pharmacotherapy or psychotherapy.

Multi-session therapy is needed for longer-lasting clinical effects.

tDCS may have role in certain situations like:

- Patients' preference for non-pharmacological agents
- Non-feasibility of first/second line treatments such as geriatric depression with high-risk for medications-related side-effects and where psychotherapy is unavailable.
- Augmentation for faster response

Theoretically, there is an absence of risk of tDCS during pregnancy but needs to be ascertained in clinical trials.

tDCS is mostly evaluated in treatment-resistant or treatment-persistent symptoms and not in treatment-naïve patients.

Evidence related to the safety and utility of domiciliary tDCS and continuation/maintenance tDCS are minimal (non-replicated RCT)

tDCS is being evaluated to enhance cognition across disorders with some evidence.

Addition of cognitive activity/training to tDCS has not shown additive clinical benefits and may be adversarial.

The therapeutic role of advanced transcranial stimulation like high-definition tDCS, neurotargeted stimulation and other forms of electrical stimulations like transcranial alternating current stimulation, transcranial oscillatory current stimulation, transcranial pulsed current stimulation, transcutaneous cranial nerve stimulations is yet unclear due to absence of evidence (no RCTs) or presence of very low levels of evidence (non-replicated RCT of smaller sample sizes).

### Psychiatric conditions with absent/inconclusive evidence from RCTs

1. Neurodevelopmental disorders like ADHD and autism
2. Generalized anxiety disorder
3. Tourette's syndrome
4. Substance use disorders: acute intoxication, increase motivation, relapse prevention (except for alcohol and smoking)

## SUMMARY AND CONCLUSIONS

Transcranial direct current stimulation (tDCS), a safe and non-invasive neuromodulation technique, has re-emerged over the recent years with several technical optimizations. The applications in psychiatric disorders are on increase. Contextually, this clinical practice guidelines on tDCS in psychiatry summarize the fundamental concepts related to tDCS, standard operating procedures for clinical practice. In addition, a brief overview of the studies reporting effects of tDCS in various psychiatric disorders is presented. Some of the potential options for the therapeutic application of tDCS include major depressive disorder, schizophrenia (especially

**Table 5: tDCS protocols for psychiatric disorders with promising evidence from RCTs**

Diagnosis	Anode	Cathode	Duration	Sessions
Schizophrenia	Left DLPFC	Left TPJ	20 min	2 per day × 5 days
OCD*	Pre SMA	Right supraorbital	20 min	2 per day × 5 days
Craving (substance-use disorder)	Right DLPFC	Left DLPFC	20 min	1 per day × 5 days
Depression	Left DLPFC	Right DLPFC	30 min	1 per day × 10 days <sup>^</sup>
Dementia/MCI <sup>§</sup>	Left DLPFC	Right supraorbital	20 min	1 per day × 5 days

\*In OCD three types of montages: SMA/Pre-SMA anode, SMA/Pre-SMA cathode, and right cerebellar anode are found to be effective. <sup>^</sup>20-30 days of stimulation are attempted in a few large RCT. <sup>§</sup>In dementia, one RCT has used 10 days daily sessions every month for 8 months. OCD: Obsessive compulsive disorder; SUD: Substance use disorder; DLPFC: Dorsolateral prefrontal cortex; SMA: Supplementary motor area; TPJ: Temporoparietal junction; MCI: Mild cognitive impairment

auditory verbal hallucinations), craving in substance use disorders, obsessive-compulsive disorder, and mild cognitive impairment. While tDCS is in its nascent stage with requirement for further research to ascertain rigorous evidence, some of the advantages of this technique – safety, tolerability, ease of administration, portability, scalability, cost-effectiveness as well as potential for home-based applications - makes this neuromodulation technique a promising therapeutic option in psychiatry.

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### Conflicts of interest

There are no conflicts of interest.

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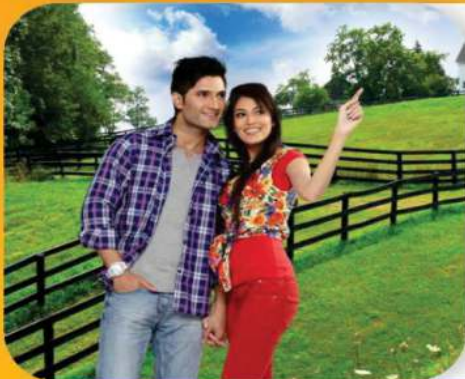
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