INDIAN PSYCHIATRIC UPDATE

Rating Scales & Assessment Schedules in Mental Health

Editors
Rajshekhar Bipeta
Vikas Menon

Indian Psychiatric Society
South Zonal Branch

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PREFACE


From the Editor's desk....

People worldwide are affected by problems with mental health, and it is critical to precisely quantify their symptoms and intensity to allow proper diagnosis, therapy, and continuing care. Rating scales were designed to give a structured way to track mental health symptoms and functionality.

Rating scales are instruments that use pre-set standards to gauge an individual's complaints or functioning. They are often used to collect information regarding mental health problems in therapeutic settings, research projects, and population surveys. They also have proven value for medicolegal purposes. A few rating scales are intended for self-administration, while others need to be administered by a skilled rater.

For the assessment to be reliable it is imperative that such instruments should be culture-free and culture-fair, or should have been standardized in the local population. The Indian Psychiatric Update is an excellent initiative by The Indian Psychiatric Society, South Zone, and the present book, “Rating Scales & Assessment Schedules in Mental Health” is aimed to fill-in the felt need to have a good, evidenced-based book in this aspect, in the Indian context. We sought chapters from various scholars across the country who have wide clinical and research experience using these rating scales. Special care has been taken to make this a handy, pragmatic and ready reckoner book for busy clinicians and researchers; not a "me too" book on rating scales. This is the most exhaustive and updated compilation of rating scales and assessment schedules in mental health in India.

We request the readers to give critical feedback to ipssz.publicom@gmail.com

Thanks, and regards,

Rajshekhar Bipeta, Vikas Menon

Section Editors, *Rating Scales & Assessment Schedules in Mental Health*

On Behalf of, The Publication Committee (2021-22), The
Indian Psychiatric Society, South Zone

FOREWORD

President's Message

I am indeed privileged to write this message for "Rating Scales & Assessment Schedules in Mental Health", as part of "Indian Psychiatric Update" from the Publication Committee of the Indian Psychiatric Society South Zonal Branch.

I appreciate the effort taken by the editors of this book, Dr. Rajshekhar Bipeta, and Dr. Vikas Menon to coordinate with other authors to bring out such a marvellous piece of work that should be useful to postgraduates students in psychiatry and others engaged in research.

I think this is a unique, exhaustive, up-to-date book on rating scales published in India, that too under the aegis of the Indian Psychiatric Society South Zonal Branch.

Congratulations to the editors and other authors of various chapters in this book.

Best Wishes,

With regards,
Dr.Ramanan Earat

President-IPS SZB (2021-22)
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FOREWORD

Vice President's Message

This unique book from India, presented on behalf of the South Zonal section of the Indian Psychiatric Society, South Zonal branch, offers a thorough introduction to the theory and application of rating scales. It attempts to meet the needs of Indian mental health practitioners and offers instructions for each stage of the procedure. It is intended that this book will provide researchers, professionals, and students with more confidence and efficiency while creating and using rating scales.

I congratulate the editors, authors, and reviewers for the effort.

Best Wishes,

With regards,

Dr. K Uday Kumar

Vice President-IPS SZB (2021-22)
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CONTENTS IN BRIEF

In defence of rating scales **25**
Rajshekhar Bipeta, Vikas Menon, Sandeep Grover

Rating scales are an important tool for mental health professionals to assess symptoms, diagnose mental illnesses, measure severity, take treatment decisions, and predict prognosis and outcome. However, there is still disillusionment due to lack of exposure and faith in their utility.

Introduction to rating scales: Background, concept, controversies **30**
Shobit Garg, Sangha Mitra Godi, Sai Krishna Tikka

The utility and the role of rating scales in the field of mental health from the first anecdotal reported use by Sir Francis Galton to current use as a gauge for evidence-based psychiatry has changed. Nowadays, the rating scale in clinical practice and research is either underutilized or over-utilized due to the imbalanced decision-making about the promises and problems associated with the use of rating scale. So, despite the available advantages of rating scale applications in psychiatry concerning their ease of use, feasibility, time efficiency, and measurement efficacy, there is increasing criticism of the greater reliance on the use of these measurement tools due to reliability-validity issues, cognitive biases, need for time and training and higher costs. Therefore, although rating scales that confer an indirect quantification of mental health outcomes became quite crucial due to the abstract and intangible nature of mental health attributes, the purpose of rating scales is not to substitute clinical interviews or traditional mental status examination but rather to supplement and aid in screening, diagnosis, and assessment to make informed decisions.

Development and validation of summated rating scales **38**
Immanuel Thomas

Rating scales represent an attempt to achieve interval-level measurement of psychological variables. Though these variables are often very complex and abstract, systematic and scientifically rigorous procedures followed for test development enable their quantification that throws open all the possibilities of quantitative analysis of the data obtained. These procedures include operational definition of the theoretical constructs, item pool development, item analysis and item selection, and establishment of reliability and validity of the tool. When the variable being measured is normally distributed in the population, individual scores on the scale could be interpreted using norms like percentiles, standard scores, etc. At the same time, when the variable relates to clinical conditions, the ROC curve analysis of the scale scores can be conducted to find out an optimal cut-off value in the score continuum that can be used to identify the clinically significant condition.

Translating and adapting a rating scale: Considerations and strategies **50**
Sai Krishna Tikka, Mamidipalli Sai Spoorthy, Shobit Garg

Translation and adaptation of rating scales is important in cross-cultural research, especially when native speakers of vernacular languages are involved. We outline various guidelines that are available for translating a rating scale. In this chapter, we synthesize all the existing guidelines and describe various considerations and strategies in uniform simplified steps. We suggest a 10-step process that includes– tool selection, permission for use, selection of qualified translators, understanding linguistic cross-cultural equivalence, forward translation, review and synthesis of preliminary forward translated versions, back translation, synthesis of pre-final version of the translated version, cognitive debriefing and quantitative linguistic equivalence. We then briefly describe practical challenges in translating and adapting a rating scale.

Types and applications of rating scales in psychiatry **63**
Indu PV

Rating scales are structured methods of evaluating behaviour and/or experience, current or past, based on a list of characteristics. They are useful in complementing clinical skills in ensuring that all relevant questions related to psychopathology are asked, the presence or absence of an illness identified and its severity measured, the response to treatment evaluated and the course of the illness delineated over time. They can be used in both clinical and research settings. Rating scales can be classified, based on the interviewer, as self-rated or observer-rated. Based on the type of interview, the tool can be structured, semi-structured or unstructured. According to the scaling responses used, they can be verbal, numerical, descriptive/adjectival, Likert, rank order, or graphic. Based on the purpose for which the scales are used, they can be screening, diagnostic, prognostic/predictive, evaluative, or those used for the assessment of the severity of symptoms and their response to treatment. It would be appropriate to choose rating scales validated for the local population, in the local language, for research. Before using rating scales for research purposes, permission has to be obtained from the authors and rights purchased, if the tool is copyrighted

How to use a rating scale in clinical practice? **72**
Samir Kumar Praharaj

Rating scales are commonly used in psychiatric practice and research. They provide quantitative data on various aspects of psychiatric disorder and ensure objectivity. Rating scales can be used for screening, diagnosis, severity rating, and improvement with treatment. If there are gold standard rating scales available for specific conditions, they should always be preferred over non-standard scales. Also, the cultural appropriateness should be considered before choosing a scale for assessment. Some scales may require translation and validation before they are used in our population. Most rating scales have standard ways of administration which should be

followed to reduce variability and correct interpretation of the scores. For some rating scales, adequate training and certification may be necessary for appropriate usage.

Rating scales for general psychopathology **79**
Raviteja Innamuri, Abhinav Chichra, Sharad Phillip

In the absence of clinical biomarkers, rating scales provide objective tools for the assessment of psychopathology. There have long been debates between categorical and dimensional approaches within psychiatric nosology. As the current categorical nosology has failed to deliver on the promise of increased validity; a trans-diagnostic approach to the conceptualization and management of psychopathology is gaining prominence. General psychopathology scales are trans-diagnostic scales that aim to give a comprehensive measure of psychological pathology. They serve in screening, research, assessment of functioning, tracking change, guiding prognostication, and clinical decision-making. This chapter focuses on a few prototypical rating scales that provide a measure of psychopathology across categorical diagnoses. We have further classified these scales by proposed utility as instruments for screening, prognostication and capturing clinical change. We have proposed a framework for further design of general psychopathology scales.

Diagnostic assessment schedules for mental health **98**
Gupta Snehil, Singh Swarndeep, Afroz Omar

Diagnostic assessment schedules play a crucial role in both mental health research and clinical practice. The applicability of these schedules depends on factors such as the context of use, available time and resources, and interviewer's expertise. Numerous tools have been created and extensively tested to establish their validity and reliability. Among the diagnostic schedules commonly used for adults are SCID-5 and its variants, MINI 7, SCAN 2, and IPDE. Similarly, K-SADS, MINI-KID, CAPA, and DISC have been used for children and adolescent population. A comprehensive evaluation of the strengths and limitations of various diagnostic instruments has been provided, with a specific focus on their practical application within the Indian context. It is important to note that these instruments need periodic updates in alignment with revisions in the classificatory systems to maintain their relevance. Fortunately, some of these tools are accessible at no cost and are available in native (vernacular) languages, such as Hindi. However, the latest versions being developed or updated for DSM-5 and ICD-11 should be promptly translated into native languages to ensure widespread usability. Despite their value, some obstacles hinder the full adoption of these tools in the clinical and research settings, particularly in low- and middle-income countries like India. Challenges include the licensing costs of certain tools and their lack of validation within specific contexts. To address these issues, future research endeavours should aim to develop diagnostic schedules in native languages, enhancing user-friendliness and focusing on establishing their psychometric properties.

Rating scales for mood disorder **121**
Arghya Pal, Pawan Sharma, Arpit Parmar

Mood disorders are amongst the more prevalent psychiatric disorders which contribute significantly to the disability adjusted life years arising from psychiatric disorders. It is imperative to state that prompt and appropriate management of the disorders can be very helpful in assuaging the effects of these disorders. Rating scales should be considered as a very important tool in the proper management of these disorders. In our review we could identify considerable number of tools that are available for the management of mood disorders (depressive disorders and bipolar disorders) and also tools catering to the special populations with mood disorders. Some of the tools have been translated to Indian languages, whereas significant others have not been used in Indian context. We could also observe popularity of a few tools amongst researchers as compared to others. The lacunae of the existing literature have been highlighted.

Rating scales in schizophrenia and other psychotic disorders **159**
Vijaya Raghavan, Subhashini Gopal, Shruti Rao

Schizophrenia, a profoundly debilitating mental ailment with significant morbidity and mortality impacts, profoundly disrupts various aspects of an individual's functioning. The subjective nature of the schizophrenia experience poses considerable challenges in its identification, evaluation, and treatment. To address this, specialized rating scales were devised to gauge functionality, symptomatology, and the efficacy of interventions on affected individuals. These scales serve distinct purposes in assessing diverse needs linked to psychotic disorders, including schizophrenia. However, the evolution of mental health perception over time has led to the adaptation of these scales to align with current societal demands. The extensive array of available scales globally complicates the task of mental health professionals in selecting the most appropriate ones. The development of numerical assessment tools for subjective elements like thoughts and emotions

Rating scales in anxiety and somatoform disorders **184**
Harkishan Mamtani, Shivraj Phurailatpam, Geetha Desai

Anxiety and somatoform disorders are commonly encountered mental disorders, as noted by their high prevalence in both hospital-based and community studies. Scales can be an essential means to evaluate these disorders in clinical and research settings. The scales available for anxiety disorders can be broadly classified into non-specific interview schedules, scales for general anxiety symptoms, scales for specific anxiety disorders, and scales for anxiety in special populations. Similarly, the scales for somatoform disorders can be grouped into non-specific interview schedules, specific scales for somatoform disorders, and scales for somatic symptoms. Future research should focus on validating many of these scales in the Indian setting due to the culture-specific variations in anxiety and somatic symptoms.

Rating scales for suicidal behaviour, violence and aggression **213**
Kathleen Anne Mathew, Miriyam Joseph, Priya Sreedaran

Structured rating scales help obtain measurements of risk of harm to self and others. Assessments for suicide risk could refer to general and specific assessments. General assessments comprise of appraisal of risk as part of diagnostic tools like MINI diagnostic interview or disorder specific evaluations like PHQ-9 for depression. Specific assessments focus on suicide risk variables like suicidal ideation. Such scales include Columbia Suicide Severity Rating Scale which provide overall measures for suicidality. Other specific scales include Beck's Scale for Suicide Ideation that measure self-reported suicidal intent. Scales for suicide risk also include those that determine severity of suicide attempt and likelihood of rescue amongst others. Scales for variables like hopelessness that predict future suicide are also relevant in risk assessment. Scales are relevant to special populations, factors, demographic and other variables while estimating risk. Rating scales for aggression focus on prediction of aggression as well determination of its severity. These scales could be part of clinical as well as forensic evaluations. Structured assessment of risk of harm to self and others could prevent psychiatric emergencies by timely predictions.

Rating scales for personality disorders **235**
Manjula M, Apoorva Shrivastava, Tavleen Kohli

Personality disorders (PD) are a set of chronic mental health conditions having an early onset. The assessment personality disorders are fraught with a number of challenges owing to heterogeneity of clinical presentation, multiple co-morbidities with first and second axis conditions, need for multiple sources of information; lack of clarity with respect to the diagnostic approach and culturally relevant tools. The chapter is limited to reviewing diagnostic and screening tools, the scales assessing severity, traits and functioning in adult clients. There are a number of scales specific to diagnostic categories, however, we have limited the coverage to those scales which can be used across the PDs and briefly mentioned the disorder specific scales. There is extensive literature on the psychosocial causal factors at least for a few personality disorders. However, the chapter does not look into the assessment of causal/vulnerability factors. An attempt is made to look into the adaptations if any to our cultural context. There is a need for taking a developmental (life span) approach to assessment of PD for a better understanding of the diagnosis. Overall, there is a long way to go to fill the gaps in assessment of PD.

Rating scales in child psychiatry **263**
Alka A Subramanyam, Megha Desai, Rashmi Singh

This chapter comprises a brief introduction of commonly used scales in child and adolescent psychiatry, which are imperative since children and adolescents may not be able to articulate their problems through the usual mental status examination. The introduction of each scale includes a brief description, the reliability, validity, administration time and the purpose of the scale. Scales in child and adolescent

psychiatry are important as they can be used to measure the symptoms quantitatively, to screen for pathology and to diagnose sometimes; particularly. They can also be sometimes used to assess the response to treatment. The chapter highlights the broad spectrum of rating scales available, encompassing diverse domains such as behaviour, emotions, social interactions, along with disability assessment, highlighting indigenous Indian Scales as well. By utilising these scales, clinicians can achieve a more comprehensive understanding of a child or adolescent's mental well-being, facilitating accurate diagnosis and informed treatment planning. Overall, the chapter underscores the indispensable role of rating scales in child and adolescent psychiatry, providing clinicians with valuable insights for promoting effective mental health evaluation and intervention strategies in this vulnerable population.

Rating scales in geriatric psychiatry **297**
Sridhar Vaitheswaran, Anusha Kumar, Subashini Sargunan

While many scales are available for use in geriatric psychiatry, both in clinical settings and for research purposes, choosing the most appropriate one can be challenging. Rating scales specifically designed for use in the elderly should be preferred rather than those developed for the younger adult population, as the elderly often have varied issues, such as changes in cognition, functionality, behaviour, mood, quality of life, and caregiver burden. The scales used in the younger population may not be sensitive enough to identify them. We searched the available literature for the commonly used scales in geriatric psychiatry in India. We have highlighted those that are validated for use in India. The key points are summarised in a table.

Rating scales for women's mental health **309**
Pratibha Vinod, Nabagata Das, Sundarnag Ganjekar

Women's mental health is of significant concern due to their vulnerability to develop mental health issues across their lifespan. With the onset of the menstrual cycle, women are at risk of developing the premenstrual dysphoric disorder. Pregnancy and post-partum are associated with a high prevalence of depressive and anxiety spectrum disorders. Though rare, post-partum psychosis is a unique psychiatric disorder seen among the women population. Many women face bonding disturbances with their newborns with the onset of mental health issues during post-partum. The beginning of menopause predisposes women to peri-menopausal disorder. Female sexual functioning needs special attention as impairment is associated with poor quality of life. The chapter focuses on the available rating scales that can be used to systematically assess the mental health issues among women. Considering the fact that women are vulnerable at each stage of their life cycle, we adopted life cycle approach to discuss the available rating scale on women's mental health. We believe that clinicians and researchers working towards women's mental health can find appropriate rating scale for screening, assessment of clinical status or monitoring of their interventions in this chapter.

Scales in substance use disorders and behavioural addictions **339**
Venkata Lakshmi Narasimha, Santanu Nath, Shalini Kumari

Rating scales/tools find a special place in mental health assessment and management for various reasons. When used adequately with training, these tools can assist a clinician or a mental health professional with either the diagnosis, assessing severity, prognosis and treatment outcomes. In addiction psychiatry, tools used for assessment help both the healthcare worker and the person suffering from substance use disorders. These tools include screening instruments, diagnostic tools, and rating scales for evaluating the severity of various dimensions of addiction like dependence, craving, tolerance, withdrawal symptoms etc. They also provide essential guidance for designing effective interventions. Beyond their clinical role, these tools find utility in research endeavours and facilitating referral services. A knowledge of these tools in addiction psychiatry is needed to understand the appropriateness of their use in specific clinical contexts and the ways to use them. This chapter extensively delves into the array of scales employed for screening, diagnosis, and assessing withdrawal symptom severity, primarily focusing on substances like alcohol, tobacco, and opioids. The discussion also encompasses scales used for cannabis, stimulants, benzodiazepines, behavioural addictions and assessment of functioning and motivation among people with substance use disorder. Through their systematic and standardised approach, rating scales enhance diagnostic precision and treatment planning and advance our understanding of addiction-related issues.

Rating scales for sexuality and sexual functioning **392**
B. Shailaja, M. Ardhanaari, M. Vishnu Vardhan

In the last few decades, psychosexual medicine and our understanding of the different kinds of sexual problems have come a long way. Sexual dysfunctions now have their own chapter in the new ICD-11, which is called "Conditions Related to Sexual Health." (17th Chapter) In recent years, there has been a growing interest in the development of rating instruments to assess various aspects of sexuality and sexual dysfunction. This chapter focuses on rating scales available for assessing and rating various sexual dysfunctions according to the DSM-5 classification of sexual disorders: hypoactive sexual desire disorder, erectile disorders, orgasmic disorders, ejaculatory disorders, substance or medication-induced sexual dysfunction, vaginismus, and Dhat syndrome. Also covered are scales that examine several aspects of sexual orientation, sexual pleasure, and quality of life. Sexual dysfunctions are explained based on gender differences to facilitate comprehension and application by all readers.

Rating scales for quality of life and general functioning
Anusa AM, Anandakrishnakumar S, Sivaprakash B **410**

Quantifying or qualitatively measuring function and Quality of Life is a practical, straightforward technique to forecast a patient's real-life function. Quality of life (QOL) and general functioning are important aspects of an individual’s overall well-

being. Rating scales are commonly used to assess these factors, providing a standardized and objective measure of an individual's perception of their position in life. There are several rating scales available for measuring QOL and general functioning, including the World Health Organization Quality of Life-BREF (WHOQOL-BREF) scale and the Global Assessment of Functioning (GAF) scale. These scales are designed to assess various domains, including health, physical functioning, social relationships, and personal circumstances. The results of these assessments can provide valuable insights into an individual's overall well-being and can be used to guide interventions aimed at improving their quality of life and general functioning. It is important to note that the selection of the most appropriate rating scale may vary depending on the individual and the specific context in which it is being used.

Rating scales for adverse effects of medications **429**
Seshadri Sekhar Chatterjee, Amrita Chakraborti

Scales provide structured ways to assess a range of adverse effects, covering physical, cognitive, and emotional symptoms. By enabling consistent and organized evaluation, these tools help in identifying and recording medication-related side effects. The chapter emphasizes the importance of these rating scales in early detection, personalized interventions, and informed decision-making in both clinical practice and research. Grasping these scales equips mental health professionals, researchers, and stakeholders with vital instruments to navigate the complexities of assessing adverse effects, leading to improved patient safety and enhanced care within psychopharmacology. This chapter offers a brief overview of rating scales designed to measure adverse effects caused by psychotropic medications.

Assessment in forensic psychiatry: Criminal responsibility, fitness to stand trial
Sunil Kumar G. Patil, Mahesh R. Gowda, Neha V Mattikoppa **447**

Field of forensic psychiatry in India is slowly evolving despite dearth of research materials. Mental health specialists must frequently visit court as experts to testify due to their interaction with law. Lack of objective tests in forensic psychology leads to differences of opinion among practitioners. With creation of objective scales used for assessment, there have been some changes in Western countries. There are various challenges in assessment of patients in forensic psychiatry in India due to multicultural background and diversity. In Indian law, concept of criminal responsibility was introduced based on McNaughton's Rules, even now there are difficulties in assessment of criminal responsibility. If a person with mental disease is found guilty and uses the insanity defense, they may not receive punishment but are instead confined to mental health facility for treatment. Determining whether defendant is fit to stand trial or not requires consideration of several factors, and the presence of a mental illness is one of them. Reversibility is capacity to regain one's eligibility to testify at a subsequent hearing, whereas irreversibility is impossibility of doing. Even though no specific format is available in India, reversibility certification

must provide enough information, such as an estimate of the time required for restoration within reasonable time frame.

Rating scales in telepsychiatry: Issues and challenges **464**

Gajanan Ganapati Sabhahit, Nileswar Das, Naveen Kumar C

Technological advances, easy access to the internet, an increase in public awareness and the aftermath of the COVID-19 pandemic have increased the use of telepsychiatry in clinical practices. Telepsychiatry consultations are not only time and cost-saving; individuals in need can also widely access them. Rating scales are essential tools for objective assessments in psychiatry, both in face-to-face and online interviews. Research has shown that tele-psychiatric use of rating scale is comparable with face-to-face application. Additionally, rating scales in telepsychiatry can be applied in synchronous and asynchronous modes. However, the application of rating scales in telepsychiatry has its own limitations and challenges. Complexities in technology and the inability to perform a physical examination are the two most prominent limitations in applying rating scales in telepsychiatry. Maintaining patient privacy and data security is another critical challenge owing to the use of third-party applications and software. Transmitting sensitive mental health information electronically demands robust encryption and adherence to stringent privacy regulations to prevent unauthorized access. Furthermore, cultural and linguistic nuances may influence the interpretation and relevance of rating scales in diverse populations, necessitating careful consideration and adaptation of these tools. In future, the use of rating scales in psychiatry needs more research on adaptation in Indian setting. Inter-sectoral coordination between clinical care service delivery, technology, law and policymaking will be necessary to achieve the desired goal. With this, a paradigm shift can be expected in the days to come in the use of rating scales in telepsychiatry in India as well as in other parts of the world.

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Chapter 1

IN DEFENCE OF RATING SCALES

Rajshekhar Bipeta. MBBS,DPM,DNB*[1], **Vikas Menon.**MD[2], **Sandeep Grover.**MD[3]

Take Home Message

- Rating scales are essential tools in psychiatry for evaluating symptoms, diagnosing illnesses, and predicting outcomes. However, they can be challenging to use owing to time constraints, uncertainty surrounding which scale to use, and differing perceptions about their utility.
- Use of rating scales enhance professional skills, confirm psychopathology inquiries, aid diagnostic assessment, and enable rating symptoms over time.
- Psychiatrists should be judicious when selecting questionnaires and scales for clinical and research use.

Introduction:

Psychiatry has often been chastised for not giving objective metrics like its fellow medical professions. The rating scale is "an instrument that is used to assign scores to people or items along some numerical dimension, such as agreement with an attitude statement or frequency of occurrence".[1] Rating scales have become the de facto means of evaluation, screening, diagnosis, instituting various treatments, prognostication, and verification in the absence of clinical biomarkers. An ideal rating scale is an objective, dependable, accurate, standardized instrument validated on the population it is intended to serve. In principle, psychiatric rating scales are meant to aid mental health professionals in exploring symptoms, diagnosing mental illnesses, measuring severity, taking treatment decisions, estimating improvement, and predicting the prognosis and outcome. The rating scales also provide a framework for adequate assessment coverage, provide consistency, and minimize personal bias of ascertaining few symptoms and leaving out other features.

In mental health, rating scales and assessment schedules are important tools in the hands of qualified psychiatrists, clinical psychologists, and other mental health professionals. However, there has been much disillusionment, as evident in day-to-day practice. The reasons could be many, for example, lack of exposure during postgraduate training and lack of faith in the utility of rating scales. Trainees and qualified psychiatrists often resist rating scales primarily because of time constraints, a lack of knowledge about the proper scale to use, uncertainty about whether

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these measures reflect patients' complaints or change, and a perception that rating scales are to be used only in research settings. However, those who have been using various rating scales after adequate training, and exposure, vouch for their use in routine clinical practice too. We will briefly discuss these issues.

The utility of rating scales

Measurement-based assessment and outcomes are being increasingly recommended in mental health. Mental health assessment is prone to much subjectivity, leading to stakeholder disagreement. It aids in gathering data on qualitative and quantitative aspects. Assessment at baseline (severity) and during the follow-ups (improvement) would give objective evidence to the patients, caregivers, other colleagues (mental health professionals and non-psychiatrists), and the legal system (Hon'ble Judiciary). These are objective data to support the decisions during legal proceedings. It is straightforward and effortless for both the clinician and the patient. It only consumes a small amount of the participants' time. Patient-reported outcomes (PROs) are indicators of patients' opinions of the influence of an illness and its treatment(s) that are frequently provided through a questionnaire.[2] The rating scale is a crucial aspect that determines the measuring qualities of a patient-reported outcome (PRO) tool.[3] The USFDA has also validated PROs as major clinical trial outcomes because of the premise that such clinical trials eventually determine patient treatment.[4]

Rating scales can effectively augment professional skills by confirming that all essential psychopathology inquiries are made, the existence of a condition is recognized, and its extent is quantified. Further, it can help assess response to clinical interventions and delineate illness trajectory across time. For each symptom, we could get detailed information on a rating scale to help plan treatment or select medications (Table 1); this is often lacking in conventional classificatory systems.

Let us consider an instrument named Hamilton Depression Rating Scale (HDRS),[5] and compare the same with the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) criteria,[6] for major depressive disorder (Table 1). As is evident from table 1, HDRS not only covers all the symptoms of depression but also provides information about the presence of certain other symptoms, such as anxiety (that could be comorbid or be part of depression), that can influence treatment decisions about the use of concomitant benzodiazepines. Similarly, having a granular understanding of the nature of sleep disturbance (onset, maintenance or early morning awakening) can assist in selecting antidepressants per se or the type of sedative to be used in the patient. The same may be true for understanding the severity of appetite disturbances. Thus, the HDRS includes items judged on a 3- or 5-point scale, with the total score determined by the sum of all items. Descriptive "operational criteria" (i.e., anchor points) for gauging each item have been explicitly provided to describe that aspect of depression; this has significant clinical and treatment implications. The questionnaire comes with a structured interview guide.[7] To further enhance the utility of HDRS, Rohan et al.[8] recommend using a protocol for depression assessment and research since it encompasses a wider array of symptoms of depression, including atypical symptoms. They also suggest that practising clinicians use it to train staff to assess patient outcomes with treatment.

Table-1: Comparison of Hamilton Depression Rating Scale (HDRS) and Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) criteria of depression

***HDRS** [5]	**DSM-5**[6]	**Remark**
Depressed mood: The anchor points range from gloomy attitude, pessimism about the future, sadness, tendency to weep.	Depressed mood as evidenced by internal experiences or observations made by someone else (irritable mood in children and teenagers).	-
Feelings of guilt: Ranges from self-criticism, guilt-related ideas, delusions or hallucinations	A feeling of unworthiness or exaggerated, unwarranted, or delusional remorse (not just self-pity or remorse at being unwell)	-
Suicide: Ranges from feeling like life is not worthy; desires he ended up dead; suicidal thoughts, gestures or attempts.	Frequent ideas of death (not merely dreading death), suicidal thoughts or attempted suicide.	-
Insomnia – Initial: Inability to fall asleep; rates frequency	Sleep problems (insomnia or hypersomnia).	Short-acting benzodiazepines, such as lorazepam or eszopiclone, would help.
Insomnia – Middle: During the night, he is restless and disturbed. Awakening up in the middle of the night. Rates frequency.		Longer-acting benzodiazepines, such as clonazepam, or zolpidem, could be preferred.
Insomnia–Delayed: Awakening up in the early morning hours with no way to sleep again. Rates frequency		
Work and interests: Varies from feelings of lack of ability; diminished interest in leisure pursuits; reduced social initiatives; lower productivity; incapability to work; stopped working due to a current illness	A lack of interest or enjoyment in practically all pursuits, as experienced by the individual or perceived by others. Reduced capacity to think, focus, or decide things evidenced by a patient's perspective or observed by others.	-
Retardation: Ranges from apathy, sluggishness of thought, speech, and activity to stupor	Psychomotor alterations (agitation or retardation) that are noticeable to others.	
Agitation: Rates frequency		

Anxiety – psychic Range: feeling tensed, fretting about trivial issues, fears, sceptical attitude	mentioned as a specifier	The DSM-5 does not specifically describe this
Anxiety – somatic: dyspepsia, palpitation, headaches, respiratory and genito-urinary concerns. Rates frequency	mentioned as a specifier	The DSM-5 does not specifically describe this
Somatic symptoms – Gastrointestinal: Constipation, diminished appetite, and a bloated sensation in the abdomen. Rates frequency	-	No mention in DSM-5
Somatic symptoms –General: Heaviness in the body parts, generalized backache, tiredness and fatigue. Rates frequency	Exhaustion, lethargy, a lack of energy, or reduced efficacy with which ordinary chores are accomplished.	
Genital symptoms: Loss of sex drive, menstrual irregularities.-Rates frequency	-	No mention in DSM-5 (recheck there should be some mention)
Hypochondriasis: excess concern with health, repeated bodily complaints, hypochondriacal delusions	-	No mention in DSM-5
Loss of weight: either a OR b: a.*patient's report*: Nil, probable, or definite b.*weekly assessment*: ranges from less than 1 lb to more than 2 lb loss within a week.	Substantial (greater than 5 percent in a month) unplanned weight gain/loss or appetite reduction/increase (in children, inability to acquire weight as anticipated).	
Insight	-	No mention in DSM-5
Diurnal variation: When are the complaints worse; morning or evening. Rates frequency	-	No mention in DSM-5
Depersonalization and derealization: Thoughts of unreality and nihilism. Rates frequency	-	No mention in DSM-5
Paranoid symptoms: suspicions, referential ideas, delusions or hallucinations	mentioned as a specifier in DSM-5	-

Obsessional symptoms Rates frequency	-	No mention in DSM-5

**The readers are advised to refer to the full HDRS tool which is in the public domain.*

Conclusion:

Diagnostic assessment tools are vital in research and clinical decision-making by enhancing accuracy and comprehensiveness. However, the psychiatrist should be cautious while selecting the questionnaire and scales for clinical and research use. We advocate that psychiatrists undergo adequate training and incorporate these assessments in routine clinical practice because they may help with clinical decision-making, especially in forensic contexts. However, these should not be considered a substitute for a good diagnostic and clinical interview.

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Chapter 2

INTRODUCTION TO RATING SCALES: BACKGROUND, CONCEPT, CONTROVERSIES

Shobit Garg [1*] , Sangha Mitra Godi [2] , Sai Krishna Tikka [3]

Take Home Message

- Rating scales as a measurement tool help to quantify the variables.
- Purpose of rating scale is to supplement clinical interviews for screening and diagnosing.
- Rating scales are flexible, time saving and easy to use but training is required for some scales.
- It links the experience with evidence based medicine and research in precision psychiatry.

INTRODUCTION

History and Evolution

Sir Francis Galton, in 1883, found that "different persons have different degrees of vividness in recalling familiar scenes in the form of mental pictures".[1]In his enquiry, he posed certain questions to the participants to which they had to submit their subjective responses. Anecdotally, this formed the first instance of the use of a rating scale to study mental imagery.[2] However, the practical use of rating scales came into force during the second world war for selection of personnel based on recording of behaviour and skills.[2,3] The popularly and commonly used response pattern i.e. Likert (named after Rensis Likert) scale, where the responses are scored in the form of a bipolar (high to low, through neutral) range, also originated just before the second world war, in the early 1930's.[4] 'Measurement' has become a routine and an important part of health care practice in the last 7 decades or so. Measurement in mental health has a distinction that most entities measured are subjective experiences or theoretical constructs, which cannot be directly assessed. And therefore, rating scales, which confer an indirect quantification by inferring from patterns of behaviour, become quite crucial. Till date, numerous rating scales, especially in the field of mental health, have been developed for clinical purposes. Today, we assume >90% of the clinical research uses some or the other rating scales.

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Concept, Definition and Classification

Assessment in psychiatry and other mental health professions is primarily based on subjective experiences and therefore mostly rely on rating scales. There are multiple benefits of using rating scales in clinical practice. These include:

1. Systematic way of determining illness which includes screening and diagnosing. Prevents missing out on certain domains.
2. Assessment of severity of the illness that will help in treatment decisions.
3. Screening comorbidities
4. Determining treatment progress for both the clinician and the client.
5. Linking clinical practice to evidence-based medicine
6. Certification purposes

Indeed, a rating scale is a set of scales, often referred as items, that have an intrinsic relationship.[3] It is defined as a tool that assesses current and/or past behaviour and/or experience, based on list of characteristics and, in some cases, descriptions of these characteristics.[5]
Rating scales are classified based on several entities.[3]

Based on who is rating, the rating scales are classified as *'self-rated'* and *'observer-rated'*. Classical self-rated scales are Beck depression Inventory (BDI), State-Trait Anxiety Inventory (STAI), Patient Health Questionnaire (PHQ), Generalized Anxiety Disorder-7 (GAD-7) scale, etc. Classical observer-rated scales are Brief psychiatric Rating Scale (BPRS), the Positive and Negative Symptom Scale (PANSS), Hamilton Depression Rating Scale (HDRS) Yale-Brown Obsessive Compulsive Scale (YBOCS) etc. The observer may be a *skilled* professional such as a psychiatrist or a psychologist or a psychiatric social worker or a psychiatric nurse, or *semi-skilled* such as a multipurpose health worker or an accredited social health activist (ASHA), etc., or *unskilled* such as a relative of the patient. The response on the observer rated scales can be obtained from structured, semi-structured or free interviews. Observer-rated scales require systematic behavioural analysis using a "fixed set of categories to classify the quantity and type of various forms of behaviour occurring during a fixed observation frame" i.e some of the observer rated scales need training to apply a rating scale.[5]

There is a subtle difference between observer-rated scales and *objective* scales. Objective scales assess "reactions to standardized or fixed stimulus material".[5] Cognitive function tests such as the Mini-mental state examination (MMSE) is a classic example of an objective test.

Based on the response patterns, they are classified as *checklists*, where the response is binomial i.e., present or absent/yes or no and *graded* scales where the response is recorded to grade degrees of severity or relevance. The graded scales can be *unipolar* i.e. starting from "absent to mild to moderate to severe" or (such as the PANSS and YBOCS) or from "not at all to nearly every day" (such as PHQ-9), or *bipolar* that often use the Likert pattern such as the Brown Assessment of Beliefs Scale (BABS) where the response pattern ranges from "Completely convinced beliefs are false" to "Completely convinced about the reality of held beliefs"; The Likert balances on the middle option i.e., "may or may not be true". In some scales, the response pattern prompts you to

choose the most applicable of the two alternatives such as true/false, without having a gradation or an option such as 'may be', such type of scales are called *forced-choice* scales. Nominal i.e. categorical patterns may also be used in rating scales. *Visual analogue scales* are also kind of graded scales. Most checklists are used as *screening* tools. Screening scales can also be self-rated scales. Observer rated screeners generally seek rating from either relatives, teachers (ACTeRS for ADHD; Disruptive Behavior Disorders Rating Scale for screening ADHD, ODD and Conduct disorder; Swanson, Nolan and Pelham Teacher and Parent Rating Scale for ADHD) etc.

According to their function, the scales can be classified as: *intensity scales, prognostic scales, scales for differential selection* and *diagnostic/classification scales*. The naming explains their function. Intensity scales measure entities such as severity of illness and illness domains(PANSS for schizophrenia and HAM-D for depression), severity of side-effects(Simpson Angus Scale for Extrapyramidal symptoms), response to treatment etc.

The scales are also classified based on the disorder, condition or the symptom domains they assess.

As the scales are of various types, the choice of scale to be chosen for a particular reason- clinical or research depends on the psychometric properties of that scale. Rating scales must meet the following psychometric quality criteria:[5]

1. Reliability: The same result must be obtained with repeated measurements using that particular scale.
2. Validity: Results obtained must infer the entity that was intended to assess.
3. Objectivity (for observer-rated scales): Results of assessment using a particular scale should not depend on who administers the scale.
4. Norms: Availability of reference values and cut-offs for a representative sample.
5. Practicability: Required resources, such as time and staff, for administering the scales must be practically feasible.

Use of rating scales in clinical practice and in research have many advantages:[6]

1. Their administration is easy, flexible and economical. Flexibility here means that they can be administered in person, by telephone or using web-based modes**.** The fact that semi-professionals and non-professionals can also administer many of the rating scales, makes it economical and feasible in non-hospital settings.
2. Administration time usually is modest.
3. Helps as a measurement tool to quantify the variables.
4. They can be administered in various locations such as home, school or (mental) health settings and uniform data can be obtained across different populations and different settings

Scale development

There are many scales that have been developed and are being developed. While some, which have been published, may be accessible, many may not have been published or if published, might have limited access. When available, researchers must use an existing scale that has been validated. If

used in cross-cultural setting, they may translate and/or validate the same. Development of new scale is required only in certain specified conditions:[6]

- When the intended outcome measure in the scale does not meet the needs for the target population.
- When existing scales does not assesses the intended psychological construct.
- Citing societal, cultural, or generational change the existing scales have been outdated, and the novel topical issues are better captured by the new measures.
- When the translated or adapted versions does not have dimensional or psychometric stability across linguistically and culturally distinct groups
- When new research hypotheses, involving novel constructs, are proposed.

Drawbacks and Challenges

Disadvantages:

a) Informant's perspective largely determine scorings in the rating scales. Also, informant characteristics like personality, active symptoms, language of administration and contextual factors which distort the responses; response biases are the sources of dispersion in the ratings.
b) Rating scales are restricted to the structured scores for items which are standardised.
c) A relevant or important information may be missed in the evaluated as that has not been covered by the items of the scale.
d) At times, it won't be possible to explore the informant's subjective experiences and responses nor it would be possible to observe behavior directly.
e) Ambiguous answers and misunderstandings (may be clarified in a clinical interview) are missed when using questionnaires.
f) Slight changes in the wording of the items or instructions may have large effects that limit comparability
g) Educational background, reading level and faking good (or bad) profile of the individual can distort the finding on a subjective rating scale.[6]

Unambiguous wording of items and instructions can solve many of the above mentioned problems. For instance, before having a respondent complete a rating scale, we must have an indication about the respondent's reading skills.[6]

Controversies and Challenges

Despite the available advantages of rating scales applications in psychiatry with respect to its ease of use, feasibility, time efficiency and measurement efficacy, there is an increasing criticism on the greater reliance on use of rating scales.[11] The two major challenges are either overutilisation or underutilisation of the rating scales.

The choice of rating scale:

The assessment using rating scale in psychiatry is also influenced by choice of tool as many assessment tools are disorder specific, i.e when the different raters use or choose different rating scales for evaluation of patient, it might result in inconsistency or variance in diagnosis. As we are aware that description of patient experience or mental health attributes rarely fits perfectly within the defined diagnostic criteria or boundaries, and this can potentially bias the diagnosis i.e false

positives and false negatives, which can further affect the treatment choices or management decisions.[7]

Measurement and judgment errors:
Although the data from rating scales have been used intensely for quantitative or qualitative measurement of outcome attributes over almost a century, very little is known about the processes by which this data is generated by the raters. The processes involved in the data obtained from the rating scales is better understood based on both measurement theories of rating and theories of judgment process of rater.

The Egon Brunswik lens model explains the judgment process of raters involved in rating of scales that can be further affected by the various factors during assessment.[8,9] The factors include demographic, context and culture-based characteristics of population/individuals as well as the attitudes/motivations of the rater.

1. The language divide is primary barrier. Often, the language used in the rating scale and language background of the population assessed and assessor is not same. The resulting assessment scores of such rating process doesn't reflect true meaning of outcome measure rather drift from the actual scores. The experience or the training, perceptions of the assessor also affect the accuracy and fairness of the measured outcomes.[9,10]
2. The possible reasons that limit the generalisability of the scales also include cross-cultural differences in the meaning of the items or questions that varies between similar sample in different countries or sometimes different population within same country.
3. Together with social judgment theories, the measurement theories also explain how the type of scale, nature of items or constructs, order of items, labelling of items, characteristics/complexity of the rating scale etc. can affect the rating or assessment of outcomes. Sometimes the items of the scale are ambiguous, difficult to answer or complex to understand and lack reverse scoring which can limit the rating process and interpretation of the results.[8] Because of the abstract and intangible nature of mental health outcome measures compared to the physical health measures, the measurement or quantification is derived or associative measurement of latent trait rather than direct measurement.[11]
4. Often the rating scales used in clinical practice or research setting have closed ended questions where the respondents will be assigning a number or value to construct or item under evaluation based on the instructions developed. The rating scales in psychiatry are either nominal or ordinal, where one would be able to state that $a > b > c \cdots > n$ on some property, and to assign numbers that indicate rank order but nothing more. This will provide responses which are more declarative to question affecting the quality of data measured based on the type of scale used. The nominal scales will be useful only for categorical data but limited by lack of numerical properties to quantify whereas ordinal scales are limited by lack of equal distance between the options as well as numerical properties of interval scales. The choosing response based on number of options as well as nature of labels of the categories will result in choice concern leading to agreement bias i.e whether the scale use agreement vs disagreement options or descriptive and explicit statements. It seems unlikely that equal-interval scaling, or ratio scales will ever be developed for reported subjective symptoms.[12,13]

5. There is no sight of an agreement on the number and nature of dimensions required to account adequately for clinical variation. Dimensional models are too complex and cumbersome for everyday clinical practice.
6. The interpretation of the individual or summated scores is subjected to various kinds of cognitive biases of the rater who can be either a respondent or the observer.[8,12,14]

The various types of bias or errors found in rater-based assessments were enlisted in Table 1. These are the barriers that limit the validity and reliability which are often considered as the principle yardsticks of invariance measurement. Invariance measurement is one of the important constructs for standardisation of scale that assess the property of rating scale to produce similar results in different contexts, populations and cultures. So, the lack of standardisation of the scale and lack of gender specific or culture specific norms will introduce variance and affect the rating process as well as the interpretation of the results.[8] Table 2 enlists the different types of scales and their limitations.

Reliability-Validity dilemma:
The reliability/validity dilemma is another controversy that exists in the construction or utilisation of rating scales. It is an inherent inverse relationship that exists between validity and reliability where improvement in validity results in reduction in reliability and vice-versa. As the clinicians or the psychometricians concerned about statistical application often try to increase the reliability to reduce the measurement errors, the possibility of constructs/ items/content of the scale that reflect the validity of the scale might be lost, hence the relationship between reliability and validity is not always complementary.[15]

Underutilisation of rating scales:
The underutilisation of rating scales in clinical practice is also one of the commonly encountered challenges but why clinicians use rating scales less often? Some reasons enlisted include limited availability of time, ambiguity about the selection of scales, lack of knowledge, the high costs of commercially available scales, worrying whether quantitative measurement by rating scales could capture the qualitative data, belief that rating scales are useful only in research settings, lack of specific translated scales and lack of appropriate training for administration of scale. The other possible reason is low level or lack of psychometric qualities/information for most of the existing scales for the clinician to decide about the use of scale.[5,16]

Table 1: Possible biases or errors in the application or use of rating scales

Biases/ Errors	Description
Rosenthal effect	The result of the assessment is influenced by assessor's expectations.
Halo effect	The results of assessment are influenced by the rater's knowledge or overall impression of the subject based on a single positive characteristic.
Horn effect	The results of assessment are influenced by the rater's knowledge or overall impression of the subject based on a single negative characteristic.

Logical errors	The result of the assessment is influenced by assessors reporting only those detailed observations which make sense to them in the context of their theoretical and logical preconceptions.
Generosity error	The result of the assessment is influenced by the raters tendency to rate every one as average or above average on all characteristics.
Illusory superiority/ Dunning-Kruger effect	The result of assessment is influenced by subject's overestimation of their own qualities and abilities than others.
Central tendency error/bias	The results of assessment are influenced by respondents' tendency to select middle responses and avoiding outlying responses.
Acquiesce bias	The result of the assessment is influenced by tendency of respondent to agree with statement rather than disagree
Social desirability bias	The results of assessment are influenced by respondents' tendency to select responses that are viewed socially desirable by others.

Table 2: Types of scales and their limitations

Type of scale	Limitations
Nominal scale	Lack numerical property and difficult to quantify in research
Ordinal scale	Lack of equal interval and numerical property
Interval scale	Lack of baseline reference for measurement
Likert scale	Central tendency, social desirability and acquiesce bias
Dichotomous scale	Extreme responses
Self-rated scale	Social desirability, acquiesce bias, faking good, illusory superiority
Clinician rated scale	Rater/observer bias and chances of measurement error.

CONCLUSION

The effort of clinicians/researchers to quantify the qualitative measures in the field of mental health over the decades is evident in the rising number of new rating scales. This is due to the lack of definitive diagnostic tests in psychiatry and the need for research purposes. However, the purpose of rating scales is not to substitute clinical interviews or traditional mental status examinations but rather to supplement and aid in screening or diagnosis and assessment of outcome measures to make informed decisions. This should be considered by clinicians and researchers for the appropriate use of rating scales that help in achieving fair and accurate outcomes. Therefore, the use of the right scale in the right population for the right purpose or problem in the right context and culture is what might be needed that promises the newly evolving era of precision/personalized psychiatry rather than sacrificing the usefulness of rating scales by conforming to the Procrustean bed.

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Chapter 3

DEVELOPMENT AND VALIDATION OF SUMMATED RATING SCALES

Immanuel Thomas, Ph.D.

Take Home Message:

- Rating scales are used to make interval-level quantification of psychological variables through subjective assessment.
- Reliability and validity of rating scales depend on the clarity of conceptualization of the variable being measured.
- 'Construct validity' is the most fundamental kind of validity in psychological assessments since the validity of a tool and validity of a study presupposes the validity of the construct being measured.
- Since total scores on a rating scale are obtained by summing item scores, it is necessary to ensure that the items that constitute the scale are homogenous and belong to a unidimensional concept.
- The raw scores obtained using rating scales can be used in research to find out relationships among variables and differences among groups. But the interpretation of individual scores in a clinical setting calls for the use of properly developed norms.
- In special situations where the rating scales relate to clinically significant entities, the ROC curve analysis can be used to find an optimal cut-off value in the score continuum that help in diagnostic decisions.

Introduction

Conceptual issues in psychological measurement

Measurement or quantification of variables is considered very important in scientific research since it enables the collection and analysis of empirical data needed to reveal the complex interrelationships that may exist among the variables. Measurement implies the existence of an observable entity that is subjected to quantification. As such, measurement does not involve any conceptual issues in physical and biological sciences since they deal with observable entities. It may be seen that two different but related issues are involved in the quantitative assessment of

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theoretical constructs. First is the issue of the validity of the construct itself (i.e., whether the conceived entity is well formulated and exists in reality or whether they exist only in the mind of the researcher) and the second is the issue of assessment of the construct using reliable and valid indicators.[1] Standardized psychometric tools are expected to handle these issues rather effectively.

Nature of Psychological variables and the different measurement approaches

Measurement in psychology is aimed at assessing individual differences in psychological/subjective characteristics like mental states, attitudes, temperaments and aptitudes. There exists considerable variation in the nature of psychological variables subjected to measurement, and the measurement approaches also vary accordingly. One of the important dimensions in which psychological attributes vary is the level of abstraction involved. Some attributes are believed to have a biological basis and are often inherited and remain relatively stable over time. Variables like general mental ability and aptitudes belong to this category. On the other hand, some other attributes are less substantive in the sense that they are less stable, acquired through one's experience, exist more in the 'mental' realm, and lack any structural or biological basis. Almost all of the personality characteristics of individuals belong to this category. Measurement approaches to these two categories of variables are understandably different. For example, ability tests (e.g., intelligence, aptitude, academic achievement, neuropsychological functions) make use of timed tests to find correct answers or solve problems, while personality tests (e.g., self-concept, motivation, attitudes, adjustment) make use of scales in varied formats (like summated rating scales, check-lists, and forced choice ratings) that are not timed and does not involve right or wrong answers. In addition to the above two categories of variables, there are also variables relating to the state of mental health of individuals, which are suspected to have some biological/neurochemical basis. Techniques like clinical interviews, projective tests, and rating scales are employed for the assessment of such mental conditions.

In the present article, I intend to give a brief account of the different steps involved in the construction and standardization of summated rating scales for the assessment of personality variables. But before we go into that, it is important to keep in mind the concept of the hierarchy of measurement levels and the level of measurement that can be achieved using different psychometric tools.[2] This is important to appreciate the strengths and weaknesses of the approach towards the quantification of subjective mental states and to make the maximum use of such quantification by employing appropriate quantitative analysis of the data generated.

Hierarchy of measurement levels

If one examines the concept of measurement very closely, it may be seen that it involves different processes that could be hierarchically arranged in terms of precision of quantification. These include the '**Nominal Scale**' that involves the '**Identification of differences**' among different entities that help in their classification into different groups (e.g., classification as males and females); the '**Ordinal Scale**' that involves the '**grading of differences**' among elements within a group; the '**Interval Scale**' that involves the '**measurement of differences**' among elements within a group; and the '**Ratio Scale**' that involves the '**measurement of quantities'** rather than that of the differences.

In the nominal scale, numbers are used only as labels to represent qualitatively distinct groups, while in the ordinal scale, they are used for labelling as well as for hierarchically arranging the

elements within a group. In the interval and ratio scales the numbers represent actual quantities, and hence they can be subjected to all kinds of numerical analysis.

Examining the nature of quantification of variables involved in the four scales of measurement mentioned above, it may be seen that only the interval and ratio scales can be considered as quantitative approaches. Since the nominal and ordinal scales rely on subjective mental processes (concept formation in the case of nominal scales and subjective estimation in the case of ordinal scales) to achieve the classification and ordering of objects, they are qualitative. The summated rating scales represent an attempt to achieve interval-level (quantitative) measurement of psychological variables.

Characteristic features of Rating Scales

In the rating scales, respondents are requested to make a subjective assessment of selected aspects of one's feeling states, thought processes or behavioural characteristics. These assessments may be made about oneself or others. The rating scales, like other personality tests, consist of four components – Instructions, Item stem, Response format, and Test manual. It is the variations in the item stem and response format that result in different kinds of personality tests like rating scales, checklists, and forced choice ratings. A brief account of the different components of rating scales may be presented below:

Instructions:
Information regarding what is required of the respondents and how to respond to the specific items in the scale is printed at the beginning. The respondents are informed of the fact that there are no right or wrong answers to any of the questions asked, and they are encouraged to give honest responses to all of them. They are also given assurance regarding the confidentiality of the information collected. Care should be taken to avoid creating any bias in the respondents by including unnecessary statements in the instructions.

Item stem:
The stem part of an item refers to its main part, which is in the form of evaluative statements in the case of rating scales. These statements depict various aspects of the construct subjected to measurement. The stem formats of other personality tests include Questions (questionnaires), Adjectives, events, or problems (check-lists), or a Descriptive paragraph (Single item graphic rating scale).

Response format:
The response format determines the scale property of an item. For each aspect of the construct depicted in the stem part of the item, the respondent is required to make a rating on a Likert scale made up of three or more response choices orderly arranged at equal appearing intervals. Usually, these response choices depict the degree of agreement (e.g., strongly agree/ agree/ undecided/ disagree/ strongly disagree), frequency of occurrence (e.g., rarely/ occasionally/ always), or evaluative judgment (e.g., very poor/ordinary/ excellent). At the time of scoring, these response choices are given numerical weights following their ordinal position in the choice hierarchy. For example, for a 5-point Likert scale that ranges from strongly agree to strongly disagree, the choice 'strongly agree' may be given a weight of 5 and the other choices can be given progressively lower scores, resulting in a score of 1 for the response 'strongly disagree'. The weights for a negatively

worded item may be given in reverse order to ensure that all the items in a scale contribute to a meaningful total score for the scale.

Test Manual:
Information regarding the theoretical background, test development, psychometric properties of the test, table of norms, etc. are presented in the test manual.

Steps involved in the construction of a Rating Scale

The construction of rating scales, like other personality tests, involves five different stages. These include (i) Conceptualization and operational definition of the theoretical construct; (ii) Generation of the item pool and preparation of the draft scale; (iii) Item analysis and selection of items for the final scale; (iv) Establishment of reliability, and validity; and (v) Development of norms. Each of these stages may be explained in more detail in the following sections.

(i) Conceptualization and operational definition of the theoretical construct
As mentioned earlier, the measurement of abstract theoretical constructs involves the resolution of two different challenges – specification of the construct with sufficient clarity and identification of reliable and valid indicators of the construct. What this means is that unless a psychological variable is well-defined, it is not possible to develop a tool to measure it.

The proper definition of a theoretical construct involves the specification of its meaning in terms of how it is related to other concepts and in what way it differs from them. An exhaustive review of the available theoretical and empirical literature may help a researcher to arrive at an acceptable definition of a construct. In addition to a broad conceptual definition, it has to be delineated more clearly by specifying the behavioural and other indicators of the construct. This is known as the operational definition of a concept and it is very important for developing suitable items for measuring it.

Theoretical constructs vary in their complexity and dimensionality. Some constructs are relatively simple and are unidimensional, in the sense that they involve only a single prominent idea, though there can be different aspects to it (e.g., examination anxiety). Multiple items are generated to assess the different aspects and the ratings on these items are summed to get a measure of the construct. On the other hand, some other constructs (e.g., job satisfaction) are more complex and multidimensional. In such cases, it may be necessary to specify the different dimensions as subcomponents of the construct and develop subscales to assess them. The decision regarding whether to consider the different aspects of a complex concept as contributing to a single dimension or different dimensions should be made based on both theoretical considerations and empirical findings. Following the principle of scientific parsimony, one should prefer unidimensional constructs over multidimensional constructs unless research data demand a reconceptualization of the construct.

(ii) Generation of the item pool and preparation of the draft scale
The operational definition of a psychological variable and the psychometric properties of the tool used to measure it is determined by the nature and content of the items in the tool. Hence, utmost care should be taken to develop the items in a scale. The general principles followed for the development of items on a rating scale are the following:

(a) The statements should be clear, concise, unambiguous, and as concrete as possible. Each item should represent only one idea and the initial item pool is expected to cover all relevant content areas.

(b) The language used should match the reading level of the respondents. Tools standardized among college-educated respondents may not prove reliable and valid with less educated people.

(c) It is recommended to generate both positively and negatively worded items. This is necessary to control for bias due to response sets like acquiescence responding (the general tendency of a person to provide affirmative answers to items of a questionnaire, regardless of the content of the items).[3]

(d) Avoid colloquialisms, expressions and jargon and use simple plain language. The use of colloquial expressions and jargon may limit the use of the tool among a specific group of people or for a limited period.

(e) Avoid items with which almost all people will agree or disagree. This is because each item aims to assess individual differences among the respondents and response variations are essential for the purpose.

(f) Avoid the use of negative words (like 'not') to reverse the wording of an otherwise positive item. Similarly, the use of double negatives should be avoided to make a positively worded item. This kind of language may result in confusion among the respondents.

(g) Item writers should be aware of the hesitation of people to reveal the socially undesirable aspects of their personality. Because of this 'social desirability responding' bias, the respondents may tend to cover up the negative side of their personality and project instead a more socially acceptable side.[4] To control for this, care should be taken to avoid statements that are likely to elicit defensive responses from the majority of people.

A large number of items covering all the different content areas relating to the theoretical construct is prepared in line with the different considerations listed above. It may be noted here that each item in a summated rating scale is a measure of the trait or the construct under consideration. The scale construction is based on classical test theory, according to which the observed score on an item is composed of the true score of the trait and a random error component.[5] When several items are averaged, the random errors tend to cancel out and the true scores remain. Thus, increasing the number of items in a scale tends to reduce random errors and thereby increase its reliability. At the same time, too many items on a scale may make the test unwieldy and result in fatigue and boredom in the respondents. Generally, 20 to 25 items are considered optimal for measuring a unidimensional construct.[6] However, at the stage of item writing and preparation of the draft scale, it is advised to start with twice or more items than needed in the final scale. All the items in the initially generated item pool should be subjected to thorough scrutiny to select the best items representing the different content areas for inclusion in the draft scale.

(iii) Item analysis and selection of items for the final scale

The draft scale prepared as above shall be administered to a representative sample of respondents to assess the ability of the different items in the scale for assessing individual differences in the construct being measured. Two different approaches may be adopted for the purpose: (a) internal consistency among the set of items, and (b) discriminating power of the items.

Internal consistency implies that the different items in the scale measure more or less the same construct. The most popular method of assessing internal consistency is Cronbach's alpha.[7] The split-half method can also be employed for the purpose. Correlation between an item and the remaining items in the scale (item-total correlation) gives an indication of the extent to which an item shares common variance with other items in the scale. Similarly, the difference between Cronbach's alpha of the scale with and without a specific item included in the scale may help to assess the impact of the item on the internal consistency of the tool.

The researchers may decide to select an appropriate number of items (usually 20-25) having a high item-total correlation and positive impact on the alpha (i.e., reduction of alpha when the item is removed). A rule of thumb recommended by Nunnally is that Cronbach's alpha should be a minimum of 0.70 to demonstrate the internal consistency of a scale.[8] In this context, it is important to note that Cronbach's alpha is a function of both the number of items in a scale and the magnitude of inter-correlations among them. Thus it is possible to obtain high Cronbach's alpha with a large number of items having low or moderate item-total correlations or by ensuring high internal consistency among a fewer number of items. The latter is preferred over the former to increase the efficiency of a tool.

The second approach towards item analysis and item selection is based on the ability of items to discriminate between those who score high and low on the variable. This is known as Likert's method of summated ratings.[6] This method involves the identification of the 'high' and the 'low' groups based on total scores on the tool obtained by the selected sample. These groups may be identified based on percentile points (e.g., the 1st Quartile forming the low group and the 4th quartile forming the high group) or mean and SD (e.g., those scoring lower than Mean -1 SD forming the low group and higher than Mean +1 SD forming the high group). The discriminating power of an item is given by the t-value resulting from a test of significance of the difference in the mean item scores obtained by the two groups. Items that produce higher t-values have higher discriminating power and hence can be selected for inclusion in the final scale.

In addition to Cronbach's alpha and the t-tests, exploratory factor analysis may also be employed for the selection of items in a rating scale.[9] EFA is expected to be fruitful in those situations where the construct being measured is believed to be multi-dimensional and a large number of items are included in the draft scale to represent the different aspects of the complex construct. In such situations, the principal component method of factor extraction followed by an orthogonal rotation of the extracted factors may result in the identification of meaningful factors inherent in the construct. Further, it may also help to identify and remove those items having very low communalities (i.e., items which fail to get loaded on by any of the significant factors).

(iv) Establishment of reliability and validity

Standardized measurement tools in Psychology are characterized by three important features, - reliability, validity, and norms.

Reliability

In the context of measurement tools, reliability refers to the consistency of the obtained score. Since summated rating scales involve multiple items measuring the same construct, the reliability of such scales can be understood in two different ways, viz., consistency among the different items measuring the construct (internal consistency) and consistency of two different measurements obtained using the tool at two different points in time (temporal consistency). Generally, both

kinds of reliabilities are found and are reported as part of the test construction process. The most popular measure of internal consistency is Cronbach's alpha mentioned earlier in the context of item analysis. Another measure of the same is split-half reliability, which is obtained by finding the correlation between one-half of the total number of items with the other half. This split is sometimes made between odd and even-numbered items. The spearman-Brown Prophecy formula can be used to estimate the reliability of the full-length test from the correlation between two half-length tests. Assessment of reliability using different kinds of samples help to increase the generalizability of the finding.

Validity

The term 'validity' is used in the research literature in three different contexts and the approach towards assessing/establishing validity varies depending on these differing contexts.[10]

The three different contexts are (1) validity relating to a construct; (2) validity relating to a measure; and (3) validity relating to a study. It may be noted here that the concept of validity in these three contexts is hierarchically related. This is because a construct is operationalized using a measure and different measures are employed in a study. Because of this hierarchical relationship, the concept of validity is often discussed without considering the contextual differences.

(1) Validity of a construct: The issue of validity concerning a construct relates to the question of whether the construct is well-defined and well-differentiated from other similar constructs. Methods to establish the validity of a construct include proving that the measure of a construct is significantly related to other measures and constructs as predicted by theory (**convergent validity**) and proving that the measure of a construct is significantly different from other measures and constructs as predicted by theory (**discriminant validity**), which together constitute '**construct validity**' for the concept (the extent to which research findings support the larger theory based on which the concept is operationalized). Since for establishing the validity of a construct one has to depend on a measure of it, when empirical data fail to produce evidence for construct validity, it may be difficult to find out whether the failure originates from a lack of validity of the measure or lack of validity of the construct.

(2) Validity of a measure: The question of the validity of a measure includes all aspects of validity relating to a construct since a measure is an operationalization of a construct. In addition to these, a measure also brings in new issues like the relationship between the indicators of the construct (items) and the construct itself (e.g., relevance and adequacy of the items, dealt with under **face validity** and **content validity**), unidimensionality of the items (internal consistency revealed by **simple factor structure**), the relationship of the scores on the measure with criterion scores (**criterion-related validity**), etc. The measurement model part of the Structural Equation Models (**factorial validity** revealed by confirmatory factor analysis) and the Multi-trait Multi-Method Matrix are considered to lend support for both the validity of the construct and the validity of the measure.[11]

(3) Validity of a study: In addition to the necessity of ensuring the validity of concepts and tools used, the validity of a study involves issues related to (1) the ability of the study to generate output pertinent to the research objectives (issues of **internal validity** that is dealt with by appropriate research designs); and (2) the generalizability of the findings of the study (issues of **external**

validity and **ecological validity** dealt with by selection of appropriate sample and replication of the study under different settings).

(v) Development of Norms

It is a known fact that raw scores contain no information to help interpret them. At the same time, the raw scores can be used to find relationships among variables or differences among matched groups.

Interpretation of individual test scores (needed in clinical, educational, and organizational settings), calls for the use of an external frame of reference. This external frame of reference is called a "Norm". There are two different ways of using an external frame of reference to interpret individual scores, viz., identification of critical values, and rescaling of raw scores.

Identification of critical values

In academic and organizational settings where criterion-referenced tests are used to examine the acquisition of knowledge and skill, conventional criteria (e.g., 40% marks required to pass an exam) are used for decision-making. On the other hand, in a clinical setting where rating scales are used to help in diagnostic decisions, statistical procedures like the Receiver Operating Characteristic (ROC) Curve Analysis can be employed to identify an optimal critical cut-off value in the score continuum.

ROC Curve Analysis

To conduct the ROC curve analysis, one needs to have the scores on a rating scale obtained from a group of people diagnosed as having a disease condition and another matched group diagnosed as not having the disease condition using an errorless external criterion (the '**gold standard**'). This data enables one to find out the **sensitivity** (proportion of cases identified by the test score as having the disease from among those really having the disease) and also the **specificity** (proportion of cases identified by the test score as not having the disease from among those really not having the disease) relating to each score point on the rating scale. Similarly, the **Positive Predictive Value** (PPV; Proportion of cases really having the disease from among those identified by the test as having the disease) and **Negative Predictive Value** (NPV; Proportion of cases really not having the disease from among those identified by the test as not having the disease) of the scale points can also be found out using the data. A plot of 1 – specificity (false positive rate) of the score points on the x-axis and sensitivity (true positive rate) of the same score points on the y-axis is known as the ROC curve. The **Area Under the Curve** (AUC) gives an index of the discriminatory power of the test. Conventionally, AUC values of 0.90 to 1.00 is considered as Excellent, 0.80 to 0.90 as Good, 0.70 to 0.80 as Fair, 0.60 to 0.70 as Poor, and 0.50 to 0.60 as Fail.[12] By examining the ROC curve, one can identify an optimal cut-off point in the score continuum, which is the highest on the y-axis (highest sensitivity) and also the lowest on the x-axis (highest specificity). Since the sensitivity and specificity are reciprocally related, the optimal cut-off value is identified as a trade-off between the two. An illustration of the optimal cut-off value identified in an ROC curve is presented in Figure 1. It may be noted that at the selected cut-off point sensitivity is found to be 0.91 and specificity 0.78 (since 1-specificity is 0.22).

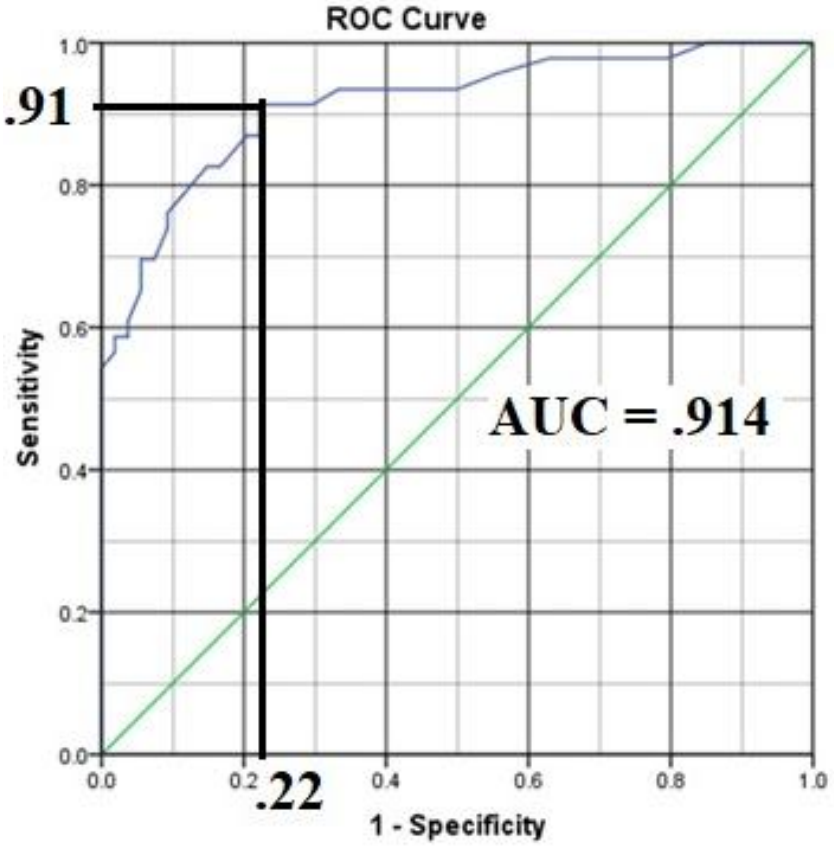

Figure 1. Illustration of optimal cut-off point in an ROC curve

A 2 X 2 cross-tabulation of cases identified as positive and negative cases of the disease condition based on the rating scale and the gold standard is helpful to summarize the concepts of sensitivity, specificity, PPV, and NPV of the rating scale (Table 1).

Table 1. Assessment of sensitivity, specificity, PPV, and NPV based on the diagnosis of a disease condition (positive vs. negative) based on the gold standard and the test scores.

	Actual (Based on the gold standard)			
Predicted (Based on test scores)		Positive	Negative	Total
	Positive	**A**	B	T3
	Negative	C	**D**	T4
	Total	T1	T2	T5

Note: Sensitivity = A/T1; Specificity = D/T2; PPV = A/T3; NPV = D/T4.

Rescaling of raw scores

In the case of variables that are normally distributed in the general population, norms are obtained by rescaling the raw scores into transformed scores. These transformed scores help to reveal the relative standing of ratees within and across groups. Test manuals provide information regarding critical values or tables that help convert the raw scores into transformed scores.

Types of Norms

Norms can be broadly classified into two categories, viz., Developmental Norms and Within Group Norms. The former is used when the attribute/performance being assessed is expected to vary within individuals as per their normal course of development. Usually, these norms are provided for infancy and childhood. Age norms and grade norms come under this category.

The Within Group Norms, on the other hand, are used when the attribute/performance being assessed is a relatively stable characteristic of an individual and is expected to vary among members of a group. The distribution of scores obtained by a normative group is used to interpret specific scores obtained by any individual. Test scores (raw scores) are converted to transformed scores to facilitate their interpretation. This transformation may be linear or non-linear. Linear transformation of scores involves the conversion of the scores in a data set into another data set having some known properties and at the same time retaining perfect correlation with the original scores. This is achieved through a process of "standardization", by which the original values are rescaled to a new data set that has a mean of zero and an SD of 1. The standardized scores are called **z-scores**, obtained using the formula $z=(X-M)/SD$, where X is a raw score, M is the mean of the scores, and SD is the standard deviation.

The z-scores can be converted to other scores for convenience by multiplying with a constant (desired new value for SD) and adding another constant (desired new value for mean). When the z-values are multiplied by 10 and added by 50, the new value is called **T-score**, having a mean of 50 and SD of 10.

In the case of non-linear transformation of scores, the raw scores are converted into new scores having a specific range, weighted by the percentage of cases getting lower scores. Popular non-linear transformed scores include **Percentile Ranks, C-scores, Sten scores, and Stanine scores**

Percentile Ranks signify the percentage of persons in the normative group who score lower. It can range from 1 to 99. The raw score corresponding to the percentile rank is known as the percentile point.

When the data is normally distributed, the difference between two adjacent percentile points in the middle region will be smaller than the same at the two endpoints. Popular percentiles include PR 25 (1st Quartile), PR 50 (Median), and PR 75 (3rd Quartile).

The **C-scores** refer to an 11-point scale ranging from 0 to 10, with a middle value of 5, while the **Sten scores** (short for 'Standard Ten') is a 10-point scale ranging from 1 to 10, with a middle value is 5.5. Similarly, the **Stanine score** (short for 'Standard Nine'), is a 9-point scale ranging from 1 to 9, with a middle value of 5.

A summary of the different steps involved in the construction of ratings scales may be given below in Table 2 to serve as a quick reference.

Table 2. Summary of the steps involved in the construction of a rating scale

Major Task	Sub-tasks	Specific Activities involved
1.Conceptualization and operational definition of the theoretical construct	Conceptual definition	1. Specifying what the concept is and how is it different from related concepts 2. Identifying the inherent dimensions
	Operational definition	Specifying how the concept can be observed/ measured
2. Generation of the item pool and preparation of the draft scale	Finalizing the format of the items and item writing	Basic principles of item writing: 1. Initial item pool should cover all content area 2. Should start with twice or more items than needed in the final scale 3. Language should be simple and match the reading level of the target population 4. Avoid colloquial and trendy language 5. Avoid items with which almost all people will agree or disagree
3. Item analysis and selection of items for the final scale	Item selection using Cronbach's alpha	Cronbach's α of the whole test may be compared with α of the test after removing each item. An increase in α after the removal of an item suggests that the item may be dropped from the final scale.
	Item selection using Likert's method	The mean scores on each item obtained by those getting high and low total scores on the scale are compared using t-tests and 20-25 items having significant and high t-values are retained in the final scale
	Item selection using EFA	Factor analysis can be done after item analysis using other methods to weed out additional items and to ensure factorial validity for the scale. Factor analysis helps to identify and remove items which fail to load highly on any of the meaningful factors.
4. Establishment of reliability and validity	Reliability	1. Temporal consistency (Test re-test reliability) 2. Internal consistency (Split-half reliability, Cronbach's Alpha)
	Validity	1. Validity relating to a concept (Construct validity) 2. Validity relating to a measure (face validity, content validity, criterion-related validity, factorial validity) 3. Validity relating to a study (internal validity, external validity, and ecological validity)
5. Development of Norms	Criterion-referenced tests	Conventional criteria (like 50% marks for a pass) or ROC curve analysis (in clinical settings) can be employed for decision-making.
	Norm-referenced tests	The distribution of scores obtained by a normative group is used to interpret the scores obtained by any individual. The raw scores are converted to transformed scores to facilitate their interpretation. This transformation may be linear (e.g., z-scores) or non-linear (e.g., percentiles)

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Chapter 4

TRANSLATING AND ADAPTING A RATING SCALE: CONSIDERATIONS AND STRATEGIES

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TAKE HOME MESSAGE BOX

- Translation and adaptation are a very important for use a particular tool in a different language and culture
- Although there are many guidelines that exist for translation and adaptation, there is variability in their application
- We suggest a 10-step process that includes:
    - Tool selection
    - Permission for use
    - Selection of qualified translators
    - Understanding linguistic cross-cultural equivalence
    - Forward translation
    - Review and synthesis of preliminary forward translated versions
    - Back translation
    - Synthesis of pre-final version of the translated version
    - Cognitive debriefing
    - Quantitative linguistic equivalence
    - Practical challenges in translation and adaptation of a tool are- time at disposal, funding options, availability of qualified translators, bilingual subjects and a large sample for data collection and importantly a lack of awareness among clinicians regarding the need for implementation of various processes.

INTRODUCTION

The best possible way to understand a person's behaviour and emotions is an in-depth interaction over a period of time. But person's self-report about psychological experiences, emotions, cognition can be confusing, non-specific and jargon filled. Hence, rating scales form an important part of psychiatric assessment from time to time. They help in probing/enumerating

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symptoms, screening or diagnosing psychiatric disorders, assessing the severity, quantifying the improvement and help clinicians in prognosticating cases. Rating scales also aid in improving the ease and speed of gathering, comparing and differentiating data. Beyond all these clinical uses, they serve as important tools for research all over the world.

Cross-cultural research is expanding in psychiatry. For a scale to be used in different populations of varying geographic, linguistic and cultural backgrounds it must have good psychometric properties for that specific target population. Because of the diversity existing worldwide, the rating scales must be tailored as per the local needs/norms/cultural practices. Cross cultural research is only possible when the rating scales are validated in that particular geographical location. This is achieved by 'translating' the scale into the local language or 'adapting' few items of the scale as per the needs of the population. 'Translation' and 'adaptation' therefore are essential for enhancing the validity and generalization in cross-cultural research. This process of translation, adaptation and cross-cultural validation of the rating scales needs to be done in a methodical way. And, "using culturally validated measures lends greater credibility to any research".[1]

This chapter tries to provide the readers with essential considerations and strategies involved in translation and adaptation of rating scales. For the sake of simplification, the primary focus of this chapter is on rating scales for patient reported outcomes that are otherwise called as subjective rating scales. Further, we try and simplify the processes involved by anchoring the considerations, strategies and challenges to an example of a study conducted to translate and validate a research tool in a vernacular Indian Language.

TRANSLATION AND ADAPTATION

Before we understand the processes involved in "translation and adaptation", we will first have to understand the connotations that each of these terms carry. Use of an instrument or tool in a language different to that of the original one, often means use in different cultures. Therefore, translation of any instrument from one language to another, requires the translated content of the instrument to be culturally similar to the target language. This implies that "translation" essentially means "translation and adaptation" and can be used synonymously. "Translation" in its true literal sense i.e., "literal translation" is seldom useful in cross-cultural research.

However, there can be "adaptation", alone, of the same language version of an instrument for use in another culture. For example, at least three English versions the Health-Related Quality-Of-Life (HRQOL) tool have been developed- Original American version, British version and the immigrant Hispanics.[2] Although the language is English in all the three versions, the tool has been adapted to incorporate the cultural differences. Similarly, the same language tool may be adapted to be applicable for certain special populations. For example, the Insomnia Severity Index (ISI)-10 is adapted for use in war veterans.[3]

NEED FOR UNIFORM GUIDELINES ON TRANSLATION AND VALIDATION

Several guidelines exist in place for translating a psychological instrument or scale from one language to the other. Table 1 lists various important and commonly followed guidelines and mentions the steps recommended by each of the guidelines.

Table 1: Various available guidelines for translation and adaptation of tools		
Sl.no	*Guidelines*	*Steps*
1	The World Health Organization (WHO) guidelines on translation and adaptation of instruments [4]	1. Forward translation 2. Expert panel review 3. Back-translation 4. "Pre-testing and cognitive interviewing" (systematic debriefing) 5. "Final version" 6. Documentation of each step
2	International Test Commission Guidelines for translating adapting tests [5]	I) "Pre-Condition Guidelines": 1. Obtaining necessary permissions relating to the tool 2. Evaluating the overlap in definition, content of the construct and items. 3. Minimize the influence of cultural and linguistic differences II) "Test Development Guidelines" 4. Ensuring various translation and adaptation processes: "linguistic, psychological, and cultural" equivalence 5. Using "appropriate translation designs and procedures" 6. Evidence for similarity in "test instructions and item content" 7. Evidence for suitability of "item formats, rating scales, scoring categories, test conventions, modes of administration, and other procedures" 8. Pilot testing for "item analysis, reliability assessment and small-scale validity" III) "Confirmation Guidelines" 9. Selection of relevant sample of sufficient size for empirical analyses. 10. Statistical evidence for "construct equivalence, method equivalence, and item equivalence" 11. Evidence for "norms, reliability and validity of the adapted version of the test" 12. "Linking score scales from different versions of a test" IV) "Administration Guidelines" 13. Preparation of "administration materials and instructions to minimize any culture- and language-related problems" 14. Specifying "testing conditions" V) "Score Scales and Interpretation Guidelines" 15. Interpreting any group score differences" 16. Conditions for comparing scores across populations- e.g., level of invariance, etc. 17. Technical documentation of changes, if any. 18. Documentation supporting good practice for test users

3	Sousa and Rojjanasrirat's guideline [6]	1. Translation- original to target language 2. Synthesis I: "comparison of two translated versions of the instrument" 3. Blinded back-translation 4. Synthesis II: "Comparison of two back-translated versions 5. Cognitive debriefing: "pilot testing of the pre-final version of the instrument in the target language with a monolingual sample" 6. "Preliminary psychometric testing in a bilingual sample" 7. "Full psychometric testing in a sample of the target population"
4	Guidelines for Establishing Cultural Equivalency of Instruments by the Committee for Translations and Protocols International Research Diagnostic Criteria for Temporomandibular Disorders (RDC/TMD) Consortium Network [7]	Two phases: Phase I: Translation and cultural adaptation 1. "Forward-translation" 2. "Synthesis and resolution of discrepancies from 2 or more forward-translations" 3. "Back-translation" 4. "Independent review of back-translation vs source document" 5. "Revision and iterative development related to discrepancies" 6. "Consolidation of all translation and review activity into a single instrument"; 7. "Expert committee review and cultural validity revision" 8. "Construction of a pre-final instrument" 9. "Independent review of the translation process and documentation" 10. "Posting the translation "for others to contribute for Phase II. Phase II: Translation Validation and Documentation 11. "Pre-testing and instrument review" 12. "Field-testing" 13. "Instrument revision" 14. "Formal assessment" 15. "Score standardization" 16. "Validation research" 17. "Multi-national user manual"
5	Translating health status questionnaires and evaluating their quality: The International Quality of Life	1. "Forward translation" (independently for items and response choices) 2. "Review of translation" 3. "Rating of difficulty" 4. "Rating of quality" (Reconciliation of problematic items and response choices) 5. "Back translation"

	Assessment Project approach [8]	6. "Rating of equivalence"
6	Recommendations for the cross-cultural adaptation of health status measures. 2002. Toronto, Institute of Work and Health [9]	1. "Initial translation" 2. "Synthesis of these translations" 3. "Back translation" 4. "Expert committee" 5. "Test of the pre-final version" 6. "Submission and documentation"
7	ISPOR Task Force: Principles of Good Practice for the Translation and Cultural Adaptation Process for Patient-Reported Outcomes (PRO) [10]	1. "Preparation" 2. "Forward Translation" 3. "Reconciliation" 4. "Back Translation" 5. "Back Translation Review" 6. "Harmonization" 7. "Cognitive Debriefing" 8. "Review of Cognitive Debriefing Results and Finalization" 9. "Proofreading" 10. "Final Report" Sub-steps for each of the above steps: 1. "Step identification" 2. "Critical components" 3. "Rationale" 4. "Who should do this" 5. "What are the risks of not doing this"
8	Gudmundsson's Guidelines for translating and adapting psychological instruments [11]	1. Selection of instrument 2. Selection of qualified translators 3. Selection of qualified experts 4. Method of translation- back translations and independent translations 5. Method of adaptation 6. Investigating bias 7. Pilot studies 8. Validity studies

All these guidelines recommend using a 'comprehensive multistep process' for translating, adapting and cross-validating rating scales. [5,10] Although, there are variations in the number of items, with some being more comprehensive, [5] than others, [4] the core steps are essentially the same. However, it has been reported that there is "a great variation" in the use of these guidelines, in terms of the steps carried out and the quality of reporting.[6] Moreover, this process of translation, adaptation and cross-cultural validation is considered unimportant during the development of study protocols, especially in clinical research. In this chapter, we attempt to synthesize all the existing guidelines and provide uniform steps with simplified suggestions for planning each step.

EXAMPLE STUDY: TRANSLATION AND VALIDATION OF THE TELUGU VERSION OF THE COVID-19 RELATED PERCEIVED STRESS SCALE-10 (PSS-10-C) [12]

As part of a project titled "Mental Health of Frontline Healthcare Workers of Rural Telangana", one of the objectives was to assess the "perceived stress" levels due to the COVID-19 pandemic in healthcare workers in rural primary health centres of Telangana. The following procedure was followed for translating and adapting an available scale in Telugu:[12]

1. The investigators *selected* the "COVID-19 related Perceived Stress Scale (PSS-10-C)" as the tool that is most *suited* for their objective. Moreover, it was deemed better *suited* for the study as a sub-sample used for *validation* involved healthcare workers.PSS-10-C is a 10-item scale that is scored on a 5-point Likert scale (0–4). It was developed by adapting the original PSS-10 scale. It was developed in Columbia; English and Spanish *versions* were validated. PSS-10-C was not used by any Indian study.
2. *Permission* for using the tool as well as translating and validating it in Telugu was sought from the principal author, who duly allowed.
3. Four persons were *selected as qualified translators* (2 for forward translation and 1 each for review and back translation.
4. All the four translators were informed and described about *linguistic cross-cultural equivalence*.
5. "The *initial (forward) translation* was performed independently by two translation experts fluent in English and Telugu"
6. "Discrepancies were sorted out by a discussion between the translators and one of the bilingually fluent study investigators"
7. "The 'best translation' thus decided was back translated to English by another bilingual mental health professional"
8. "All three translators and the bilingually fluent study investigator were then involved in serial identity checks till the *linguistic cross-cultural equivalence* was agreed upon"
9. Cognitive debriefing on a group of Telugu speaking HCWs could not be conducted.
10. Quantitative equivalence was measured by using Haccoun's technique. Both the English and the final Telugu versions were administered to a group of 14 bilingual HCWs for "comprehensibility and inter-version correlations", which were found significant.

The tool was then administered to 323 healthcare workers for further psychometric testing. The factor structure was determined by conducting an exploratory factor analysis (EFA). Further, the translated version was assessed for internal consistency and convergent validity. Agreeable validity and reliability were thus confirmed for the Telugu translated PSS-10-C, especially in healthcare workers.

STEPS FOR TRANSLATING AND ADAPTING A TOOL

We suggest a 10-step process, which was by and large followed in the above example study, for translating and validating a rating scale. The steps can be broadly divided into three phases: Pre-translation, Translation and Pre-testing. Figure 1 shows the summary of the above 10 steps of translation and adaptation.

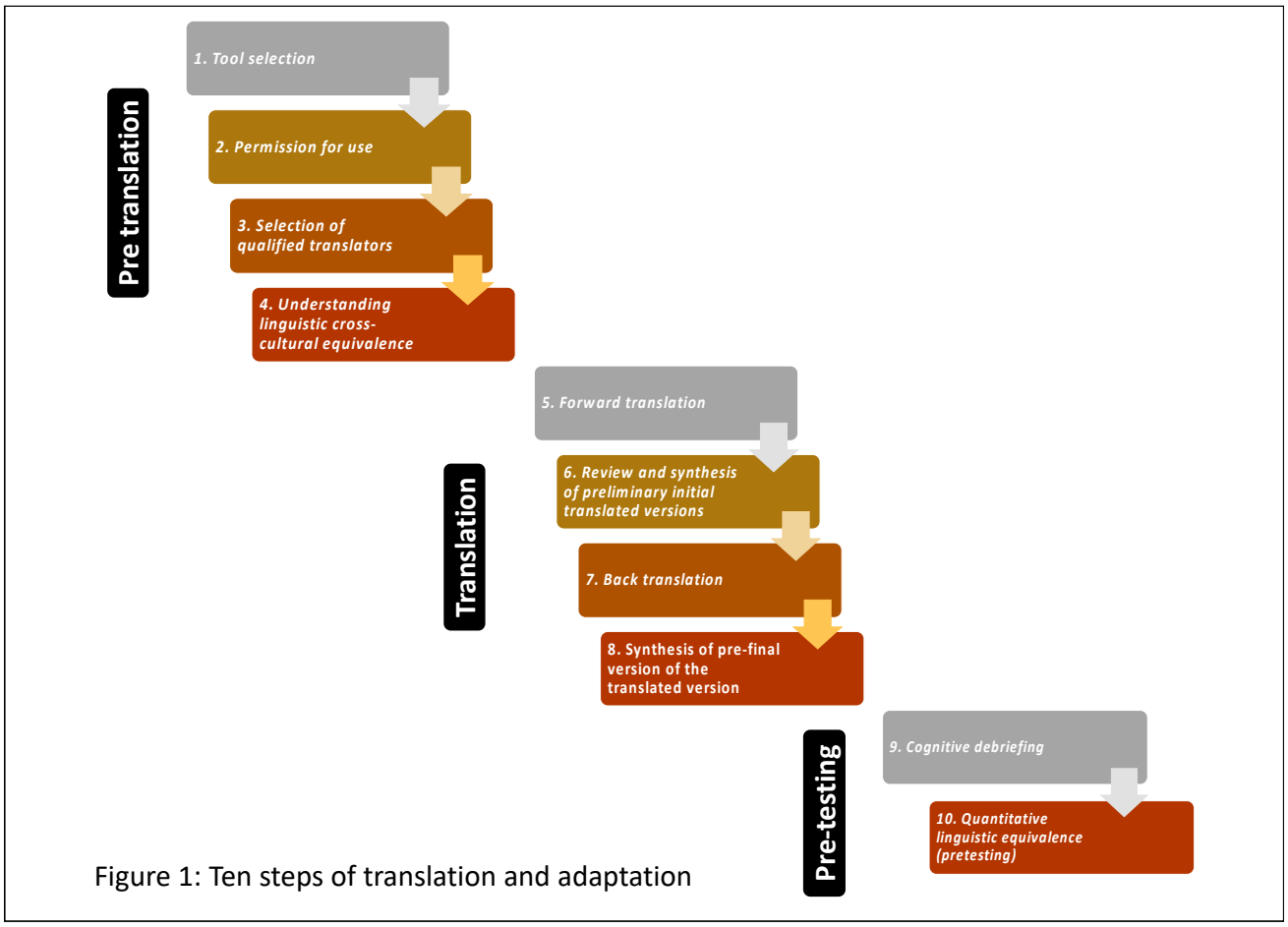

Figure 1: Ten steps of translation and adaptation

Step 1: Tool selection

The first step is to identify and select a tool that is best suited for the study's objective. The suitability depends on the following factors:

- The tool must have good validity and reliability indicators in the original/source language
- The items and their content should match the index outcome variable
- The tool has been used in a sample that is proposed for the index study
- Number of items and therefore the time taken to complete the administration should be suitable to the index study
- The tool must not have been validated in the index/target language and the index culture

Along with these factors, the investigators must also determine the languages (and also cultures) in which the tool has been validated. It is wise to choose the language version that is culturally close to the index one. Norms used in the rating scale and characteristics of the standardization sample must also be taken into account while considering a scale for translation.

Step 2: Permission for use

Once the tool is identified, the investigators have to then look for the availability of the tool. The tool may or may not be available in open access. We deem that it is important to seek permission

for translation and validation from the authors, even if the tool is available from in an open-source document. The permission can be sought through email communication. If the tool has been copyrighted, then the tool will have to be acquired through purchase.

Step 3: Selection of qualified translators

There are some guidelines where stricter prerequisites for choosing translators have been recommended. The criteria include: a university degree or courses in the primary language/translated language of an instrument, authorization/past experience/publications in translations, bilingual background, duration of stay in a country where the primary language of the selected instrument is spoken.[11] Experts who are qualified in the content and construct of the scale, statistics, data processing also need to be included as a part of the team.[11] However, availability of persons with these qualifications may be difficult. We recommend a more feasible alternative.

The selection of the translators may be made on the flowing criteria

- Fluent in both the source and target language
- Knowledgeable about its content
- Knowledgeable about the cultures of both languages

Ideally, persons fulfilling all the three criteria should be chosen. However, if one person who meets all the criteria is not available, two or three persons, each meeting one or two of the criteria can be selected.

Number of translators:

While, as many as 6 translators (2 translators each for forward translation, rating of its quality and back translation) are recommended by the International Quality of Life Assessment Project approach,[8] the Sousa and Rojjanasrirat's guideline, [6] recommends 5 translators (2 translators each for forward translation and back translation, and 1 for comparison of the two independent versions) and the WHO guidelines recommend only 2 translators (one each for forward translation and back translation), with one expert panel for review of translations.[2]In the example study, 4 translators were involved (2 independent translators performed forward translation, one for the review and 1 more for back translation). All translators were then involved in serial checks for equivalence.

Although a minimum of 3 translators/experts, as per the WHO recommendation, is be considered as a bare minimum, we suggest at least 4 translators/experts for the process of translation/adaptation. This includes 2 independent translators for forward translation (TL1 and TL2) and 1 independent translator each for review (TL3) and back translation (TL4).

Keeping pace with the technological advancement, the forward and the back translations may be done using language translation tools/softwares. Many of such tools are freely accessible. However, these tools can only be used for language translation and will not be able to adapt the language to the cultural needs. As of now, where apparently there is no algorithm that can understand the context, meaning and the culture the way a humans can, we do not suggest any translation tools or softwares. However, these softwares may be used to aid the translation processes by the translators.

Step 4: Understanding linguistic cross-cultural equivalence

The translators must be made aware of the symmetrical method of translation of rating tools, where the emphasis is on the "meaning and colloquiolness" and not merely producing a literal translated version.[4] The purpose of translating an instrument by symmetrical approach is in maintaining the different aspects of linguistic cross-cultural equivalence. Flaherty et al. (1988) [13] proposed 5 major dimensions of linguistic equivalence in cross-cultural research (Table 2). Although there seem to be significant overlap across the 5 dimensions, all 5 dimensions have been found to be 'mutually exclusive' and must be considered separately for forward translation of instruments and the subsequent steps of translation-back translation. Cross-cultural equivalence is the core element of the term "adaptation".

Table 2: Dimensions of linguistic cross-cultural equivalence [13]

Sl.no	*Dimension*	*Definition*
1	Content equivalence	"Relevance of content of each item (as well as the response options) to the phenomena of each (both) cultures is the same"
2	Semantic equivalence	"The meaning of each item (as well as the response options) is the same in both cultures"
3	Technical equivalence	"The method of assessment (paper-pencil, online, etc) is comparable with respect to the data it yields"
4	Criterion equivalence	"The interpretation of the measurement of the variable is comparable with the norm for each (both) cultures"
5	Conceptual equivalence	"The instrument is measuring the same theoretical construct in each (both) cultures"

Apart from these dimensions, additional dimensions include 'syntactical or grammatical' and 'experiential' equivalence. Syntactic equivalence refers to the way of sentence construction, which might differ based upon the language being used and is culture specific. The word order used in one language may be inappropriate when translated in the same way to another language or culture. Since the interpretation of language usually involves general knowledge, one must also consider experiential equivalence in the translation or adaptation of an instrument.

Step 5: Forward translation

The forward translation is translation of the content of the tool from its original/source language to the index/target language. Two translators, preferably with two distinct backgrounds (must be chosen for independent translation. One translator (TL1) should be familiar with the colloquial terms, idiomatic usage of terms regarding the construct of interest and the other one should have good health care knowledge, especially in the pertinent field of study (TL2). The 2 translators independently translate the items of the tool as well as the Likert scale or any other pattern for responses. The later part is a crucial, but often ignored step. Culturally accepted terms for the Likert or any other response pattern must be carefully chosen. The forward translation step results in two preliminary forward translated versions (FT1 and FT2).

Step 6: Review and synthesis of preliminary forward translated versions
A third independent, preferably bicultural translator who is also an expert in the particular field of study (TL3), will compare both the initial translation versions (FT1 and FT2). He/she will look for ambiguities, discrepancies in the items, instructions and response format of the versions, comparing them with the original/source version. TL3 may be one of the investigators and/or also take help of other investigators involved in the study for reviewing and synthesizing the initial translation versions. Linguistic cross-cultural equivalence and its component dimensions are to be assessed while finalizing the synthesized version. Based on consensus, all the three translators and other members of the research team will then generate the final, initial translated version (FTf, where 'f' stands for final).

Step 7: Back translation
One (TL3) or two more independent translators (TL3 and TL4) who is/are either native speaker/s or is/are proficient in the source language and are blind to the original/source version of the instrument are involved in back translation. They are supposed to generate two back translated versions of the scale (BT1 and BT2). The knowledge of the two translators may be variable as needed for the forward translation process. The process of back translation too has to be based on the linguistic cross-cultural equivalence.

Step 8: Synthesis of pre-final version of the translated version
The back translated version (BT) or the two back translated versions (BT1 and BT2) need to be compared with the original/source instrument. Serial identity checks for equivalence have to be done to evaluate similarity of the instructions, items and response format regarding wording, sentence structure, meaning and relevance between the BT, FT and the original/source instrument.

This process should be conducted by a multidisciplinary team comprising of one or two investigators from the index study and the translators. If, possible the developer of the original version can be included in solving the discrepancies. Steps 5 through 8 may be repeated as many times as necessary till consensus is obtained. Alternatively, only items that do not retain their original meaning are re-translated and back-translated.

If the step 8 is successful, a pre-final translated version (PF-TL) is generated that is linguistically and cross culturally equivalent.

Step 9: Cognitive debriefing
For assessment of clarity and comprehension, a sample of 10-40 monolingual (i.e., target language) subjects are taken up for cognitive debriefing. The investigators can choose any of the two methods described below. The first one is a simpler one, but the second one, a stricter one is methodologically stronger.

Method 1: Subjects are asked to rate the instrument items and the response format as either 'clear or unclear' and asked 'if unclear, give reasons'. If for any item or for the response format 20% or more rate it as unclear, then the item will have to be modified.
Method 2: The same step of method 1, i.e., asking the subjects to rate the instrument items and the response format as either 'clear or unclear' and asked 'if unclear, give reasons' is done twice. Before and after a debriefing session where each of the items are described in detail. The scores

obtained before and after the session are then compared. If he test-retest reliability is <80% for any item and or the response pattern, they need to be modified.

At the end of the Step 9, pre-final cognitively debriefed translated version (PF-CD-TL) is generated. This step was missed in the example study that was described above.

Step 10: Quantitative linguistic equivalence (pretesting)
This step is an optional one and should be conducted only when bilingual subjects are available. This step can be conducted using Haccoun's technique. [14] This technique is based on the idea that "bilingual subjects will provide equivalent responses" to items of the instrument in either language.

A sample of bilingual subjects are administered the PF-CD-TL version as well as the original/source version at two different times in a random order. Subsequently, test-retest reliability coefficients and inter-version correlation coefficients at both the time points separately and combined together are calculated. The inter-version correlation coefficients at different time points are compared between each other and with the combined set. The test-retest reliability coefficients and inter-version correlation coefficients should be significant (i.e., >0.8 and >0.5, respectively) and the between time correlations should be comparable.

When the step 10 is completed then the investigators are ready with the final translated version (F-TL).

Full psychometric testing for the translated tool
The generation of the final translated version (F-TL) must be followed by the full psychometric testing. Table 3 shows the further steps. *Details of these steps will be covered in the next chapter.*

Table 3: Methods for full psychometric testing of rating scales after translation and adaptation		
Measure of validation	*Statistic/Technique*	*Purpose*
Reliability (*Sample of 30-50 subjects)*		
Internal consistency/Split half reliability	Cronbach's α or coefficient alpha	To measure the degree to which items of the scale are correlated with each other
Test- retest reliability	Pearson's correlation coefficient or intraclass correlation coefficient	To measure the degree to which tests conducted over different time periods are correlated
Inter rater reliability, in case of rater related outcomes only	Kappa statistic	To measure the consistency between two (or more) independent raters
Validity *(Sample size of minimum 300 or 10*number of items of the tool)*		
Content or Face validity	Content validation forms or Content validation ratio	To measure the adequacy with which the instrument measures the construct of interest
Construct Validity (Convergent and divergent validity)	Correlation, Factor analysis- Exploratory and Confirmatory, Structural equation modelling	To look for the association with other instruments which measure similar and dissimilar constructs

Criterion Validity	Correlation, Regression, Exploratory factor analysis, discriminant analysis	To study the relationship of scores derived with some criterion of importance

PRACTICAL CHALLENGES IN TRANSLATING AND ADAPTING INSTRUMENTS

Time at disposal

The process of translation and subsequent validation of the translated instrument is time taking and the processes involved may be repeated, sometimes several times. It is important for the study investigators to designate enough time, at least 6 months exclusively for this process.

Funding

Funding is required for several aspects of translation and adaptation of a tool:

a. If the original tool is copyrighted and purchase of the tool is necessary.
b. Professional work of qualified translators has to be renumerated.
c. Field study will require specific funds for transport. Daily allowances may also need to be provided for personnel involved in data collection. The field work may also involve research staff who also will have to be renumerated.

Qualified Translators

Access to qualified translators may be difficult, especially if the study is being conducted in a setting other than a university setting, which also has language sciences department. Even when the access is available, several factors such as time, permissions, interest, etc., may impede the process.

Bilingual subjects

Access to bilingual subjects may be a challenge, especially when the investigators plan to conduct pretesting of the translated tool involving quantitative linguistic equivalence testing. Study investigators may choose to step this step if the access to bilingual subjects has not been possible.

Large sample

The translated version of any tool has to be processed through the entire process of validation, that involves conducting factor analyses (exploratory factor analysis alone or both exploratory and confirmatory factor analysis) on the study data set. Each factor analysis will require a large sample size (at least 300 subjects), therefore for conducting both exploratory and confirmatory factor analysis, at least 600 subjects will be required. Collection of data from such large sample sizes is not feasible, in many settings. This is the reason why translations remain not validated and therefore deemed not usable for subsequent researchers.

Lack of awareness

Many clinicians lack sufficient knowledge and awareness regarding the need for translation and its steps. It is therefore important to include education programs such as workshops regarding these steps for clinicians and researchers.

CONCLUSION

Translation and adaptation of rating scales is important in cross-cultural research, especially when native speakers of vernacular languages are involved. We provide a simplified process of 10 steps that is involved in translation and validation of any rating scale. We also enlist the practical challenges that are faced during this process.

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Chapter 5

TYPES AND APPLICATIONS OF RATING SCALES IN PSYCHIATRY

Indu PV DPM, DNB, MPhil, PhD

Take Home Message

- Rating scales are used in both clinical settings and research settings.
- They are used for screening for or confirming psychiatric diagnoses; assessing the severity of symptoms or their response to treatment; and assessing comorbidities, side-effects to treatment or constructs like the quality of life and level of functioning.
- They are classified as self-rated or observer-rated, based on the interviewer.
- According to the type of interview, they can be structured, semi-structured or unstructured.
- Based on the purpose of use, they can be screening, diagnostic, predictive or evaluative tools, or those used for assessing the severity and response to treatment.

Introduction

The term "rating scale" refers to a structured method of assessing behaviour and/or experience – current and/or past – based on a list of characteristics and, sometimes, their descriptions. They are standardised assessment instruments that are useful in examining the full gamut of psychiatric symptoms.[1] In the nineteenth century, Sir Francis Galton used "questionnaires" or "rating scales" for the first time to study mental imagery. But it was only during World War II that the use of rating scales flourished, for the purpose of objective evaluation of behaviour and skills for selecting personnel for various purposes.[2]

Mostly, clinicians are reluctant to use rating scales as a part of their routine clinical care delivery. They avoid using rating scales probably due to time pressure, not being aware of the appropriate scale to use, not being assured whether these scales would capture their patients' symptoms or improvement, and believing that they are useful only in research settings. Of late, there has been a considerable increase in our understanding and usage of such instruments in routine clinical settings. Pragmatic trials like the Sequenced Treatment Alternatives to Relieve Depression (STAR*D) and the Systematic Treatment Enhancement Program for Bipolar Disorder (STEP-BD) have proved that rating scales can be used to measure treatment effects in real-world settings as for efficacy studies in research settings.[3] In the present scenario, there is a rising need

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for objective assessment of disease states, especially so in Psychiatry. Rating scales are relatively objective methods of assessment and quantification of psychopathological phenomena and other clinically relevant domains so that it is made easier to communicate and/or verify them, as well as to analyse them statistically.[1]

APPLICATIONS OF RATING SCALES

Rating scales can be used in clinical as well as research settings. In clinical settings, rating scales can be used to screen for particular conditions like dementia, to confirm psychiatric diagnoses, to screen for a manic or hypomanic episode in a patient with depressive disorder, to assess the severity of symptoms in specific disorders, to evaluate the response to treatment, to identify "hidden" comorbid conditions like personality disorders and substance use disorders, to assess adherence and side effects to treatment and to measure the level of functioning of the patient at baseline and during the course of treatment.[3]

In research settings, it becomes imperative that while studying certain abstract variables like depression, perceived stress, quality of life, etc., they are not only defined conceptually (i.e., what the concept means) but also operationally, i.e., how such a variable can be measured. Rating scales are used for defining outcomes and study variables operationally in research. Further, to screen for and confirm diagnoses; assess the severity of symptoms in observational, analytical, and intervention studies; evaluate the response to interventions in clinical trials; and evaluate the outcome in longitudinal studies, rating scales are applied. (See Table 1).

To screen for cognitive impairment, a tool like the Mini-Mental State Examination (MMSE) can be used.[4] If cognitive impairment is identified using MMSE, further detailed neuropsychological testing can be done to confirm the diagnosis of dementia. Psychiatric diagnoses can be confirmed using questionnaires designed for that – like the Structured Clinical Interview for DSM-5 (SCID-5).[5] The severity of symptoms related to a psychiatric disorder can be assessed using questionnaires developed for the same. For instance, the Young Mania Rating Scale (YMRS) can be used to measure the severity of manic symptoms and the response to treatment.[5] Side effects to treatment can be monitored using scales developed specifically to assess particular ones like the Simpson-Angus Scale (SAS) for neuroleptic-induced extra-pyramidal symptoms.[6] Level of functioning can be assessed using questionnaires like the World Health Organization Disability Assessment Schedule 2.0 (WHODAS).[8] These scales can be used in research or clinical settings as appropriate.

Using a rating scale helps the clinician to evaluate the key symptoms or other aspects of a disorder like functioning or quality of life in a systematic manner. Monitoring the severity of symptoms with a rating scale in clinical settings can help the clinician in assessing the effectiveness of the treatment given. It can aid in making treatment decisions also – if the response is not satisfactory, the current treatment can be reviewed and a change of medication considered. The usage of rating scales would help the clinician link his or her clinical work better with the available evidence, the outcomes of most of which are based on the scores of various rating scales. Providing evidence using rating scales can facilitate collaboration with third-party payers like insurance companies.[3]

Table 1. Applications of rating scales in clinical and research settings

Sl. No.	Clinical settings	Research settings
1	To screen for psychiatric disorders and conditions	To operationally define abstract variables – both outcome and study – for research purposes
2	To confirm psychiatric diagnoses	To screen for and confirm psychiatric diagnoses in observational, analytical and intervention studies
3	To assess the severity of psychiatric symptoms in specific disorders	To assess the severity of symptoms in observational, analytical and intervention studies
4	To evaluate response to treatment	To evaluate the response to interventions in clinical trials or longitudinal observational studies
5	To assess the adherence and side effects of treatments	To assess adherence and side effects in intervention studies
6	To identify "hidden" comorbidities like personality disorders or substance use disorder	To evaluate the outcomes in longitudinal studies
7	To assess the level of functioning	

TYPES OF RATING SCALES

Rating scales can be classified in many different ways. Standardised assessment instruments can be classified based on who carries out the assessment, the type of interview for which it is used, whether they focus on a single aspect or multiple aspects of psychopathology, the scaling method used or the purpose for which the instrument is used (See Table 2.).

Table 2. Types of rating scales

Based on	Types
Who administers the scale	Self-rated scales
	Observer-rated scales
Type of interview	Structured questionnaires
	Semi-structured questionnaires
	Unstructured questionnaires
Type of scaling responses used	Verbal rating scales
	Numerical rating scales
	Descriptive or Adjectival scales
	Likert scales
	Rank order scales
	Graphic scales
Functions	Screening tools
	Diagnostic scales
	Scales to assess severity of illness or response to treatment
	Prognostic/Predictive scales
	Evaluative scales
	Unidimensional

Aspects of psychopathology studied	Multi-dimensional

Based on who administers the scale

Depending on the person who administers the scale, they are classified as self-rated and observer-rated scales. The latter can be further classified based on whether the observer is skilled, like a psychiatrist or psychologist; semi-skilled, like a nursing assistant or nursing staff; or unskilled, like the patient's spouse or relative.

Self-rated Instruments

In self-rated instruments, the patients or participants in the research themselves describe their own behaviour/experience/attitude/beliefs, either past or current, using fixed rating methods. The use of self-rated questionnaires reduces the expenses involved in conducting research and eliminates observer bias induced by using observer-rated scales. On the other hand, the use of self-rated scales can lead to conscious or unconscious falsification of responses leading to various biases like social desirability bias or the positive response bias. These scales are useful in assessing psychiatric conditions, like the Beck Depression Inventory (BDI)[9] used to assess depression, and personality traits, like the Minnesota Multiphasic Personality Inventory (MMPI).[10] They can be used to evaluate domains other than psychopathological abnormalities, including social adjustment using the Social Adjustment Scale – Self-Report (SAS-SR)[11] or disability using WHODAS.[8] The self-rated instruments describe dimensions of the subjective state that are similar to one another, compared to clinical observer-rated ones.[1]

Observer-rated Scales

Observer-rated scales can be administered by trained assessors (including psychiatrists, psychologists, paramedical staff or lay people trained to administer the tool) or by relevant others, like partners, relatives or friends. The evaluation will be based on the assessors' own observations and/or the information provided by the patient or informant. Such scales have to be developed according to the level of training of the interviewers. These scales can be used to assess psychopathological states (like the Hamilton Depression Rating Scale (HAM-D) for depression[12]), social functioning (like the Social and Occupational Functioning Assessment Scale (SOFAS)[13]) or side-effects of medications (like the SAS for extra-pyramidal symptoms[7]). When administered by a professional, the weight given to the information provided by the patient is decided by the observer. This can introduce observer bias to the observations made.[1] Inter-rater reliability of observer-rated scales has to be established to evaluate the extent to which different assessors agree in their observations.

Based on the type of interview

Depending on the type of interview, the rating scales can be structured, semi-structured or unstructured.

Structured Questionnaire

A structured questionnaire or rating scale is one in which the interviewer asks a set of predefined questions which are closed-ended or prompted questions with predefined answers. All possible answers have to be anticipated and the responses should be pre-coded. The responses should be mutually exclusive and collectively exhaustive. As the questions are created in advance, all the respondents are asked the same questions in the same order. They can be used in face-to-face or telephonic or online interviews and in both self-rated and observer-rated ones. The advantage of a structured questionnaire is that any person who is trained to follow the instructions of the questionnaire can administer the tool. The data obtained will be consistent and comparable across respondents. It is not affected by the rapport between the interviewer and the interviewee.[14] BDI is a self-rated, structured rating scale for depression.[9]

Semi-structured Questionnaire

In a semi-structured questionnaire or rating scale, the interviewer asks some predefined questions, while the rest of the questions are not predefined. Some pre-determined questions are asked to all participants, while other questions stem from a free-flowing conversation with the interviewee. It is constituted by a mixture of closed and open-ended questions. These are used when a large range of different responses are to be accommodated from the respondents; when a mixture of qualitative and quantitative information is to be obtained. The respondents have the freedom of expressing their views in their own words; it provides reliable and comparable qualitative data. These scales preferably need a trained professional to administer the tool and can be used in face-to-face or telephonic interviews.[14]

Unstructured Questionnaires

Unstructured questionnaires include questions that are open-ended and elicit free responses. Unlike structured interviews, these are guided conversations. Hence, they are referred to as "topic guides". They are constituted by a list of questions that have an apparent order, but the interviewer need not follow it to the fine detail. Probes or new questions that have not been scripted earlier can be used by the interviewer. Such "topic guides" are employed in qualitative research – for instance, for in-depth interviewing, either face-to-face or telephonic.[14] The initial version of HAM-D – a clinician-rated scale for the assessment of depression – was an unstructured questionnaire. Later, semi-structured and structured versions of the tool have been developed.[15]

Based on the scaling of responses used

Depending on the scaling of responses used to measure an attitude, experience or behaviour, there can be verbal, numerical, descriptive/adjectival, Likert, rank order or graphic rating scales.

Verbal Rating Scales

Verbal rating scales are the simplest ones in which respondents can choose a word or phrase on a scale to indicate their response. These responses can range from four to five responses like "very frequently", "frequently", "sometimes", "rarely" and "never". They may be scored appropriately. The verbal labels should be precise, comprehensible and universal; the rating scales should be balanced – having a similar number of positive and negative responses.[14]

Numerical Rating Scales

Numerical rating scales are similar to verbal rating scales, but the responses are based on numerical scores. It could be a 3-point, 5-point or 7-point scale; where a score of 3, 5 or 7, respectively, would indicate the maximum frequency of the item assessed.[14]

Descriptive or Adjectival Scales

Descriptive or adjectival scales use adjectives to describe the item studied. The adjectives could be positive or negative and need not be the opposite of one or the other. The terms "obedient", "submissive", "cooperative" and "defiant" may be used to rate the behaviour of a child.[14]

Likert Scales

Likert scales are those in which the respondent is asked to agree or disagree to a number of positioning statements. The respondent should be able to identify with one of the options readily. These positioning statements are a variation of the responses in verbal rating scales. They are also called agree/disagree scales. Generally, in response to a statement, the respondent has to choose an option from five choices: "agree strongly", "agree slightly", "neither agree nor disagree", "disagree slightly" and "disagree strongly"; which are given appropriate scores.[14]

Rank Order Scales

Rank order scales are those in which the respondents are presented with a list, which they have to rank according to the order of importance that they attribute to the experience or behaviour, i.e., which do they consider the most important and which is second most important.[14]

Graphic Scales

Graphic scales like the Visual Analogue Scale use a straight, horizontal line of fixed length (usually 10 cm), the ends of which define the extreme limits of the experience or behaviour assessed, like pain or depression. The respondent is asked to make a vertical mark across the line at a point that they feel represents their experiences.[14,16]

Based on Functions

Depending on the function or the purpose for which a tool is used, it can be classified as scales used for screening, diagnosing or classifying, assessing the severity of illness and response to treatment, assessing prognosis or assessing change over time.[17,18]

Screening Tools

Screening tools are designed to detect the presence or absence of a target disorder (like depression) or condition (like cognitive impairment). They are briefer and less precise than diagnostic tools.[3] Screening is important in preventive medicine, and screening tools are used to identify patients or those at risk early enough so that preventive measures can be undertaken to provide treatment and bring about improvement in the symptoms as well as the prognosis. MMSE is a screening tool used to screen for cognitive impairment.[4] Patient Health Questionnaire – 9 (PHQ-9) and Present Health Questionnaire – 2 (PHQ-2) are screening tools validated for depressive disorder.[19]

Diagnostic Scales

Diagnostic scales examine psychopathology and attempt to make diagnostic classifications by applying specific algorithms to identify distinct symptom profiles. They are mostly multi-

dimensional. The Schedules for Clinical Assessment in Neuropsychiatry (SCAN) is a set of instruments developed by the WHO, aimed to measure, diagnose and classify psychopathology of major psychiatric disorders. It can be used with the International Classification of Diseases (ICD) or the Diagnostic and Statistical Manual for Mental Disorders (DSM).[20] Generally, these are multi-dimensional instruments that examine different psychopathology. These instruments add to the inter-rater reliability of diagnostic classification based on mental status examination in clinical settings. Nosological classification based on such rating scales alone is not satisfactory, since diagnosis is generally based on the clinical history and on the hypothesis regarding the cause of illness. But they are useful in research settings.[1]

Scales to Assess the Severity of Illness and Response to Treatment

Scales to assess the severity of illness and response to treatment are generally unidimensional scales, which focus on a single aspect, like depression, anxiety or psychosis. Each aspect of the psychopathology assessed may have a global rating or rating of different aspects of the construct evaluated, like individual symptoms of depression. By adding the scores of the different components, the overall score of the scale is obtained.[1] The Positive and Negative Syndrome Scale for Schizophrenia (PANSS) constitutes four scales to assess positive and negative symptoms, general psychopathology, and a composite scale to express the direction and the magnitude of difference between positive and negative symptoms. This rating scale is used to assess the severity of the symptoms of schizophrenia and also to assess the response to treatment. The differential response of the scores of different subscales to drug treatment has been studied and the drug sensitivity of the scale established.[21]

Prognostic Scales/Predictive Scales

Prognostic scales/predictive scales are questionnaires that combine various predictive variables to predict the development of an illness or the course and outcome of the illness studied.[18] The Prognostic Scale for Chronic Schizophrenia uses premorbid functioning and established chronicity as the best predictors of outcome in schizophrenia.[22] The predictive validity of such questionnaires can be established by follow-up studies.

Evaluative Scales

Evaluative scales are used to measure the longitudinal change in the domain of interest in a person or group over time. These instruments include those which are used to assess constructs like the quality of life. They can be used for quantifying treatment benefits in clinical trials or for measuring quality-adjusted life years in cost-utility analyses.[23] The Quality-of-Life Scale is a scale that is designed to assess deficits in schizophrenia, rather than psychopathology. It is useful in evaluating therapeutic interventions and describing the course of the illness; it permits a comprehensive appraisal of the impact of the illness per se and the efforts to treat it.[24]

Thus, rating scales can be classified into different types based on different criteria. The choice of the scale used depends on the purpose for which it is used (in clinical settings or for research purposes; to screen for a disorder, make a diagnosis, assess the symptom severity/response to treatment, or assess the prognosis) and on the logistics involved (whether to use a self-rated or clinician-rated questionnaire). As they describe both subjective and objective psychopathological states, using a combination of self-rated and observer-rated scales can provide a satisfactory description of the psychopathology studied. Although standardised rating scales are practically

very useful, they are considered inferior to systematic behavioural analysis and objective evaluation in clinical settings. But in research, the latter methods are included only as supplementary measures for the sake of completion; while rating scales are considered to be of prime importance.[1]

CONCLUSION

The use of rating scales is important in the current scenario in both clinical and research settings. There are different types of scales and the choice of scales depends on the setting of use, the purpose for which it is used and also the logistics involved. While choosing an instrument, it is imperative to ensure that it is standardised for use in that setting. The rating scale should be reliable, valid and objective and have established norms for the population in which it is used. The practicability of using the questionnaires in situations where resources are limited also has to be considered.[1] For copyrighted questionnaires, permission has to be obtained or the rights purchased from the authors, prior to using the tool.

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Chapter 6

HOW TO USE A RATING SCALE IN CLINICAL PRACTICE?

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Take Home Message:

- Use of rating scales increases objectivity in assessment.
- Gold standard rating scales are preferred over nonstandard scales.
- Rating scales used should be culturally appropriate.
- Follow standard administration for the rating scales.
- Training and certification ensure appropriate use of scales.

Introduction

Rating scales are invaluable as they are needed for practice of *measurement-based care* for psychiatric disorders and for *research*. They not only help screen and diagnose psychiatric disorders, but also provide *quantitative* information regarding the severity of illness, and plan and monitor changes with the treatment. To achieve all this the scales should be reliable and valid, specifically at the place of their use. With several scales that are available, it is pertinent that clinicians and researchers ought to be aware of the gold standard scale, the strengths and weaknesses of the scales, cultural appropriateness, cost and availability, training, and certification requirements for commonly used rating scales.

Methodological issues

The rating scales should have *standard procedures* of administration, scoring and interpretation. They should be reliable and valid and reflect the true scores as closely as possible. However, there is an inherent problem in the relationship between the reliability and validity, i.e., the *reliability-validity dilemma*, as the reliability improves there is a loss of validity. Use of objective, clinician-rated scales (e.g., Hamilton Rating Scale for Depression, HDRS)[1] through interactive voice recording system in clinical trials could improve reliability but reduce its validity as it no longer remains a true observer-rated scale.[2]

The practical aspects of administration should also be taken into consideration including the length of scale, time required for administration, and resources and setting needed. There could be trade-offs between reliability and validity because of practical considerations.

Normative reference values wherever relevant should be available. Norm-referencing is required for certain situations when information on criterion-referencing is not available. For example,

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HDRS cut off 7 or less is considered normal, thus anyone scoring above 7 can be considered to have depression. However, for Montreal Cognitive Assessment (MoCA),[3] scores need to be referenced against other individuals with similar age and education to identify those with cognitive deficits, as the cut offs provided may not be suitable for all.[4] Furthermore, norms for Western population may not be appropriate for use in Indian population; hence, there is a need to develop norms for our population.

It is prudent to examine the studies of reliability and validity for *quality*; this is very pertinent if nonstandard scales are chosen. Many times, the studies are carried out in a very *small sample*, the results of which are not always replicated.[5] Reliability and validity must be established for the population being studied, more so if the scales are translated and adapted for different population. This is very relevant in our setting as most rating scales are developed in English and need to be translated to regional languages. Also, because of variations in language and culture across states, multiple translations may be needed.

Use and misuse of rating scales

Different rating scales are available for *screening*, *diagnosis*, *severity rating*, or *changes* with interventions. Scales meant for screening should be brief, self-administered, and easy to use, with high sensitivity. In contrast, diagnostic scales can be more objective, clinician-administered, and should have higher specificity. Similarly, the scales that are used for measuring progress over time should be sensitive to change (e.g., Montgomery-Asberg Depression Rating Scale, MADRS is more sensitive to change than HDRS).[6] Identification of the correct scale for the purpose is pertinent in this context. This is challenging considering several variations of the scales available, different modifications in scoring and interpretation, accessibility and copyright issues, costs involved in procuring, training, and certification. In addition, possible misuse of the rating scales is not uncommon. Furthermore, several versions of the scale make it almost impossible to compare the findings across studies.

In epidemiological studies, to define "caseness" a two-stage procedure is preferred, which includes use of a brief screening measure in the initial stage, followed by a diagnostic interview to confirm the diagnosis. It is not uncommon to see studies reporting prevalence rates based on screening instruments (e.g., scores on Patient Health Questionnaire, PHQ-9, [7] or Hospital Anxiety and Depression Scale, HADS),[8] which tends to overestimate the rates. Rating scales are sometimes misused to make psychiatric diagnosis, which is incorrect. Instead, diagnostic interviews should be used for that purpose. Rating scales are best used for severity of the condition, and sometimes for changes over time.

Self-rated scales are easy to use, require less professional input, cost-effective and can be done on many participants. Also, for some subjective experiences such as 'well-being' or 'satisfaction,' only subjective scales are meaningful. Objective rating scales, as the name suggests, could be more 'objective' while rating psychopathology. Choice of subjective vs objective rating depends on several factors including the purpose, availability, objectivity needed, etc. Sometimes, a

combination of subjective and objective scale is used to get different perspectives (e.g., HDRS and Beck Depression Inventory, BDI).[9]
Some scales may have narrow focus (e.g., HDRS, Yale-Brown Obsessive Compulsive Scale, YBOCS[10] or Young Mania Rating Scale, YMRS),[11] hence suitable for measuring a particular condition. In contrast, broad scales can be useful in other situations when evaluation across diagnostic categories are indicated (e.g., Comprehensive Psychopathology Rating Scale, CPRS[12] or Brief Psychiatric Rating Scale, BPRS).[13] While choosing the scales, this should be kept in mind. Also, if a validated specific scale is available, it may not be appropriate to use a nonspecific scale. For example, for measuring depression in schizophrenia, use Calgary Depression Rating Scale, CDSS,[14] rather than HDRS; however, older studies had used HDRS, when CDSS was not developed. Sometimes, equivalence in scores across studies may be available, thus makes it easy to compare across studies, e.g., between HDRS and Inventory for Depressive Symptomatology (IDS), [15,16] Similarly, scales developed for adult population may not be appropriate for children or elderly. For example, instead of HDRS, use Children's Depression Rating Scale (CDRS)[17] for children and Geriatric Depression Scale (GDS)[18] for the elderly. Sometimes, rating scales can measure different aspects of the same construct. For example, Perceived Stress Scale (PSS), [19] is used to measure the thoughts and feelings associated with daily stress, whereas Perceived Stressful Life Event Scale (PSLES), [20] is a measure of life events which are perceived as stressful.

Sometimes, scales in English are administered on participants not familiar with the language. During administration, difficult words are explained or the whole scale is translated by the administrator in the native language of the participants, which brings in variability making it difficult to interpret the scores. Sometimes, for illiterate participants the questions are read verbatim, which may be acceptable in some research if there are no other options available. However, establishing reliability and validity becomes important for any such nonstandard administration.

Some rating scales have separate ratings for current symptoms (e.g., past week or month) and lifetime rating. For example, Mini International Neuropsychiatric Inventory (MINI),[21] which is a short clinical interview, has options of generating current and lifetime diagnosis. Similarly, PSLES has an option of defining the period for which the life events are assesses, either past 6 months or one year, or lifetime.[20]

Using a nonstandard or untested rating scale has its own limitations. It tends to overestimate the effect sizes, thus can lead to incorrect conclusions. Unpublished rating scales have been shown to be a source of bias in randomized trials.[22] If there are no scales available for a particular study, it is prudent to develop a new scale. However, constructing a new scale is a huge task and can be a separate project. Every effort must be made to procure the original scales as much as possible, e.g., if there are copyright issues or involves costs, requests may be made to the authors or publishers for permission or waive off charges.

The characteristics of the rating scales could also affect its administration. For example, long rating scales (e.g., scales for personality assessments) are difficult to administer on disinterested participants. Sometimes, breaks may be needed in between to sustain the motivation of participants. Such *nonstandard conditions* may affect the scores and under- or overestimate effects. It is sometimes fine to use a briefer scale with acceptable psychometric properties than use

a longer scale; however, the choice will also depend on the purpose, whether longer scales will provide more granular information.

There are several other ways rating scales can be misused. Dichotomizing continuous scores into categories is a common example.[23] There are many scales which generate only total scores, which can be interpreted only as a continuous variable, i.e., higher, or lower scores means something. It is not uncommon for researchers to carry out "median split" or "upper and lower quartile" scores which are interpreted as "high" and "low" categories. Similarly, to define "caseness," cut off scores may be used, which may be arbitrary and incorrect. If such details have not been provided in the scales, possibly the categories have not been studied. Also, there may be loss of information and statistical power during analysis if dichotomous categories are used.

Cultural appropriateness

Presentation of symptoms varies across culture. Several factors including ethnicity, cultural beliefs, values, and norms could potentially influence how symptoms are interpreted by raters. The scales developed in western countries may not apply to non-western settings, including India. The diversity in India includes cultural and linguistic differences across different states makes it more challenging to use the scales developed in western countries. Hence, there is a need to translate, adapt and validate the scales before use in our setting.

Translation and *adaptation* of a scale should be done according to standard guidelines. For example, WHO describes standard procedure for translation, which involves translation and back translation by bilingual experts, consensus among experts on translated words or phrases, and pilot testing through cognitive interviews.[24] Translation does not involve 'literal' translation but should convey accurate meaning. For several terms, there may not be an exact word in another language and may require expert opinion to identify the best option available.

Some items in the rating scales or diagnostic instruments may not be applicable to certain populations. For example, items in the scale referring to specific dresses such as 'tie/bow' or 'hat' may not be relevant to many. These items can be replaced with 'culturally appropriate' alternatives. If there is some item which does not have equivalence in some culture, it is better to drop the item and examine the psychometric properties again.

Training and certification

For clinician administered scales, a *rater training* is essential to attain good interrater reliability among diverse group of researchers. Standardized training videos have been found to be very useful for traditional offline training programs,[25,26] or in web-based, online training.[27-29] Interactive, web-based training programs have been found to be equal or superior to the traditional video-based training.[30] Such training programs are increasingly being common in the context of large, multicentric trials. Alternatively, trained clinicians can conduct workshops with live demonstration of administering the rating scale. Trained actors can portray the symptomatology of illness accurately and may be used as simulated patients for interrater reliability exercises.[31]

More *structured versions* of the scales with clearly defined anchor points are helpful in training. For example, Structured Interview Guides for HDRS (SIGH-D),[32-34] and Structured Interview Guide for MADRS (SIGMA),[35] Structured Clinical Interview for the PANSS (SCI-PANSS).[36] Such structured guidelines improve reliability among users with lower clinical experience.[37]

GRID-HAMD, is a more structured form of HAMD, with the GRID scoring system (scoring intensity and frequency separately to obtain the severity score), the manual of scoring conventions with detailed anchor descriptions and more behavioural exemplars, and a semi-structured interview guide, developed by the Depression Rating Scale Standardization Team (DRSST).[38] GRID-HAMD has been used for training with near-perfect interrater reliability.[39]
Certification is based on the assessment of interview and scoring by the raters following training. This is usually done using videotaped interviews[25,26] but can be done using more active methods such as standardized actors.[31] The success and failure are determined when the rater achieves the minimum standard of accuracy and precision based on gold standards. More training and remediation are required if the rater consistently fails to achieve the minimum criteria.

Newer training based on use of technology such as virtual reality or augmented reality will enhance the training experience and quality.[36] Avatars can be created with decision tree logic to facilitate rater training.[36]

'Gold standard' rating scales
There are some scales which are considered the *gold standard* for that condition, and all other scales are generally compared against them. Usually, the reliability and validity for these scales will be good, across different settings, and these are widely used. For example, HDRS (for depression severity), YMRS (for severity of manic symptoms), YBOCS (for OC symptoms), and Positive and Negative Syndrome Scale (PANSS), [40] (for measuring symptoms of schizophrenia) are considered gold standard instruments. Always prefer these instruments for both clinical usage as well as for research unless there is a strong reason not to use them. It makes interpretation of findings easy and helps in comparison across studies.

However, too much reliance on 'gold standard' instrument is not appropriate as the scales may be measuring different aspects altogether.[6] Also, there may be different gold standards, for different purposes. For example, HDRS for objective measurement of depression, BDI for subjective rating of depression, and MADRS for measuring change in intervention trials; all three can be considered gold standards for the stated purpose.[6]

CONCLUSIONS

Rating scales brings objectivity to psychiatry practice. However, misuse or inappropriate use of rating scales could blur the true effects and lead to potential misinterpretations. Therefore, it is prudent on the part of the researcher to identify the correct and standard rating scale for the purpose and administer it as much as possible in the standard conditions as stated in the manuals. Furthermore, appropriate training and certification as indicated, with the help of available technology, ensures correct usage of rating scales in practice.

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Chapter 7

RATING SCALES: GENERAL PSYCHOPATHOLOGY

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Take Home Message

- A general psychopathology and aspects of its measurement can lead to bettering in development of trans diagnostic mental health interventions.
- This area requires further study and exploration.

INTRODUCTION

Since long, Psychiatry has been criticized for not providing objective measurements like its peer medical specialties. In the absence of clinical biomarkers, rating scales have been adopted as standard method of assessment, diagnosis, prognostication, and verification.[1]Rating scales in essence are an attempt to quantify psychopathology.

Psychopathology is the study of abnormal/maladaptive behaviours that is exclusively studied by mental health professionals.[2] Understanding psychopathology of the client is quintessential to making a diagnosis and providing necessary treatment. However, psychopathological details are not easy and are obtained only through thorough history and clinical observation. They are influenced by biological, social, and psychological factors and are therefore, dynamic. The current psychiatric nosology is defined as syndromes, which are not straightforward despite the operationalization of various definitions. To add on, there is also confusion whether to understand these dynamic symptoms as a continuous spectrum or as categories.[3]

Categorical Vs. Dimensional approaches

There have long been debates between categorical and dimensional approaches within psychiatric nosology. As current categorical nosology has failed to deliver on the promise of increased validity;[3] a trans-diagnostic approach to conceptualization and management of psychopathology is increasingly gaining prominence.[4] In clinical practice, diagnostic rating scales are routinely used. As the trans-diagnostic approach gains prominence, general psychopathology scales are increasingly being used.

Justification for scales on general psychopathology

General psychopathology rating scales are useful in the following contexts. These are further elaborated below.

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1. As a clinical screening tool
2. In research, to ensure homogeneity of the population.
3. To capture psychological distress.
4. To assess baseline functioning (impact of psychological distress) and 'change tracking'.
5. To capture psychopathology across categorical diagnoses.

General psychopathology scales may be used to identify dysfunctional persons within a population to offer evaluation services - a more robust method of leveraging task shifted workforces, rather than focusing on probable diagnostic labels. This model could be compared to the way eye care is provided in the community - an initial assessment is performed to identify those with some deficiencies in visual acuity - thereafter detailed expert evaluations are made to diagnose and treat. This might also allow us to capture all dimensions at the baseline evaluation and not miss out any symptoms. Specific scales focus only on a specific set of symptoms and have lesser utility in cases when there are multiple comorbidities or when symptoms are dynamic, which is not unusual in routine clinical practice. A similar model may be adopted with mental health assessment, wherein, general psychopathology scales should be first utilized before proceeding to diagnostic rating scales. As mentioned earlier, this can avoid pitfalls reported with task shifting or sharing approaches. This is also important in research studies while assessing baseline mental status for clinical homogeneity of the sample population. Hence, general scales can be utilized as screening tools in both clinical and research settings.[5]

We understand that mental health problems can result in dysfunction and distress which when are significant enough warrant a psychiatric diagnosis. Then, is it not worthwhile to ask if the dysfunctions across diagnoses are similar or not? The most reductionistic answer would be 'no'. However, the construct of dysfunction does appear to be similarly affected with the common domains impacted being relationships, self-efficacy, work, and occupational functioning, etc. It is the presence of this unmistakable dysfunction, mild or profound, that often precipitates mental health consultations/evaluations. It may be argued that assessments of general psychopathology ought to include assessments of functioning to prognosticate mental health conditions and their response to interventions. These scales include scales on wellness, well-being, functioning and quality of life (QOL) under general psychopathology though QOL can also be seen as an inverse of psychopathology.[6] These scales are covered in the last chapter of this book.

Additionally, some of these general psychopathology measures may be utilized for tracking change - especially regarding functional assessments.[7] Some disability assessment instruments such as the WHODAS 2.0 self-reported versions may prove abundantly useful in this regard. We must keep in mind the DSM 5 push including it as the functional assessment scale replacing the erstwhile global assessment of functioning.[8] This may also aid in improving compliance/adherence amongst service users. One may inform that the trajectories of dysfunction include improvements and possible worsening. One may also indicate remissions as sustained improved scores over periods of months to years - based on such remission criteria. This needs to be adopted as a routine measure in drug trials where rater administered improvement measures such as the CGI are incorporated.

Like psychopathology being conceptualized on a spectrum, distress significant or not, can also be conceptualized to lie on a spectrum trans-diagnostically. Diagnostic systems include levels of distress as an inclusion criterion with little guidance on what to consider and include. Also, service

users might provide biased self-reports locating distress as not due to mental health conditions all together. General psychopathology scales can aid in recording such concerns without attributing it to any mental health condition - instead bringing emphasis to the 'lived experience'. It can be anticipated that this might be of greater utility amongst those with substance use disorders with sub-syndromal symptoms. Additionally, records of general psychopathology assessments can aid in differentiating non-improvements or treatment resistance in complex cases. Possibly distinctions could be made between ongoing general psychopathology issues and persistent severe symptoms such as delusions and hallucinations - thus helping to delineate management approaches and intervention strategies.

SCALES ON GENERAL PSYCHOPATHOLOGY

Despite the availability of several rating scales, studies tell us that only 18% of psychiatrists and 11% of psychologists use them routinely. One important reason is that most of the scales are designed for research purposes while clinicians find it difficult to accommodate these scales with the time constraints in their clinical practice.[9]

Several general psychopathology rating scales are available. In table 1, we have classified few general psychopathology scales as per their proposed utility - screening, prognostication and capturing clinical change. Some experts also propose the inclusion of diagnostic interviews (covered in chapter 8) as general psychopathology scales. However, we have conceptualized general psychopathology scales as transdiagnostic scales that aim to give a comprehensive measure of psychological pathology. We would like to consider rating scales for general functioning and quality of life as an indirect measure of general psychopathology that have been covered in chapter 19. Table 1 showing the general psychopathology scales as per their utility.

Table 1 General psychopathology scales as per their utility

General symptomatology	Wellness scales	Stress scales	Functioning assessment	Diagnostic Interviews
General Health Questionnaire (GHQ)	WHO-5 wellbeing index	Kessler Psychological Distress Scale (K- 6, K- 10)	Clinical Global Impressions (CGI)	Mini-International Neuropsychiatric Interview (MINI)
Symptom Checklist-90-Revised (SCL-90-R)	Rosenberg self-esteem scale	Perceived stress scale		Schedules for Clinical Assessment in Neuropsychiatry (SCAN)
The COOP Charts for Adult Primary Care Practice	Academic motivation scale	Adverse childhood experiences		Structured Clinical Interview for DSM-III R (SCID)

Brief Psychiatric Rating Scale (BPRS)	Strengths and difficulties questionnaire		Global Assessment of Functioning (GAF)	Clinical Interview Schedule – Revised (CIS-R)
Comprehensive Psychopathological Rating Scale (CPRS)				

We have elaborated a few scales that are widely accepted and used for as a measure of general psychopathology. A few more are covered in the later chapters of this book. Table 2 summaries the selected scales.

A. Scales measuring general symptomatology

1. General Health Questionnaire (GHQ-12)

- Overview:

The General Health Questionnaire is one of the most widely used screening instruments in mental health research.[10] It was originally designed as a 60 item self-report questionnaire used for identifying patients with common mental disorders in the primary care setting.[10] Subsequently, shorter versions with 36, 28 and 12 items have been designed and extensively validated to have comparable psychometric properties to the original.[11,12] It has also been used in multiple settings and in varied populations and has consistently shown robust psychometric properties.[10,13]

Administration:
The GHQ is a self -rated measure that assesses pathology over the time frame of the past two weeks. Each item is usually scored on a Likert scale of 0-1-2-3, though alternate scoring methods have been described.[14]

Ease of use:
The GHQ-12 is copyrighted and needs permission from GL assessment, UK. It takes 2-3 minutes to complete. It has been used in illiterate populations as an interviewer administered instrument as well.[15] It is considered a statistically sound and easy to use instrument.[16]

Underlying structure:
Though several factor structures have been proposed, a two-factor structure of anxiety/depression and social performance has been validated in Indian populations.[15,16]

Use in India:
The GHQ-12 has been widely used in India in multiple studies. It has been validated in several Indian languages including Hindi, Bengali, Kannada and Tamil. Validated cut-offs in Indian populations are available.[10,11,15,17]

2. Symptom Checklist-90-Revised (SCL-90-R)

Overview:
The SCL-90-R is a self-rated screening instrument for general psychopathology, it is also used as a general measure of severity of pathology.[13,18–20] Shorter versions of the instrument with 53 items (BSI), 25 items (HSCL-25), 18 items (BSI-18), 10 items (SCL-10N, SCL-10R), 9 (SCL-K-9) and 6 items (SCL-6) have been developed. Though all versions have been shown to have good internal consistency and reliability and perform equally well as screening instruments, the longer versions have been shown to have better discriminative ability in terms of symptom severity.[21]

Administration:
The SCL-90-R contains 90 self-rated items. Respondents are asked to report each item on how much discomfort or distress they experience on a continuum from 0= 'not at all', to 4= 'extremely'. It covers a time period of the past week, and the past one day. The instrument yields nine scores along the proposed nine symptom dimensions of the scale. A Global Severity Index, which is the mean score of all items is also calculated. A computerized version of the scoring system is available.[19,22]

Ease of use:
The SCL-90-R is covered by copyright. Kits including the instrument and supportive materials are available for roughly 60 US dollars. It has been designed for use by individuals who read at a sixth-grade level and takes 12-15 minutes to complete. Its robust psychometric properties across different study populations make it a widely used instrument for screening and severity assessment of a variety of mental disorders across the psychotic and non-psychotic spectrum.

Underlying structure:
The SCL-90-R covers nine symptom dimensions: somatization, obsessive-compulsive symptoms, interpersonal sensitivity, depression, anxiety, hostility, phobic-anxiety, paranoid ideation and psychoticism.

Use in India:
The SCL-90-R has not been validated in Indian languages, though it has been used in Indian populations.[23]

3. Dartmouth Primary Care Cooperative Research Network (COOP)/ World Organization of National Colleges, Academies, and Academic Associations of General Practitioners/Family Physicians (WONCA) charts for adult primary care practice

Overview:
This instrument was originally developed as a component of the Dartmouth Primary Care Cooperative Information Project which aimed at better collaboration between clinical practice, medical education and research.[24] It was modified in 1988 by WONCA (World Organization of Colleges, Academies and Academic Associations of General Practitioners/Family Physicians). It aims to assess overall health and functioning of patients, in a primary care setting as well as providing a measure of meaningful symptom change. It relies heavily on illustrations and visual components for its assessment, making it an instrument that has been easily used across cultures and in various settings. Though it was not developed specifically for use in mental health settings,

it has been found to be useful as a screening instrument for mental distress in the primary care setting.[25]

Administration:
The instrument consists of 6 charts that depict illustrating cartoons and ask respondents to respond on a 5-point Likert from 1= very good to 5= very bad. It covers a time frame of the past two weeks at time of administration. The instrument provides six different scores across the six domains measured. A cut-off score of 17 has been validated for identification of significant problems in primary care settings.[25]

Ease of Use:
The COOP/WONCA charts are in the public domain. Though the initial instrument was recommended to be administered by a trained staff member, it has subsequently been used as a purely self- administered instrument, often filled by patients in the waiting room. The questions comprise of short sentences that are easy to understand across reading grades and the illustrations improve patient comprehension. It takes 3-5 minutes to complete.

Underlying Structure:
The instrument has six underlying domains: physical fitness, feelings, daily activities, social activities, overall health and change in health status.

Use in India:
The charts have been validated in Urdu by a study done in Lahore, Pakistan.[22] They have not been validated in other Indian languages. There is no cut-off score that has been validated in Indian populations.

4. Brief Psychiatric Rating Scale (BPRS)

Overview:
BPRS is one of the oldest (Overall and Gorham,1962), well accepted and time-tested scale with several advantages.[26] It was designed for assessing baseline psychopathology, outcomes, and response with the possibility of repeated administrations at any frequency of choice. It measures predominantly psychotic and non-psychotic symptoms with significant impairment.

Administration:
It usually takes 15-30 minutes to administer the scale and measures both rater's observation and client's verbal report. It is applicable for all ages and retains the same form across all versions of the scale. Initially created as an 18-item scale, it was later expanded to 24 items. BPRS-C is a 21-item scale designed for children.

Ease of use:
It was more popular before differentiation of positive and negative symptoms. It's less than expected use in clinical settings may be because of need for training, ambiguous criteria for various levels of severity, with some overlap in some items. It is available for free use and can be accessed online through the link http://farmacologiaclinica.info/scales/BPRS

Underlying structure:
The parameters include tension, emotional withdrawal, mannerisms, posturing, conceptual disorganization, unusual thought content, anxiety, guilt feelings, grandiosity, depressive mood, hostility, somatic concern, hallucinatory behavior, suspiciousness, and blunted affect.

Use in India:
Its use is quite prevalent in clinical settings. Mildly ill' according to the CGI approximately corresponded to a BPRS total score of 31, 'moderately ill' to a BPRS score of 41 and 'markedly ill' to a BPRS score of 53.[27] Correlations are available with CGI and PANSS.[28] They have not been validated in other Indian languages. There is no cut-off score that has been validated.

B. Wellness Scales

1. WHO-5 well being index

Overview:
The WHO-5 wellbeing Index (WHO-5) is a measure of current mental wellbeing. Originally the English version was presented by the WHO Regional Office at a meeting in Stockholm in February 1998 as part of the DEPCARE project on the measurement of well-being in primary health care patients. It has been subsequently translated to more than 30 languages and used for various research projects worldwide.[29]

Administration and ease of use:
WHO-5 is a short self-reported scale and can be reported by children (aged 9 and above) and young people and administered in a variety of settings. The WHO-5 is free of charge and does not require permission to use.

Underlying structure:
The WHO-5 consists of five Likert statements ranging from 5 (all the time) to 0 (never), which respondents' rate according to the scale (in relation to the past two weeks).[30]

The total raw score, ranging from 0 to 25, is multiplied by 4 to give the final score, with 0 representing the worst imaginable well-being and 100 representing the best imaginable well-being. Score of 50 or less indicate need for clinical assessment.

Use in India:
It is being extensively used in India in diverse settings. Its available in Hindi.[31] The internal consistency and convergent validity of this measure have been demonstrated in other Indian studies.[32]

2. The Rosenberg self-esteem scale (RSES)

Overview:
Developed by Morris Rosenberg,[33] the Rosenberg self-esteem scale (RSES) is a unidimensional scale measuring global self-worth (overall sense of being a worthy and valuable person). It measures both positive and negative feelings about the self. In psychology research, RSES is the most used measure of self-esteem and was originally developed for adolescents.[34]

Administration and ease of use:

It is a self-administered scale and typically takes less than 5-10 minutes to complete.

Underlying structure:

These 10 items on the RSES have a high internal consistency reliability with the scale demonstrating a sound reliability and validity.
It was initially developed as a Guttaman scale but is typically administered with a 4-point Likert scale format (Strongly Agree, Agree, Disagree, Strongly Disagree) to answer the 10 items.

Use in India:
There are studies that have used RSES but it has not been validated in any Indian languages. It can be accessed freely and used with the permission of The Morris Rosenberg Foundation.

C. Stress Scales

1. Kessler Psychological Distress scale (K)

Overview:
The Kessler Psychological Distress scale was used in the National Health Interview Survey (NHIS) in the USA. It Conceptualized by Professor Ronald C. Kessler in 1992, it was initially developed as a population level screening tool for anxiety and depression.[35] It has 10 items.

The K-6 scale was developed simultaneously/alongside the K-10. The 6 items were initially meant as an addition to the NHIS where the requirements were for scales that could add assessments to a large population survey while balancing brevity and ease of administration.[36]

Administration:
The 10 items are marked on a Likert response scale through 1(none of the time) to 5 (all of the time). The scoring indicates severity of distress with a maximum score of 50 (severe distress) and a minimum score of 10 (no distress). Cut offs are available with 20–24 – mild level of distress, 25–29 – moderate levels of distress, and 30–50 – severe depression/anxiety disorders.

Ease of use:
It asks for psychological distress present preceding 4 weeks prior to administration The non-specific psychological distress if present beyond certain levels, indicates a need for further evaluation in the clinical setting.

Underlying structure:
It has 10 items assessing client's subjective distress (irrespective of the context or situation) in the last 30 days.

Use in India:
Kessler Psychological Distress scale has been used extensively in many countries as part of the World Mental Health Surveys. An Indian study done in the general population of Goa state concluded that K10 has high accuracy and internal consistency in the diagnosis of common mental disorders.[37] K10 is available in an Indian language. A shortened 6-item version of the questionnaire (K6) has also been advocated as a screening measure.

D. Functioning assessments

1. Clinical Global Impressions scale (CGI)

Overview:
The CGI scale was initially designed to be implemented as a single use assessment of outcome by a non-researcher clinician, in a drug trial.[38] Its ease of use and focus on practical application has seen the scope of its use expand from this beginning. It has been used as a screening instrument, as well as for quantification of meaningful clinical change in the hospital setting.[19,39–42] Its psychometric qualities have been challenged by some authors, and it has been suggested that it be used more as originally intended, as a cross sectional measure of severity.[43] It has also been suggested that the item measuring therapeutic response lacks content validity and is based on questionable reasoning.[43] Nevertheless, it continues to be widely used in clinical practice and research. Cross validation with other instruments like the BPRS,PANSS, HAMD and MADRS has further enhanced its claims of validity and generalizability.[28,44]

Administration:
The CGI scale consists of three sub components of severity, improvement and therapeutic response.[45] The severity component comprises of one question asking the clinician to rate "Considering your total clinical experience with this particular population, how mentally ill is the patient at this time?" on a Likert scale from 1 ("normal, not at all ill") to 7 ("among the most extremely ill patients"). Similarly, the improvement component asks the clinician to rate "Compared to the patient's condition at admission to the project [prior to medication initiation], this patient's condition is" on a Likert scale from 1 ("very much improved since the initiation of treatment") to 7 "very much worse since the initiation of treatment". The therapeutic response rating needs to consider adverse events as well as symptom response and ranges from 0 (marked improvement with no side-effects) to 4 (unchanged or worse with side effects that outweigh therapeutic effect). It does not yield a global score. It is rated in the context of the individual's clinical experience.

Ease of use:
The CGI has been designed to be extremely easy to use in real world clinical settings. The scale is meant to be used by experienced, non-researcher clinicians without additional training. It is in the public domain. Time of administration varies by the experience of the clinician with the instrument but is usually less than 5 minutes.

Underlying structure:
As detailed above, the CGI has 3 subcomponents of severity, improvement, and therapeutic response. The first two have been extensively validated for use as stand-alone outcome measures.[38,40] A 2-component structure of severity and improvement has also been suggested.[38]

Use in India:
The CGI has been extensively used in Indian research across diagnoses and clinical setting.[41,42] It has also been used as a measure of external validity for several other instruments in the Indian setting.[46]

NEWER CONCEPTS

COVID-19 pandemic

With the COVID-19 pandemic, there has been silent mental crisis due to dramatic changes in our way of life.47 As we were restricted to our homes during lockdowns, many have resorted to general psychopathology scales that are available online as a measure non-specific psychological distress to assess and to seek help for their mental health problems.47 This shows more promising venues for general psychopathology scales that are otherwise seen to have lesser utility than specific scales. However, many of these scales need validation. Availability in local languages could further increase their acceptability. A similar screening test is provided by SUMANA Trust and can be accessed freely through this link https://mentalhealthandyou.in/mental-health-screening-test/

'p' factor of psychopathology

Research into psychopathology as a spectrum has attempted to identify underlying common dimensions across existing diagnostic categories. There is increasing evidence for a higher order trans-diagnostic factor of 'general' psychopathology. This has been called the 'p factor' of psychopathology.[48–50] This model of psychopathology has been shown to fulfil the basic requirements of a psychiatric nosology: guiding research,[51,52] guiding prognostication[53] and guiding clinical decision making.[49]

An ideal general psychopathology scale

Based on the common consensus of the authors, the following are proposed parameters for an ideal general psychopathology scale. An ideal general psychopathology scale must be able to:

1. Assess psychopathology across multiple dimensions, domains and must be trans-diagnostic in nature e.g., GHQ
2. Track change and show improvement in functioning tracking. e.g., CGI, WHODAS, and GAF.
3. Have ease of administration i.e., need for minimum training, lesser time, and lesser number of items on the scale.
4. Quantify severity cross-sectionally (with validated cut-offs).
5. Must have screening potential (with validated cut off).
6. Assess insight which in-turn also influences the impact of the disorder on the patient.
7. Accommodate multiple sources of information (caregivers, etc.)

CONCLUSION:

General psychopathology scales are trans-diagnostic scales that aim to comprehensively measure psychological pathology. They serve in screening, research, assessment of functioning, tracking change, guiding prognostication, and clinical decision-making. General psychopathology scales can be categorised based on their utility under General symptomatology, Wellness scales, Stress scales, Functioning assessment and Diagnostic Interviews. Some commonly used general psychopathology scales are GHQ-12, SCL-90-R, COOP, BPRS, WHO-5 well-being index, the Rosenberg self-esteem scale, the Kessler Psychological Distress Scale, and the Clinical Global Impression Scale. In the absence of established biomarkers in clinical psychiatry, scales have significant utility and an ideal general psychopathology scale remains a work in progress.

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Table 2 a: Summary of the selected scales measuring general symptomatology

Name of the tool	Number of items	Administration time	Psychometric properties
General Health Questionnaire (GHQ)	60, 36, 28, 12	12 items- 2-3 minutes	Cronbach alpha: 0.84-0.93, Reliability coefficient: 0.72-0.83, Sensitivity:60-87.4%, Specificity:74-79.2%
SCL-90-R	90	12-15 minutes	Cronbach alpha: 07-0.96, Coeffecient H:0.32-0.5, Sensitivity:79-90%, Specificity:59-80%
COOP/WONCA charts	6 charts depciting illustrating cartoons	3-5minutes	Cronbach alpha: 0.72-0.77, Reliability coefficient: 0.41-0.93, Test-retest reliability of 56-73%, Sensitivity: 74-84%, Specificity: 65-88%
Brief Psychiatric Rating Scale (BPRS)	18, 21,24	20-30min (18 ietms)	Reliability coefficient: 0.56-0.87
The Rosenberg self-esteem scale (RSES)	10 items	5-10min	Internal consistency of 0.77, Cronbach alpha: 0.84-0.95
Kessler Psychological Distress scale	6,10	10 minutes	sensitivity 66-71% and specificity 90%, Cronbach's alpha 0.93-0.94
WHO-5 Index Scale	5	1 minute	sensitivity 93% and specificity 0.83%, Cronbach's alpha 0.858
CGI	3 subcomponents	Less than 5 minutes	Reliability coefficient: 0.35-0.71

Table 2b: Summary of the selected scales measuring general symptomatology			
Name of the tool	**Language available**	**Cutoffs available**	**Describe cutoffs and interpretations**
General Health Questionnaire (GHQ)	Translated into multiple languages. In India, validated versions exist in Hindi, Bengali, Kannada and Tamil	Yes	2/3 has been validated as a cut-off for significant distress in Indian populations.
SCL-90-R	Available in Hindi, Kannada, Tamil, Marathi, and Malayalam. Available in multiple lanuages including English, German, Persian and Italian	Yes	A cut-off of 0.4 for each subscale has been used in Indian studies
COOP/WONCA charts	Translated in multiple language including French, Spanish, Arabic, Persian and Turkish. Urdu as only validated Indian language	Yes	A cut-off score of 17 has been validated in primary care settings.
Brief Psychiatric Rating Scale (BPRS)	Not validated in any Indian language. Available in multiple languages including English, Malay and Spanish	No	Intrepretation based on correlation with PANNS and CGI.
The Rosenberg self-esteem scale (RSES)	Not validated in any Indian language.	No	No cut-offs. Higher scores mean higher self esteem
Kessler Psychological Distress scale	Available in one Indian language	Yes	Available for both K6 and K10. Higher score indicate more severe mental disorder
WHO-5 Index Scale	Available in Hindi	Yes	Less than 50 indicate need for assessment for depression

CGI	N/A	No	The CGI is rated on a 7-point scale, with the severity of illness scale using a range of responses from 1 (normal) through to 7 (amongst the most severely ill patients).
Name of the tool	Scale URL		
General Health Questionnaire (GHQ)	Goldberg DP. User's guide to the General Health Questionnaire. Windsor. 1988. **Hindi**- Gautam S, Nijhawan M, Kamal P. Standardisation of Hindi Version Of Goldbergs General Health Questionnaire. Indian J Psychiatry 1987; 29: 63–66. **Tamil**- Kuruvilla A, Pothen M, Philip K, et al. The Validation of The Tamil Version Of The 12 Item General Health Questionnaire. Indian J Psychiatry 1999; 41: 217–221.		
SCL-90-R	Derogatis, L. R., Lipman, R. S., & Covi, L. (1973). SCL-90: An outpatient psychiatric rating scale-preliminary report.		
COOP/WONCA charts	Azevedo-Marques JM de, Zuardi AW. COOP/WONCA Charts as a Screen for Mental Disorders in Primary Care. Ann Fam Med 2011; 9: 359–365.		
Brief Psychiatric Rating Scale (BPRS)	Overall JE, Gorham DR (1962). The brief psychiatric rating scale. Psychological Reports 1962 vol. 10, pp799-812.		
The Rosenberg self-esteem scale (RSES)	Rosenberg M. Society and the Adolescent Self-Image. Princeton University Press, 2015.		
Kessler Psychological Distress scale	Kessler Psychological Distress Scale | SpringerLink, https://link.springer.com/referenceworkentry/10.1007/978-94-007-0753-5_3663. Kessler RC, Barker PR, Colpe LJ, Epstein JF, Gfroerer JC, Hiripi E, et al. Screening for serious mental illness in the general population. Arch Gen Psychiatry. 2003 Feb;60(2):184-9.		
WHO-5 Index Scale	Regional Office for Europe WHO. Use of Well-Being Measures in Primary Health Care - The DepCare Project. Health for All, Target 12, 1998		

CGI	Busner J, Targum SD. The Clinical Global Impressions Scale. Psychiatry Edgmont 2007; 4: 28–37.

Table 2c: Summary of the selected scales measuring general symptomatology

Name of the tool	Copy right	Licensing fee	Population (if known)	Diagnostic(Y/N)	Screening (Y/N)	Use in epidemiological studies (Y/N)
GHQ	Yes	NA, Available on public domain, https://strokengine.ca/en/assessments/general-health-questionnaire-28-ghq-28/	Outpatients	No	Yes	Yes
SCL-90-R	Yes	Approximately 60 USD, https://pearsonclinical.in/solutions/symptom-checklist-90-revised-scl-90-r/	Has been used extensively in primary care settings. Has also been validated in psychiatric inpatient and outpatient settings	No	Yes	Yes
COOP/WONCA charts	No	Freely available on public domain http://www.ph3c.org/PH3C/docs/27/000150/0000103.pdf	Designed for use in primary care settings, subsequently used in medical impatient	No	Yes	Yes

BPRS	No	Freely available on public domain http://farmacologiaclinica.info/scales/BPRS. Instructions- https://cdn.sanity.io/files/0vv8moc6/psychtimes/5468a2f9b6b34b9ae55de3621ce55d57d20bc59b.pdf	Both in-patient and out-patient population	No	Yes	Yes
RSES	No	It can be accessed freely and used with the permission of The Morris Rosenberg Foundation- https://socy.umd.edu/about-us/using-rosenberg-self-esteem-scale	Especially adolescents	No	No	Yes
Kessler Psychological Distress scale	No	Freely available on public domain. K10- https://www.tac.vic.gov.au/files-to-move/media/upload/k10_english.pdf	Outpatients	No	Yes	Yes
WHO-5 Index Scale	No	Freely available on public domain. http://www.who.dk/document/e60246.pdf	outpatients	No	Yes	Yes
CGI	No	Freely available on public domain https://www.psywellness.com.sg/docs/CGI.pdf	Designed for use in the hospital setting to measure severity and response to medication	No	No	No

Chapter 8

DIAGNOSTIC ASSESSMENT SCHEDULES FOR MENTAL HEALTH

Gupta Snehil[1*], Singh Swarndeep[2], Afroz Omar[3]

Take Home Message

- Instruments for diagnostic assessment play crucial roles in research and clinical practice.
- They are of three kinds (structured, semi-structured, and unstructured) with distinct characteristics.
- The applicability of diagnostic schedules is informed by the context of its use, time, resources, and expertise of the interviewer.
- Commonly used diagnostic schedule in adult population are SCID-5 (& its versions), MINI 7, SCAN 2, & ADIS.
- In children and adolescents K-SADS, MINI-KID, CAPA, and DISC are often used.
- The advantages of diagnostic schedules include its psychometric robustness, comprehensiveness, and standardization.
- In contrast, their exhaustiveness, non-availability (of some tools) in native languages, licensing, and requisite expertise for administration are critical limitations.
- Future research must endeavour to develop diagnostics schedules in native languages and make them user-friendly; likewise, efforts should be made to establish their psychometric properties.

INTRODUCTION

Diagnostic assessment instruments have crucial roles in research and clinical decision-making by augmenting the precision of the clinicians. However, diagnostic assessments are often marred with validity and reliability issues due to various researcher/clinician-, disorder conceptualization-, and interviewee (e.g., patient)-related factors.[1] Therefore, different standardized (structured and semi-structured) diagnostic assessment schedules have been developed and psychometrically tested to overcome these limitations.

There are three types of diagnostics instruments: Structured, semi-structured, and unstructured. Structured interviews follow a verbatim clinical enquiry and quantify information/clinical characteristics based on the explicitly delineated criteria. At the same time, semi-structured

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interviews utilize the freedom of enquiring/getting informed through probe questions or alternate questions. In contrast, unstructured instruments are often open-ended enquiry and rely on the interview/clinical skills of the interviewer/assessor.[2] Therefore, the latter is prone to subjectivity and suffers from reliability issues.

Structured interviews address the validity and reliability of the assessment instruments by standardizing the content, format, and sequence of enquiries (questions) to be asked; they also provide algorithms to draw diagnostic conclusions from information obtained that follows the diagnostic framework/classificatory system employed. Another advantage of the diagnostic schedules (structured or unstructured interviews) is that they can comprehensively assess for comorbid psychiatric illness(es), including Axis-2 disorder, which is liable to be missed. [3]

Literature suggests both respondents (patients) and interviewer rate structured assessment instruments positively; moreover, they are considered valid and reliable tools to comprehensively assess an individual for mental disorders.[4] However, it is crucial that diagnostic schedules be used considering their contextual framework/conventions for better diagnosing various psychiatric conditions. Such informed usage would also add to the instrument's psychometric robustness. Additionally, interviewers/researchers need to be well-versed in the cultural characteristics of the sample from which the tool was derived and the features of the population in which a given instrument is to be applied. This includes being aware of the normative data, as provided in the manual with the tool, to be utilized for assessments.

The current chapter intends to discuss various diagnostic schedules used in the research and clinical settings encompassing children and adolescents and the adult population. Furthermore, it describes the instruments in terms of their advantages, limitations, and critical aspects concerning the Indian context/population. We have also provided details about various instruments' copyright/licensing status and how the users can access them. Finally, we have offered concise tables throughout this chapter to improve the readability and enrich the reader's experience.

DIAGNOSTIC ASSESSMENT SCHEDULES FOR THE ADULT POPULATION

The diagnostic interview schedules described here mainly focus on those frequently used for diagnosing common axis 1 disorders (mental and substance use disorders) in the adult population either as per the latest DSM-5 or ICD-11 classificatory systems or their previous versions (i.e., DSM-IV TR or ICD-10). Table 1 summarizes the salient characteristics of the selected diagnostic interview schedules for axis 1 disorders among adults.

Structured Clinical Interview for DSM Disorders (SCID)

The SCID was initially developed for making the diagnosis as per the DSM-III criteria and has subsequently undergone multiple rounds of revisions to improve its reliability and validity and to keep it consistent with the subsequent revisions of the DSM classificatory system: in terms of (changes in) diagnostic categories and/or criteria for disorders. In this chapter, we have discussed in depth the currently used version of SCID that is compatible with the latest DSM-5 diagnostic criteria for mental disorder diagnoses (SCID-5).

The SCID-5 has the following three different versions, each suitable for a specific purpose or context of use: the SCID-5-CV (Clinician Version), the SCID-5-RV (Research Version), and the SCID-5-CT (Clinical Trial version).[5] All the versions of SCID-5 are semi-structured diagnostic interview schedules that should be applied by a psychiatrist or trained mental health professional familiar with the use of the DSM-5 classificatory system for making psychiatric diagnoses. Further, the SCID-5 permits the interviewer to apply clinical judgment while deciding whether a DSM diagnostic criterion has been met. Moreover, the diagnosis is not solely based on the respondent's answers to the initial question; an interviewer, based on his discretion, can enquire through (optional) follow-up probes/ questions. Thus, the reliability of SCID-5 also depends on the interviewer's expertise.

The SCID-5-CV is the shortest of three versions and consists of 10 different modules covering a total of 39 commonly encountered psychiatric disorders in routine clinical practice. This shorter version of SCID-5 is precious in busy clinical settings where it can be applied within the optimum time.[6] In contrast, the 10 diagnostic modules of SCID-5-RV cover a total of 63 psychiatric disorders with an option (i.e., the enhanced configuration of SCID-5-RV) to collect additional information of possible interest to the researchers apart from the presence or absence of a particular disorder, such as sub-typing of disorder, eliciting information related to its aetiology (e.g., organic or secondary to general medical conditions medical causes), enquiring history of previous episodes, among others.[7] Box 1 describes the different modules of SCID-5. This modular structure of SCID allows the clinician or researcher to select only relevant modules to save time and other resources.

The SCID-5-CT is a modified version of the SCID-5-RV to include only relevant modules/ questions for the particular clinical trial or study. In addition, it can consist of specific or additional questions per the trial (or study) requirements (e.g., questions assessing the inclusion and exclusion criteria and diagnostic conditions such as major neurocognitive disorders that are otherwise not covered in the SCID-5-RV).[8]

Box 1: Modules of Structured Clinical Interview for DSM-5 Disorders (SCID-5)

SCID-5-RV	**SCID-5-CV**
Module A: Mood Episodes, Cyclothymic Disorder, Persistent Depressive Disorder, and Premenstrual Dysphoric Disorder	Module A: Mood Episodes and Persistent Depressive Disorder
Module B: Psychotic and Associated Symptoms	Module B: Psychotic and Associated Symptoms
Module C: Differential Diagnosis of Psychotic Disorders	Module C: Differential Diagnosis of Psychotic Disorders
Module D: Differential Diagnosis of Mood Disorders	Module D: Differential Diagnosis of Mood Disorders
Module E: Substance Use Disorders (two-time frames: past 12 months, prior to past 12 months)	Module E: Substance Use Disorders (past 12 months only)
Module F: Anxiety Disorders	Module F: Anxiety Disorders

Module G: Obsessive-Compulsive and Related Disorders	Module G: Obsessive-Compulsive and Related Disorders and Post-Traumatic Stress Disorder
Module H: Sleep Disorders	Module H: Attention-deficit/Hyperactivity Disorder
Module I: Feeding and Eating Disorders	Module I: Screening Questions for Other Disorders
Module J: Somatic Symptom and Related Disorders	Module J: Adjustment Disorder
Module K: Externalizing Disorders	--
Module L: Trauma- and Stressor-related Disorders	--

Strengths:
The SCID-5 is among the few diagnostic assessment schedules that have broad coverage of axis 1 psychiatric disorders and permit the diagnosis per the DSM-5 criteria. Moreover, it has a well-established construct, predictive validity, and acceptable reliability statistics.[6] The SCID-5 is also available in a computerized format (NetSCID), allowing the entry of responses directly into a digital device (e.g., handheld tablet). The use of NetSCID has been shown to increase the ease of administration and decrease the rate of errors in data entry as compared to the traditional pencil-paper format of SCID.

Limitations:
The reliance on applying clinical judgement and experience by the interviewer in administering the SCID-5 necessitates adequate training of mental health professionals or researchers before its use. Thus, it cannot be used by laypersons. Furthermore, administrators cannot use it to diagnose per the ICD classification system.

Practical points related to use in the Indian context:
The SCID-5 has not yet been translated into vernacular non-English languages spoken in India (e.g., Hindi). Moreover, to date, there has been no published (validation) study involving the Indian population. However, SCID-5 has been used in some Indian studies for diagnosing psychiatric disorders [9] Since it is a copyrighted instrument, prior permission from the developer or license purchase is required before its use, irrespective of whether the research work is funded or non-funded (kindly refer link provided in Table 1 for more details)

Table 1: Summary of selected diagnostic interview schedules for axis 1 adult psychiatric disorders

Name of the tool	Number of items	Administration time	Psychometric properties	Indian vernacular translation available	Cut-offs	Scale URL	Copyrighted/public domain	Licensing fee
SCID-5	**Versions: SCID-5-CV** (covers 39 commonly encounter psychiatric disorders), **SCID-5-RV Core** Version: 63 psychiatric disorders **SCID-5-RV** Enhanced Version: **SCID-5-CT:**	30-120 min 45-120 min 45-180 min 30-75 min	Has well-established construct, predictive validity, and acceptable reliability	No	NA	https://www.appi.org/products/structured-clinical-interview-for-dsm-5-scid-5	**Copyrighted. URL-** https://www.appi.org/products/structured-clinical-interview-for-dsm-5-scid-5	Licensing fees varies depending upon the type of SCID and purpose of use (one has to apply online for a given scale to know exact fee)
MINI 7.0	17 commonly encounter axis-1 disorders	15-30 minutes	Robust psychometric properties	Yes (i.e. Hindi for India)	NA	https://harmresearch.org/mini-international-neuropsychiatric-interview-mini/	Copyrighted. URL-www.davidvsheehan.org	License fee for paper / pdf Adult Standard MINI is $15 (US) per single

								administration (& not per patient); Total amount to be paid in full prior to study initiation
SCAN 2.1	A total of 28 sections consisting of 1872 items	-	Well established psychometric properties	No	Validated in Indian population	http://whoscan.org/wpcontent/uploads/2014/10/xinterview.pdf (Contact WHO country office: wrindia@who.int)	Not Copyrighted	No licensing fee required
ADIS-5	ADIS-5 (current diagnoses), and the Lifetime version (ADIS-5 L)- 16 diagnostic sections followed by a screening section to rule out	2-4 hours	**Not well established yet**	Not available	On a possible clinical severity rating between 0-8; cut-off value of 4 or above has been recommended as diagnostic threshold	https://global.oup.com/academic/product/anxiety-and-related-disorders-interview-schedule-for-dsm-5-adis-5-adult-version-9780199325160?lang=en&cc=in	Copyrighted https://global.oup.com/academic/product/anxiety-and-related-disorders-interview-schedule-for-dsm-5-adis-5-adult-version-9780199325160?lang=en&cc=in	**£74.00**

	other related disorders. Addition to this, in ADIS-5L question to assess diagnostic time line are included.				as per Western population -based studies. No validation study yet from the Indian context.			

-: information is not available; ADIS-5: Anxiety and Related Disorders Interview Schedule for DSM-5, MHPs: mental health professionals, SCID-5-CV: SCID-5 clinical version, SCID-5-RV: research version; SCID-5-CT: SCID-5-clinical trial version

Mini International Neuropsychiatric Interview (MINI)

The MINI was initially developed by a group of expert mental health professionals from the United States of America and European countries to create a brief standardized instrument that can be used for making psychiatric diagnoses per both DSM and ICD classification systems. It is a semi-structured diagnostic interview schedule that can be completed in (a median time of) 15 minutes; moreover, relatively lesser training (Vs. SCID) is required to learn its application, hence suitable for laypersons.[10] It covers 17 most commonly encountered axis 1 mental disorders (with a prevalence of >0.5% in epidemiological studies involving the general population) among adults in both community and clinical settings. The latest version of MINI (7.0) can be used to make diagnoses as per the DSM-5 criteria, and we have described its standard version in some detail here.

The MINI 7.0 version has a modular structure, with screening questions being provided at the start of each disorder diagnosis. Such a structure helps the researcher or clinician optimize its administration time by quickly selecting diagnoses of interest and skipping further questions if someone fails to test positive on any of the given screening questions at the beginning of the module.

Strengths:

The MINI is among the most commonly used diagnostic assessment schedule in published research studies because of its brief structure and relative ease of administration. It requires minimal training prior to the application. MINI is also available in a computerized format. Moreover, several different versions of MINI are available (e.g., MINI-Plus, MINI-Screen, MINI-Kid, etc.) to cater to the clinician's or researcher's specific needs. It is compatible with both DSM (III, IV, 5) and ICD-10 classificatory systems (instrument details, including the flowchart guiding the most appropriate instrument version for the given research work can be obtained through https://harmresearch.org/product/mini-international-neuropsychiatric-interview-mini-flow-chart-05-15-20-11/).

Limitations:

The latest version of MINI (7.0) is still not compatible with making diagnoses as per the ICD-11 diagnostic criteria. It is also a copyrighted instrument. The license has to be purchased, even for use in academic research (e.g., use in a thesis or dissertation by a student), unlike previously, where the developer (author: Dr. David Sheehan) used to forgo the charges upon request of the students or investigators of non-funded research.

Practical points related to use in the Indian context:

MINI has been linguistically translated into more than 70 languages, including several of the vernacular languages spoken in India, such as Hindi, Tamil, etc. Though the recent version of MINI (7.0) has not been tested for its validity and reliability in the Indian sample, it has been widely used in India, considering its wide acceptance as a reliable tool for making psychiatric diagnoses among mental health experts.[11,12]

Schedules for Clinical Assessment in Neuropsychiatry (SCAN)

The SCAN was developed by the expert mental health professional group of the World Health Organization (WHO) to create a cross-culturally valid diagnostic assessment schedule for conducting international epidemiological studies on mental disorders. The currently available version (i.e., SCAN version 2.1) can diagnose axis 1 mental disorders as per ICD-10 and DSM-IV TR classification systems. After the release of the ICD-11, an expert group under the

auspices of the WHO has been working together to develop a newer version of SCAN (3.0) that would be consistent with the latest ICD-11 and DSM-5. However, at present only SCAN version, 2.1 is available and has been discussed in detail here.

The SCAN 2.1 version consists of three main parts: the tenth version of the Present State Examination (PSE), the Item Group Checklist, and the Clinical History Schedule. Also, the glossary of SCAN 2.1 is separately available that includes definitions and explanations of terms and items used in the SCAN interview guide. The PSE consists of two broad parts: Part 1 covers disorders with mood, anxiety, and neurotic symptoms, and Part 2 covers disorders with cognitive and psychotic symptoms.

Strengths:
SCAN 2.1 is among the few diagnostic assessment schedules with broad coverage of axis 1 psychiatric disorders that permit diagnosis per ICD-10 and DSM-IV-TR classificatory systems with a demonstrated face and construct validity and good to fair reliability for all diagnoses.[13] The SCAN 2.1 is also available in a computerized format (IShell for SCAN), allowing the entry of responses directly into a digital device (e.g., handheld tablet) and the generation of diagnostic output automatically based on the entered responses of different questions/ items.

Limitations:
The available SCAN version has become somewhat outdated after the introduction of DSM-5 and ICD-11 manuals. Clinicians need to undergo training from the designated centres before applying SCAN 2.1 to ensure high reliability.

Practical points related to use in the Indian context:
The SCAN 2.1 has been translated into more than 35 languages, including some of the vernacular languages spoken in India, such as Hindi. The schedule was developed by an international group that included mental health experts from India. It has been pilot-tested at multiple sites across different countries, including India, during the development and initial psychometric validation process before its official release. The SCAN 2.1 is not copyrighted and can be used for research after providing credit/ reference to the instrument's publisher(s)/ author(s). Further, several published research studies from India have reported using the SCAN 2.1-based clinical interview for diagnosing psychiatric disorders.[14]

Other important diagnostic assessment schedules

Anxiety and Related Disorders Interview Schedule for DSM-5 (ADIS-5):

Apart from anxiety disorders, this tool covers mood disorders, somatoform disorders, and substance use disorders because of their high rates of comorbidity with anxiety-spectrum disorders. It provides a–a more nuanced assessment of anxiety disorders compared to other diagnostic schedules. It was developed for use in both research and clinical setting. Two versions of it are currently available: The standard version,[15] which provides information only about current diagnoses, and the Lifetime version, [15] which explores both lifetime as well as current diagnoses.

The schedule typically comprises the introduction part that collects information about the socio-demography, clinical problems, and life-stressors (work, relationship, school, etc.), and co-occurring medical or psychiatric illnesses of the participants. This is followed by the specific assessment of various anxiety disorders, such as panic disorder, agoraphobia, social anxiety disorder, separation anxiety disorder, GAD), followed by OCD, body dysmorphic

disorder, specific phobia, and PTSD/acute stress disorder. The following section assesses mood disorders, substance use disorders, somatoform disorders, etc. Lastly, it has screeners for psychotic disorders, eating disorders, etc., and a family history of mental disorders.

It also has a child version (both parent and children's versions) that assesses for the attention-deficit/hyperactivity disorder (ADHD), oppositional defiant disorder, conduct disorder, Major Depressive Disorder, and dysthymic disorder, with new sections on bipolar illness, disruptive mood dysregulation disorder, habit disorders, etc.

The adult and child versions of the ADIS-IV (but not ADIS-5) have been translated into several languages, including Dutch, French, German, Portuguese, and Spanish. Each ADIS-5 section includes items assessing all DSM-5 criteria for various psychiatric disorders. The section typically commences with an initial inquiry that contains a dichotomous (with "yes" or "no" response) question (screening question). Those individuals who screen positive on this initial item are subjected to a more detailed enquiry/assessment. Other crucial aspects of the disorders are also explored and documented: intensity of fear, frequency of avoidance, level of distress and interference. Severity is rated on a 9-point scale (with 0 indicating no fear, avoidance, etc. to 8 representing maximum fear, avoidance, etc.).

Strengths:
It has robust psychometric properties. Its semi-structured nature provides additional benefits to the clinicians to have tailored or deeper enquiry, thereby augmenting their diagnosis. In addition, it provides more detailed information about the condition(s) under assessment, including dimensional ratings for symptoms, enquiries about wider symptom subtypes, and possible aetiology.

Limitations:
The major disadvantages include relatively long time taken to administer, with the lifetime version typically taking 2-4 hours in clinical samples. Moreover, it only assesses few psychiatry disorders (anxiety ds with or without co-morbid with mood, somatoform and substance use disorders) as compared to SCID-5 and SCAN-2, which covers several mental disorders. It may necessitate the assessor to refer to other schedules or utilize his clinical judgment to differentiate anxiety conditions from other disorders not covered in ADIS-5, such as obsessive-compulsive personality disorder and avoidant personality disorder.

Practical points related to use in the Indian context:
It is not available in Hindi. Therefore, it has not been extensively studied in the Indian population. Moreover, copyright issues of the instrument may limit its broader use in the Indian context.

DIAGNOSTIC ASSESSMENT SCHEDULES FOR CHILD & ADOLESCENT POPULATION

Assessment in the child and adolescent population differs from that of adults owing to various factors. Mental health contact is rarely initiated by children, and is often sought by teachers or parents. Also, younger children often may not be able to give adequate information about the onset, duration, severity and course of their problems. Youth may also be reluctant to share details about embarrassing or socially undesirable thoughts or behaviours. Therefore, clinicians also need to obtain information from the adults who know the children.

As highlighted above, in the "Fully structured," or "respondent-based," interviews (RBI) questions are read exactly as written (often verbatim) and the response options are predefined (e.g., as in the Diagnostic Interview Schedule for Children – DISC). While the "Semi-structured" or "interviewer-based" interviews (IBI) allow the interviewer some degree of flexibility in how to frame the questions or use prompt or follow-up questions (e.g., Child and Adolescent Psychiatric Assessment [CAPA] and Schedule for Affective Disorders and Schizophrenia for School Age Children [K-SADS]). Some of the important diagnostic schedules used in the child and adolescent population have been described below and summarized in table 2:

Schedule for Affective Disorders and Schizophrenia for School Age Children (K-SADS)

The Kiddie Schedule for Affective Disorders and Schizophrenia (K-SADS) is a semi-structured interview for diagnosis of affective disorders such as depression, bipolar disorder, as well as anxiety disorder in school-aged children between 6–18 years.[16] This instrument has been found to be reliable and valid both in the clinical and research settings. The different versions of the instrument has been described below:

K-SADS Lifetime version (K-SADS PL)

It is used to diagnose current and past episodes of psychopathology in children and adolescents as per the DSM-5. Primary diagnoses include: Major Depression, Persistent Depression, Mania, Hypomania, Cyclothymia, Bipolar Disorders, Disruptive Mood Dysregulation Disorder, Schizoaffective Disorders, Schizophrenia, Schizophreniform Disorder, Brief Psychotic Disorder, Panic Disorder, Agoraphobia, Separation Anxiety Disorder, Simple Phobia, Social Anxiety Disorder, Selective Mutism, Generalized Anxiety Disorder, Obsessive-Compulsive Disorder, Attention Deficit Hyperactivity Disorder, Conduct Disorder, Oppositional Defiant Disorder, Enuresis, Encopresis, Anorexia Nervosa, Bulimia, Binge Eating Disorder, Transient Tic Disorder, Tourette's Disorder, Chronic Motor or Vocal Tic Disorder, Alcohol Use Disorder, Substance Use Disorder, Post-Traumatic Stress Disorder, Adjustment Disorders, and Autism Spectrum Disorder.[17]

The application of this instrument requires approximately 45-70 minutes. Favourably, its use is free for clinical usage in not-for-profit Institution, and in an Institute Review Board approved research protocol.

Strengths:

The major advantage of this tool is its comprehensiveness; it is considered a gold standard diagnostic schedule in child and adolescent population, with robust psychometric properties. As mentioned above, since it is non-copyrighted, it is freely available for research as well as clinical work.

Limitations:

Some of the noteworthy limitations with the **K-SADS PL** include need of training to the administrator, therefore, laypersons cannot use it. Moreover, its application requires a longer time, thereby limiting its routine use in clinical setting as well as in small scale studies.

Practical points related to use in Indian context:

KSADS-PL has been used in various Indian studies for diagnosing psychiatric disorders in the paediatric age group.[18,19]

The K-SADS Lifetime version comprise following measures/sub-tools:

The DSM-5 Cross-cutting Symptoms Measures (DSM-5 CC-SM): These self-reported measures are completed independently by the parent and child. It comprises 25 items and assesses symptoms severity over past 2 weeks. Prior to the application of the interview version of the K-SADS PL, both parents and children are required to complete DSM-5 CC-SM, and only once they score above the cut-off score, they are followed through interview version of the K-SADS PL.

The Unstructured Introductory Interview: It provides information about health, presenting complaint, prior treatment, hobbies, and peer and family relations. It usually takes 10-15 minutes to complete.

The Screen Interview: It screens for primary symptoms of the different diagnoses for current and most severe past episode(s). Majority of items are scored on a 0–3-point Likert-scale. Scores of 0 suggest no information, 1 implies absence of symptom, 2 indicates subthreshold levels of symptomatology, and 3 represents threshold criteria (while some items are rated on from 0 [implies no information] through 2 [symptom is present]). Symptoms rated in this interview are assessed for current and past episode(s).

Supplement Completion Checklist: The supplement(s) requiring completion are noted in the spaces provided, along with the dates of possible current and past episodes of the disorder.

Diagnostic Supplements: It is designed in such a way to survey the symptoms associated with the different disorders in detail. They are 5 in total and include:

1. Depressive and Bipolar Related Disorders
2. Schizophrenia Spectrum and Other Psychotic Disorders
3. Anxiety, Obsessive Compulsive, and Trauma Related Disorders
4. Neurodevelopmental, Disruptive, and Conduct Disorders
5. Eating Disorders and Substance Related Disorders

The Summary Lifetime Diagnostic Checklist: This template is meant to record basic lifetime and current diagnostic information. For instance, researchers/clinicians may wish to record dates of onset/offset or duration of additional episodes.

KSADS-Present Version (K-SADS-P):

This is the first version of the K-SADS for use in children and adolescents of age 6–19 years. It assesses symptoms that have occurred in the most recent episode (within the week preceding the interview), as well as symptoms that have occurred within the last 12 months. It does not assess lifetime symptoms and history; furthermore, it does not include many psychiatric diagnoses of interest in childhood (e.g., autistic spectrum disorders). Additionally, K-SADS-P does not involve diagnosis specific impairment ratings.

KSADS- Epidemiological:

This epidemiological version assesses both past and current episodes, focusing on the most severe past episode and the most recent episode. It is used to assess presence or absence of symptomatology and does not rate symptom severity.

Washington University in St. Louis-KSADS (WASH-U- KSADS):
This version expands the mania section in order to be more applicable to pre-pubertal mania. It assesses presence/absence of rapid cycling. It also includes a section on multiple other DSM-IV diagnoses, and examines both present and lifetime symptoms as well as symptom onset and offset items which make it valuable for phenomenology studies.[20]

KSADS-PL-Plus OR KSADS-PL-W (KSADS-Lifetime Washington):
These versions combine Depression and Mania modules of KSADS-PL and WASH-U-KSADS. K-SADS-PL-PLUS/ K-SADS-PL-W has an additional section covering pervasive development disorders. Its diagnostic criteria are wholly compliant to the DSM-IV-TR. Moreover, it has an updated administrative rule; in case of multiple past episodes of a disorder, the most severe episode is rated under 'past section'. K-SADS-PL-PLUS/ K-SADS-PL-W is an update to the KSADS-PL rather than a new edition of the interview.[21]

KSADS-COMP (KSADS- Computer):
This is a web-based assessment tool using KSADS-PL interview. It includes 1) a clinician-administered version, 2) youth self-administered version with videoclips to facilitate completion;, and 3) a parent/caregiver self-administered version.[22]

Mini-International Neuropsychiatric Interview for Children and Adolescents (MINI-KID):
It is a short, structured Diagnostic Instrument which is consistent with both DSM-5 and ICD-10 (Latest version MINI-KID 7.0.2). The standard version assesses the 30 most common psychiatric disorders in child and adolescent population. The instrument uses two to four screening questions for each disorder. If the child is screened positive in the initial question(s), additional questions are asked to identify other symptoms of the given disorder. It has a total of 24 modules.

It usually takes 45-50 minutes to administer MINI-KID. It has robust psychometric properties: good reliability as well as validity. [23] However, it is a copyrighted instrument which requires license purchase from the author; the permission/purchase can be applied through email.

Various translations of this instrument are also available, including various Indian vernacular such as Hindi, Bengali, Gujarati, Kannada, Malayalam, Marathi, Tamil, and Telugu.

Strengths**:**
The greatest advantage of this instrument is its ease of administration; it requires significantly lesser time for administration compared to other diagnostic schedules used in the children and adolescent population such as KSADS.

Limitations:
Some of the critical limitations of MINI are 1) it being less comprehensive as compared to K-SADS and 2) that it is a copyrighted instrument, hence not freely available to be used in the non-funded research or academic research.

Practical points related to use in Indian context:
Due to translations available in various Indian languages, MINI-kid has been included in various Indian studies for both screening and diagnostic confirmation in this age group.[24,25]

Other versions of the MINI include *MINI Kid Screen*, which uses only the screening questions; MINI Kid for Psychotic Disorders Studies; the MINI Kid with Tobacco Use Disorder Module; and the MINI Kid for Suicidality Disorders Studies. These versions have a more detailed set of questions about the corresponding disorder. For instance, MINI Kid Tracking yields a quantitative score that can be used to monitor treatment response over time.

Childhood and Adolescent Psychiatric Assessment (CAPA)
It is a parent and Child interviewer-based semi-structured diagnostic interview for the child and adolescent population of age range nine to 17. It has modules for diagnosis of common psychiatric disorders of above population. Current version provides diagnosis according to DSM-5 (Version 10.0.0). It focuses on the three months prior to the interview as the primary period in question.

The assessment is divided into three areas – Home and family life; school; companion groups and free-time activities. The instrument has detailed symptom ratings. There are two alternative forms of this instrument to be used for different ages: the Preschool Age Psychiatric Assessment for preschool aged children and the Young Adult Psychiatric Assessment for youth of ages 18 years and older.[26]

It requires about an hour to administer. It is also available in the web application-based form (eMeasures system) for administering both online as well as offline. Although it has been translated in various languages (e.g., Canadian, French, Norwegian, and German (parent only), any Indian vernacular translation is not available.

Strengths**:**
The greatest advantages of CAPA are its coverage of wide range of diagnoses and comprehensive review of symptoms.

Limitations:
The major limitations include requirement of training for administration, thus not suitable for the laypersons, and copyright issues.

Practical points related to use in Indian context:
The CAPA has not been commonly used in Indian studies as of yet. Therefore, its utility in the Indian population is still questionable.

Children's Interview for Psychiatric Syndromes (ChIPS):
It is a highly Structured Interview for use in children age between six and 18. It can also be used by lay interviewers after requisite training. It has 15 sections and screens for 20 Axis 1 disorders as well as psychosocial stressors. It has both child and parent versions. The current version of the instrument is based on DSM-4. It utilizes simple language, short sentence structure, and results are presented in a concise, easy-to-interpret manner. Its administration time is approximately 30 minutes (range-20-50).[27]

Copyright status: The instrument is copyrighted with American Psychiatric Association and requires purchasing to be used.

Strengths:
Being a brief instrument that can be applied by a trained lay interviewer, it has wide utility in clinical and research work.

Limitations:
The major limitation is that it captures only limited set of diagnoses.

Practical points related to use in Indian context:
CAPA has not been commonly used in Indian studies as of yet. Therefore, its utility in the Indian population needs to be investigated.

Diagnostic Interview Schedule for Children (DISC).
It is a highly structured diagnostic schedule with for parents and children's versions available. It covers more than 30 diagnoses based on DSM-5 and ICD-10 and assesses for the presence of symptoms occurring within both the past 12 months and the past 4 weeks.[28] The parent version of the instrument is used for parents with children of ages 6 to 17 years, while the self-report version is used in youth of ages 9 to 17 (Columbia University DISC Development group, https://www.cdc.gov/nchs/data/nhanes/limited_access/interviewer_manual.pdf).

It has an introductory section that collects demographic information of the assessee and an instructional section. The instrument comprises six modules, each containing related diagnoses and concludes with an optional "whole-life" module. It requires about 90-120 minutes for administration.

Strengths:
The DISC is-highly comprehensive and structured.

Limitations:
Administration of this tool is time consuming and it needs to be purchased for use.

Practical points related to use in Indian context:
DISC has not been commonly used in Indian Studies

Table 2: Summary of selected diagnostic interview schedules for axis 1 child and adolescent psychiatric disorders

Name of the tool	Number of items	Administration time	Psychometric properties	Indian vernacular translation available	Cut-offs	Scale URL	Copyrighted/public domain	Licensing fee
KSAD	75 items in Screen Interview	45-70 min	Well established	No	NA	https://www.pediatricbipolar.pitt.edu/sites/default/files/KSADS_DSM_5_SCREEN_Final.pdf	Freely available	No fee required
MINI-KID	Covers 30 common psychiatric disorders	45- 50 min	Robust psychometric properties	Yes (Hindi, Bengali, Gujarati, Kannada, Malayalam, Marathi, Tamil, & Telugu (Translations done by MAPI Research Trust)		https://harmresearch.org/product/mini-international-neuropsychiatric-interview-mini-kid-kid-parent-version-7-0-2-10	Copyrighted tool; permission for use can be obtained from Dr. David Sheehan (By mailing to davidsheehan@gmail.com	15 USD
CAPA	3 phases and 12 sections	60-120 min	Good psychometric property	No	NA	https://devepi.duhs.duke.edu/measures/the-child-and-adolescent-psychiatric-assessment-capa/	Copyrighted: permission can be obtained by mailing to Brian Small (brian.small@dm.duke.edu)	500 USD require for training

ChiPS	Covers 20 common Axis-1 diagnoses	20-50 min	Well established	No	NA	https://pubmed.ncbi.nlm.nih.gov/10638070/#:~:text=Method%3A%20ChIPS%20is%20a%20highly,enhance%20subject%20comprehension%20and%20cooperation.	Copyrighted (Elizabeth B. and colleagues) https://www.appi.org/p-chipschildrens_interview_for_psychiatric_syndromes-parent_version	91 dollars
DISC	30 common diagnoses	90-120 Min	Robust psychometric properties	No	NA	https://www.cdc.gov/nchs/data/nhanes/limited_access/interviewer_manual.pdf	Copyrighted (Shaffer D et al)	-

Information not available; CAPA: Childhood and Adolescent Psychiatric Assessment, ChIPS: Children's Interview for Psychiatric Syndromes; DISC: Diagnostic Interview Schedule for Children K-SADS: Schedule for Affective Disorders and Schizophrenia for School Age Children; MINI-KID: Mini-International Neuropsychiatric Interview for Children and Adolescents

DIAGNOSTIC ASSESSMENT SCHEDULES FOR PERSONALITY DISORDERS

The diagnostic interview schedules described here primarily focus on those commonly used for diagnosing personality disorders in the adult population, either as per the latest DSM-5 or ICD-11 classificatory systems or their previous versions (i.e., DSM-IV TR or ICD-10). Table 3 summarizes the salient characteristics of the two commonly applied diagnostic interview schedules currently available for diagnosing personality disorders in adults.

International Personality Disorder Examination (IPDE)

The IPDE was developed by an international group of mental health experts under the joint programme for diagnosing and classifying mental disorders by the WHO and the National Institutes of Health, United States. It consists of an IPDE screening questionnaire based on self-reports by subjects and IPDE semi-structured clinical interview guide for making personality diagnoses as per either DSM-IV or ICD-10 classificatory systems. The questions cover the diagnostic criteria for different personality disorders under the six broad assessment domains: work, self, interpersonal relationships, affect (mood), reality testing, and impulse control. It is recommended for use in the population aged at least 18 years. It is not recommended for use in people with severe mental illness (e.g., psychosis, bipolar disorder), sub-normal intelligence, and significant cognitive impairment.

The IPDE has two manuals with slightly different but overlapping items for making personality disorder diagnoses per the ICD-10 (59 items) and/ or DSM-IV (77 items) classificatory system. IPDE captures the following 10 personality disorders per ICD-10: Paranoid PD; Schizoid PD; Dissocial PD; Emotionally unstable, impulsive PD; Emotionally unstable, borderline PD; Histrionic PD; Anankastic PD; Anxious PD; Dependent PD; and Personality disorder unspecified. The DSM IV based manual includes diagnoses of obsessive-compulsive, avoidant and antisocial personality disorders instead of the ICD-10 diagnoses of anankastic, anxious, and dissocial instead of obsessive-compulsive, avoidant, and antisocial personality disorders, respectively. Moreover,–DSM IV manual includes an additional diagnosis of narcissistic personality disorder.

Strengths:

The semi-structured interview guide has been formatted so that the sequence of questions allows for the natural flow of the clinical interview and helps build rapport and maintain a balance with the need for standardization and reliability in establishing the personality disorder diagnosis. It allows for cross-culturally valid diagnoses and can be used in diverse population groups.

Limitations:

The IPDE has become somewhat outdated after the introduction of DSM-5 and ICD-11 classificatory systems. The interviewer needs to undergo significant training and familiarity with the use of DSM or ICD criteria in making personality disorder diagnoses. This can pose difficulty in its use by laypersons or early career mental health trainees.

Practical points related to use in the Indian context:

IPDE has been translated into several languages, including some of the vernacular languages spoken in India, such as Hindi, Kannada, Tamil, etc. Sharan et al. (2002) have validated the IPDE (Hindi version) for use in a sample of non-psychotic outpatients from North India, and a copy of the same may be obtained from the corresponding author on request.[29] Further, several published research studies from India have reported using IPDE-based clinical interviews for

diagnosing personality disorders.[30] IPDE is not copyrighted and can be used for research after providing credit/ reference to the publisher(s)/ author(s) of the instrument (Link has been provided in the table).

Structured Clinical Interview for DSM-5 Personality Disorders (SCID-5 PD)

Two different versions of SCID-5 are available for making diagnoses of personality disorders: the SCID-5-PD and the SCID-5-AMPD.[31] These two instruments' basic structure and format are similar to the SCID-5 diagnostic interview described previously. The SCID-5-PD consists of questions aimed at making different personality disorders diagnoses (based on the categorical model) per the DSM-5 criteria. These include self-report-based screening questions for each personality disorder (Cluster A: paranoid, schizotypal, schizoid personality disorders; Cluster B: avoidant, dependent, obsessive-compulsive personality disorders; cluster c: histrionic, narcissistic, borderline, and antisocial personality disorders); which may be used to guide the clinician or researcher to follow-up with a detailed assessment of those personality disorders for which the person has screened positive. The SCID-5-AMPD is aimed at the diagnostic evaluation of personality functioning and pathology based on the proposed alternative model of personality disorders in the section on conditions requiring further research in the DSM-5. SCID-5 AMPD is mainly used in research settings and contains three modules. Module 1 assesses the level of personality functioning in four domains of identity, self-direction, empathy, and intimacy. Module 2 assesses the five pathological personality trait domains (i.e., negative affectivity, detachment, antagonism, disinhibition, and psychoticism) and their corresponding trait facets per the DSM-5 alternate personality model. Module 3 comprises questions used to make the six personality disorder diagnoses (i.e., antisocial, avoidant, borderline, narcissistic, obsessive-compulsive, and schizotypal personality disorders) per the DSM-5 alternative model of personality disorders.

Strengths:

The SCID-5-AMPD modules can be used for dimensional analysis of personality pathology. User guides are available for both SCID-5-PD and SCID-5-AMPD to assist clinicians or researchers in administering these semi-structured diagnostic interview schedules.

Limitations:

The reliance on clinical judgement and experience by the interviewer in applying the SCID-5-PD or SCID-5-AMPD necessitates adequate training to mental health professionals before its use. Thus, it cannot be used by laypersons. Further, SCID cannot be used for making diagnoses per the ICD classificatory system.

Practical points related to use in the Indian context:

The SCID-5-PD and SCID-5-AMPD have not yet been translated into vernacular non-English languages spoken in India (e.g., Hindi). Further, no published validation study has been conducted on the Indian population. Therefore, permission is needed before their use in either funded or non-funded study (readers are requested to refer to Table-3 for more details about copyright/permission-related information

Table 3: Summary of selected diagnostic interview schedules for personality disorders

Name	Number of items	Administration time	Psychometric properties	Indian vernacular translation available	Cut-offs	Scale URL	Copyrighted/ public domain	Licensing fee
SCID-5-PD	Questions assessing each DSM-5 criteria for 10 Personality Disorders across Clusters A, B, and C, as well as Other Specified Personality Disorder	30-120 min	Sound psychometric property	No	Yes; Personality Disorder Criteria That is considered to be met when a rating of 2 or above is given	https://www.appi.org/products/structured-clinical-interview-for-dsm-5-scid-5	Copyrighted. URL-https://www.appi.org/products/structured-clinical-interview-for-dsm-5-scid-5	Licensing fees varies depending upon the type of SCID and purpose of use (Apply online to know exact fee)
IPDE	59 items (ICD-10) / 77 items (DSM-IV)	60-120 minutes	Sound psychometric property	Yes (e.g., Hindi, Kannada, Tamil)	Yes	https://apps.who.int/iris/bitstream/handle/10665/41912/9780521041669.pdf;sequence=1	Not Copyrighted	No fee required

IPDE: International Personality Disorder Examination, SCID-5-PD: Structured Clinical Interview for DSM-5 Personality Disorders

CONCLUSION

Diagnostic assessment schedules are valuable tools in mental health related research as well as clinical practice. Several instruments have been developed and tested worldwide for their cross-cultural validity and utility. Commonly used instruments in epidemiological research globally include SCID, MINI.7, SCAN, IPDE, and MINI-Kid. The greatest strength of these instruments lies in their comprehensiveness and robustness. Furthermore, different versions of commonly used assessment tools facilitate a tailored and quick assessment. However, they need to be updated time-to-time, in accordance with the revisions in the classificatory systems, to make it relevant in the current context. Fortunately, a significant number of these tools are free and available in native vernacular (such as Hindi), however, the on-going revisions (DSM-5 AND ICD-11) need to be timely translated in native language to be widely usable. The licensing cost of some of the tools and non-validation in the Indian context, or for that matter, other low-and-middle-income countries can act as a barrier in their full-fledged utilization in clinical and research settings.

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Chapter 9

RATING SCALES FOR MOOD DISORDER

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Take Home Message:

- Rating scales are very important for management of Mood disorders as they allow objective documentation of clinical improvement.
- The psychometric properties of most tools that we could identify were good.
- Certain scales like HAM-D, YMRS, BDI are very popular amongst researchers and has been translated to Indian languages as well.

INTRODUCTION

Mood disorders are a group of disorders that can be very heterogenous in nature. However according to recent estimates of the Global Burden of Diseases study, mood disorders are amongst the significant contributors of disability adjusted life years.[1] The burden of these diseases has remained substantial over the last two decades. Depressive Disorders was found to be amongst the two most prevalent psychiatric disorders across all ages and genders. The prevalence of depressive disorders and bipolar disorders were also found to be ubiquitous across all geographical regions that were included in this study. However, the variations of depressive disorders across the geographical regions were more varied as compared to bipolar disorders. Depressive disorders contributed to almost 37.3% of the age-standardized disability years, which was the highest amongst all psychiatric disorders. Depressive disorders also were ranked to be 13th amongst the 25 leading causes of DALYs. When the Indian data from this study was studied it was found that depressive disorders (33.8%, highest overall amongst psychiatric disorders) and bipolar disorders (6.9%, fifth highest) contributed significantly to the DALYs from mental disorders. [2] The crude prevalence of depression and bipolar disorder was found to be 3.3.% and 0.6%. The National Mental Health Survey of India (2016) also found a similar current prevalence of depressive disorders at 2.7% (lifetime prevalence- 5.3%) and of bipolar disorders at 0.3% (lifetime prevalence- 0.5%).[3]

In the current context this is important to understand that most of these disorders can be treated and the morbidity arising out of the disorders can be ameliorated. Proper and timely diagnosis and the anticipation of the further course can be important attributes of a successful management.[4]

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However, it is difficult to achieve that owing to the fact that these disorders have varied presentation and also there is a lack of trained manpower at various levels of healthcare delivery system.

The treatment of mood disorders or psychiatric disorders in general has been evolving lately. The call for more objective measures of diagnosis and monitoring treatment response has been gradually getting louder. To add to that, recently experts have been advocating for the inclusion of psychiatric disorders under the ambit of medical insurance, which was thus far absent or present in rudimentary form in various countries including India.[5] Additionally, the mental health services thus far have been quite skewed in terms of accessibility and thus the need for involvement of primary care providers has been endorsed from all quarters.

In this background, rating scales became very popular tool that could address the issues mentioned above. Rating scales are standardized tools that are objective, reliable and valid. These measures can also be used under certain circumstances to establish norms of diagnosing and categorizing disorders. However, these tools may raise issues with applicability in various contexts. In this chapter, we have attempted to review the various psychological tools that have been published for mood disorders. We have also attempted to identify the various contexts where the tools have been used thus far in literature and what promise do these tools hold in Indian milieu.

SCALES FOR DEPRESSION

Depression rating scales came in existence into clinical psychiatry in the 1960s with the advent of antidepressants like imipramine and phenelzine.[6] Among them many have been used in Indian context and their usefulness has been acknowledged. [7] We would discuss few important rating scales that have been used in Indian context.

ASSESSMENT OF DEPRESSION:

Hamilton Depression Rating Scale (HDRS):

The HDRS (HAM-D) is the most widely used clinician-administered depression assessment scale that takes 20-30 minutes to administer.[8] The original version contains 17 items pertaining to symptoms of depression experienced over the past week. Although Hamilton's original scale had 17 items there are other versions with up to 29 items (HRSD-29).[9] A systematic review concluded that the general depression cluster of this scale appears pertinent to the assessment of depression across cultures though psychometric properties of the full-length HDRS are still debated. [10] A study among Indian population from Kolkata showed the internal consistency of HDRS-17 to be Cronbach's alfa: 0.674. The internal consistency was similar if the item-9 & 17 were deleted [11]. The findings from a study among 50 patients suffering from depression and 50 matched controls show that the Hamilton Rating Scale for Depression is valid for Indian patients [12]. Also another study of video recorded 21-item HAM-D in Indian population shoed an excellent inter-rater reliability indicating that video-recorded interviews of HAM-D can be reliably used to blind raters in research.[13] This scale has also been translated and adapted to another Indian language, Kannada.[14]

Beck Depressive Inventory (BDI):
It is the gold standard of self-report depression rating scales. The BDI-II that is widely used is a 21-item measure. Nineteen of the items are assessed on a 4-point scale according to increasing severity, with a further 2 items allowing the respondent to indicate increase or decrease in sleep or appetite (to assess atypical depressive symptoms).[15] Becks depression inventory was adapted in India as early as 1972,[16] study on Hindi translation of this scale with elimination of 5 items showed the remaining16 items having high degree of content validity (r= 0.667). the internal consistency (Cronbach Alpha) was 0.862 [17]. The Tamil version of this scale was found to have good four week test – retest reliability (r = 0.82), very good internal consistency (α = 0.96), high convergent validity with children depression rating scale.[18]

Montgomery-Asberg Depression rating scale (MADRS):
The MADRS takes 5-10 minutes to apply and consists of 10 items, 9 of which are based upon patient report, with one additional item that requires the rater to assess the patient's apparent (observed) sadness. It gives more emphasis to psychological symptoms of depression (i.e. Sadness, tension, lassitude, pessimistic thoughts, and suicidal thoughts) than somatic in comparison to other clinician-rated scales such as the HDRS.[19] Though this scale has been used in several major centres and trials in India this scale hasn't been formally adapted in Indian languages. But this scale could be appropriate for clinical trials that recruit urban, educated Indians who are more exposed to western culture and thus are more likely to express psychological symptoms of depression. A study from India has reported this scale to be as sensitive to change with antidepressant treatments as the 17-item HAM-D scale.[20]

Inventory of Depressive Symptomatology:
The 30-item IDS is available in either self-report (IDSSR) or clinician-rated (IDS-C) formats which take around 10-15 minutes and less than 10 minutes respectively. A briefer version of the scale, the 16-item Quick Inventory of Depressive Symptomatology (QIDS) also has been developed in both self-report and clinician-rated forms.[21] Though it has a good psychometric properties in western population we couldn't find any study on psychometric properties of this scale in Indian population.[22]

Centre for Epidemiologic Studies Depression (CESD)
This scale was designed primarily for epidemiological research and seen less used in clinical setting. It is a 20-item self-report instrument that assesses severity of depressive symptoms over the past week on a 4-point scale and lakes around 10 minutes for application.[23] A 10 item short version was translated and used in Malayalam for a study among community dwelling elder. [24] In a study among 400 participants the CES-D scale were translated into Tamil language the internal consistency was high which indicated acceptable measurement properties.[25] This scale is being used in Indian setting but psychometric properties need further exploration.

Zung Self-Report Depression Scale:
The Zung SDS is a 20-item self-report measure of depressive symptoms over the past week in adults and takes around 5 minutes for administration. Half of the items in the Zung SDS are worded positively scored 1-4 and half negatively on 4-1.[26] Though, psychometric properties of this scale is not tested in Indian population there are some studies that have used in this scale. [27]

Depression, Anxiety, and Stress Scale-21 (DASS-21):
The instrument possesses 3 scales with 21 items: depression (D), anxiety (A) and stress (S) with 7 items per scale. It takes around 10 minutes for application.[28] It has been translated and validated in Hindi language. Cronbach's alpha value for internal consistency was 0.998 for depression and it had strong correlation with HADS Hindi questionnaire (0.80).[29] This scale is commonly used scale in Indian context.[30,31]

Amritsar Depression Inventory:
This is a self-reporting scale developed on the basis of symptoms and signs of depression as manifested by Indian patients in 1974. It is used in a transcultural study to effect of cultural variable in prevalence of common mental disorders.[32] It has also been used in other studies where depression rating is required.[33]

SCALES FOR SCREENING DEPRESSION

Patient Health Questionnaire 9 (PHQ-9):
The PHQ-9 represents the depression sub-scale of the full version of the Patient Health Questionnaire. It is a self-report scale for screening depression in primary care and assesses depressive symptoms. It takes less than 5 minutes to administer. Items 1–9 are scored on a 0–3 scale, item 10 (functional status) is scored on a 4-point scale, ranging from 'not difficult at all' through to 'extremely difficult'.[34] It has been translated and validated in 11 different Indian languages (English, Hindi, Marathi, Oriya, Malayalam, Assamese, Gujarati, Kannada, Telugu, Bengali and Tamil) in a study done among 3000 participants in 18 different sites. [35,36] It has been evidenced that this scale is suitable to use in Indian population as psychometric properties are comparable to western studies.[37]

Table 1: Psychometric properties of scales used for depressive disorders

Name of the tool	**Number of items**	**Administration time**	**Psychometric properties**	**Indian vernacular translation available** (yes/no); if yes, mention which all languages	**Cut-offs** (Validated in Indian or Western context; mention both. If the Indian cut-off NA, mention it as such.	**Scale URL** (including URLs to vernacular translations, whatever is available)	**Copyrighted /public domain** (If copyrighted, provide the URL of the copyright holder)	**Licensing fee** (if copyrighted - many copyrighted measures do not involve licensing fees for non-commercial research, e.g., HADS)
Hamilton Depression Rating Scale (HDRS)	17	20-30 min	Interrater reliability: 0.80–0.98 Test-retest reliability: 0.81 Validity: 0.65 to 0.90 with global measures of depression severity	Yes (Kannada)	0-7 normal Score 20 or higher is regarded as moderate to severe	https://www.apa.org/depression-guideline/hamilton-rating-scale.pdf https://pubmed.ncbi.nlm.nih.gov/8678173/	Public domain	-
Beck Depressive Inventory (BDI):	21 items	5-10 min	Reliability: 0.92 Validity: 0.72 with clinical rating	Yes (Hindi, Tamil)	0–13: minimal depression 14–19: mild depression 20–28: moderate depression 29–63 severe Depression	https://www.questjournals.org/jrhss/papers/vol4-issue9/G493948.pdf https://pubmed.ncbi.nlm.nih.gov/17688697/	Copyright Aaron T Beck. Pearson holds the copyright	https://www.pearsonclinical.co.uk/store/ukassessments/en/Store/Professional-Assessments/Personality-%26-Biopsychoso

								cial/Beck-Depression-Inventory-II/p/P100009013.html
Montgomery-Asberg Depression rating scale (MADRS)	10 items	5-10 min	High internal consistency: 0.95 Inter-rater reliability 0.89 - 0.97 Validity between 0.80 and 0.90 with HAMD	No	higher scores indicate greater depressive symptomatology. A score of ≤10 has been suggested as a remission criterion	https://www.apa.org/depression-guideline/montgomery-asberg-scale.pdf	Public domain	
Patient Health Questionnaire 9 (PHQ-9)	9 items	<5 min	Internal consistency (0.89) Good test-retest reliability	Yes (Hindi, Marathi, Oriya, Malayalam, Assamese, Gujarati, Kannada, Telugu, Bengali and Tamil)	Scores 1–4 indicate minimal depression 5–9 mild depression 10–14 moderate depression 15–19, moderately severe depression 20–27 severe depression	https://www.apa.org/depression-guideline/patient-health-questionnaire.pdf https://pubmed.ncbi.nlm.nih.gov/17495375/	Public domain	
Inventory of Depressive Symptomatology	30 items both clinicians rated	30-35 min	0.75 for the IDS-C 0.79 for the IDS-SR	No	Higher scores denote greater symptom severity.	https://onlinelibrary.wiley.com/doi/epdf/10.1002/mpr.79	Copyrighted	Not clear

	(IDS-C)self-reported version (IDS-SR)		Inter rater reliability: 0.96 IDS-C: 0.92 with HAM-D and 0.61with BDI Validity: 0.67 with HAM-D and 0.78 with BDI		For the 30-item IDS-C: ≤12, normal; 13–23, mild; 24–36, moderate; 37–46 moderate-severe; ≥47 severe. For the 30-item IDS-SR (total score range 0–24): ≤14, normal; 15–25, mild; 26–38, moderate; 39–48, moderate severe; ≥49, severe.			
Centre for Epidemiologic Studies Depression (CESD)	13 items	10 min	Internal consistency (alpha) 0.63 - 0.93 Test-retest reliability: 0.61.	No	Higher scores indicate greater depressive symptomatology. A standard cut-off score of 16: possible cases of depression	https://www.apa.org/depression-guideline/epidemiologic-studies-scale.pdf	Public domain	
Zung Self-Report Depression Scale	20 items	5 min	Internal consistency: 0.85 The correlation with HAM-D: 0.68-0.76, with BDI-II: 0.67	No	<50: normal range 50–59: mild depression 60–69: moderate to marked depression >70: severe depression	https://psychology-tools.com/test/zung-depression-scale	Public domain	

Hospital Anxiety Depression Scale	14 item (7 item for depression subscale)	<5 min	Internal consistency 0.67 - 0.90 Good correlation with other depression scales (0.60 and 0.80)	Yes (Malayalam, Punjabi and other local languages including Hindi)	0–7: normal 8–10: mild 11–14: moderate 15–21: severe	https://pubmed.ncbi.nlm.nih.gov/6880820/ https://pubmed.ncbi.nlm.nih.gov/17091367/ https://pubmed.ncbi.nlm.nih.gov/22013306/	Copyrighted by publisher	Not clear
Depression, Anxiety and Stress Scale 21	21 items 7 each for 3 domains	10 min	Internal consistency: 0.97 Reliability: 0.94 Correlated 0.74 with the BDI	Yes (Hindi, Marathi and other local languages)	For D scale: scores of 0–9 are in the normal range; 10–13, mild; 14–20, moderate; 21–27, severe; ≥28, very severe.	http://www2.psy.unsw.edu.au/dass/ https://pubmed.ncbi.nlm.nih.gov/31169235/	Public domain	

SCALES FOR ASSESSING MANIC SYMPTOMS:

Young Mania Rating Scale:

The most popular scale to assess manic symptoms is the Young Mania Rating Scale (YMRS). [38] This tool has been used in most recent studies. This scale consists of 11 items with the possible scores ranging from 0-60. Of the 11 items, 7 items are rated from 0-4, while 4 items have been given more weightage and has been rated from 0-8. The scale has been widely used to define remission in bipolar disorder but there seems to be a difference of opinion regarding the cut-ff score. One of the opinion is to define remission of mania for YMRS to be less than 4, [39] while there are other studies have used a significantly higher cut-off of less than 13.[40] However, experts suggest that a higher cut-off is more prudent when the study population includes adolescents.[40] The scale takes around 15-20 minutes to administer and owing to its unambiguous item structure, ease of administration and considerable experience of being used, it is one of the most popular tools in this segment. However, critics of this scale cite that the scale is not very sensitive in effectively delineating milder cases of hypomania and euthymic patients. This scale has also been used in number of Indian studies, [41,42] and most of these studies have used the English version of the scale. The scale has been translated to a number of non-Indian languages,[43–45]amongst the Indian languages, we could only find a validated Bengali version of the scale.[46]

Manic State Rating Scale:

Amongst the other tools that are available for assessing manic symptoms, Manic state rating scale, [47] has been used relatively frequently, though we could not access any Indian studies using this scale. This scale has 26 items that are evaluated on a five-point frequency and severity scale. One of the unique attributes of this scale is that can be reliably used in situations where patient interview is difficult since the scale relies mainly on patient observation. However, the scale is considered to be a lengthy instrument and has a steep learning curve for administrators.

Bech-Rafaelsen Mania Scale:

Another popular tool that has been used in various large scale research to evaluate the manic symptoms include the Bech-Rafaelsen Mania Scale, [48] including Indian researches.[49,50] It is an 11-item scale measured on five points for severity of the symptoms. The scale has acceptable psychometric properties as it has good internal validity, reliability and external validity. A study comparing the psychometric properties of this scale with the YMRS found that both the tools were satisfactory in terms of reliability and validity, and both were acceptable in terms of feasibility of being employed in research.[51] After considerable experience of using the scale in research the cut-off parameters of the scale have also been defined. A score of less than 15 indicates hypomania, scores around 20 denotes moderate mania and scores more than 28 indicate severe mania. The scale has also been used in classifying the trials of anti-manic therapies based on the pre-treatment scores. However, we could not access any translation of this scale to Indian languages.

Mania Rating Scale:

The Mania Rating Scale (MRS),[52] has been derived from the Schedule of Affective Disorders and Schizophrenia (SADS) and comprises of 11 items. The items are divided into two subscales (Manic syndrome and Behavioural & Ideation subscales) of 5 items each and one single item evaluating the insight of the patient. Our search did not reveal any Indian studies which have used this scale or any translation of this scale to any Indian languages.

Clinician-Administered Rating Scale for Mania:
The Clinician-Administered Rating Scale for Mania (CARS-M),[53] is another tool that is largely based on the SADS, that is structurally very similar to the MRS. This scale consists of 15 items that are divided into 2 subscales (Mania subscale of 10 items and Psychotic & Disorganization subscale of 5 items). All the items are rated from 0-5 except the item assessing insight which is rated 0-4. The scale is well appreciated due to the presence of well-defined anchor points and also phrases providing explanation for the items enabling better elicitation of the information. This scale has been used in some large scale including the Texas Medication Algorithm Project.[54]

Other tools:
Other than the tools mentioned above there are a few other tools that are also used in research like Manchester Nurse rating Scale for Mania, Scale for Manic States, Clinical Monitoring Form and National Institute of Mental Health prospective Life Chart Methodology (LCM). But these tools have not been used in Indian context and the psychometric properties of these tools are yet to be established.

Recently, the focus has also shifted to self-assessing tools of mania. Some of the instruments used for this purpose includes Internal State Scale (ISS), Self-Report Manic Inventory (SRMI) and Altman Self-Rating Mania Scale (ASRM). While, the ISS is a 17-item visual analogue scale assessing manic and depressive symptoms; the SRMI is a 48-item true-false based questionnaire and the ASRM consists of 5 items rated on a 5-point scale. However, we could not access any Indian studies using these scales.

SCALES USED FOR SCREENING BIPOLARITY:
As has been mentioned in the former sections, bipolar disorder is a complex disorder. Though early detection of the disorder can be very helpful in initiating proper management and avoiding unintended course destabilization, it is hardly easily achievable. The following section comprises of the various tools that can be helpful in screening and early identification of subjects at high risk of bipolar disorder.

Hypomanic Personality Scale:
The hypomanic personality scale,[55] is a 48-item tool that is self-administered and is helpful in identifying subjects at risk of bipolarity by distinguishing the presence of manic/hypomanic symptoms. The length of the scale has been a limiting factor for the routine use of the scale and this has not been used or translated in Indian context.

General Behaviour Inventory:
The General Behaviour Inventory,[56] is arguably one of the most robust tools in this section. There are multiple versions of this scale ranging from 52 to 73 items that are targeted to achieve separate objectives. The items gage the core symptoms of depression and mania and further document the intensity, frequency and duration of the symptoms on a 4-point Likert scale. Though this scale has been commonly used worldwide, the scale has not been in Indian context.

Mood Disorder Questionnaire:
The Mood Disorder Questionnaire (MDQ),[57] is another self-administered questionnaire that is based on the DSM IV criteria for bipolar disorder. The idea of the scale is to obtain lifetime information about the presence of any hypomanic/manic symptoms based on the responses to 13 questions. Separate yes-no questions are also provided to look for clustering of symptoms and level of dysfunction. The scale has been validated in various context but apparently no Indian vernacular translation exists for this scale. However, the utility of this scale in Indian context has been acknowledged in various researches.[58,59]

Bipolar Spectrum Diagnostic Scale:
The structure of the Bipolar Spectrum Disorder Scale,[60] is a bit different from most other tools. This scale consists of a story followed by 19 items suggesting classical mood wing experiences. The total score is obtained on the basis of the response to those 19 items and it cumulatively suggests the risk of bipolarity. This scale has not been used in Indian context.

Hypomania Checklist-32:
Unlike what the name suggests, the Hypomania Checklist-32,[61] is a 20-item tool consisting of dichotomous yes-no responses to items ascertaining the presence of symptoms of hypomania. The scale is also specially designed to delineate the hypomanic symptoms in patients presenting with depression, thus enabling detection of bipolar II disorder. The scale provides two sub-scores for 'active/elated' and 'risk-taking/irritable' hypomania. The scale has been widely used in various studies, [62] including Indian studies, [63] and extensively translated as well.[64,65]

Mood Swings Survey:
The Mood Swings Survey,[66] is a 46-item scale that is self-administered and is designed to differentiate unipolar depression from bipolar disorders. Due to its length, a shorter 27 item version of the scale is also available. The psychometric properties of the scale has been found to be comparable to the MDQ.[67] The scale has infrequently used and has not been used in Indian studies.

Table 2: Psychometric properties of scales used for mania and to screen bipolarity								
Name of tool	**No of items**	**Administration time**	**Psychometric properties**	**Indian vernacular translation available** (yes/no); if yes, mention which all languages	**Cutoffs** (validated in Indian or Western context; mention both. if Indian cutoff NA, mention as such.	**Scale URL** (including URLs to vernacular translations, whatever available)	**Copyrighted or in public domain** (if copyrighted, provide URL of copyright holder**)**	**Licensing fee)**
Tools for assessing manic symptoms								
Young Mania Rating Scale	11 items	15-30 minutes	Interrater reliability- 0.93; internal reliability: 0.8 – 0.91	Yes (Bengali)	Cut-offs vary across various studies ranging from 4 to 13	Original: https://pubmed.ncbi.nlm.nih.gov/728692/ Bengali: https://journals.lww.com/mjp/Abstract/2019/28020/Psychometric_Properties_of_Bangla_Young_Mania.6.aspx	Request to be sent to authors	None mentioned

Manic State Rating Scale	26 items (28 item version is also present)	15 minutes	Good interrater reliability	No	Not available	Original: https://jamanetwork.com/journals/jamapsychiatry/article-abstract/490511	In public domain	None mentioned
Bech-Rafaelsen Mania Scale	11 items	15 minutes	High inter-observer reliability (rho-0.97-0.99)	No	7 and above for mania	Original: https://link.springer.com/chapter/10.1007/978-3-642-61169-8_3	None mentioned	None mentioned
Mania Rating Scale	11 items	15 minutes	Adequate internal consistency (a = .80), convergent validity (r = .83, p < .0001), & divergent validity	No	Unclear	Original: https://www.karger.com/Article/Abstract/107430	None mentioned	None mentioned
Clinician-Administered Rating Scale for Mania	15 items	15-30 minutes	Good test-retest reliability (range = 0.78 to 0.95) & Internal validity	No	Unclear	Original: https://www.sciencedirect.com/science/article/abs/pii/0006322394911932	None mentioned	None mentioned
Tools used to screen bipolarity								

Hypomanic Personality Scale	48 items	None mentioned	Interrater reliabilities range from .85 to .92	No	Unclear	Original: https://pubmed.ncbi.nlm.nih.gov/3745642/	None mentioned	None mentioned
General Behaviour Inventory	73 items (shorter 52 item version present)	None mentioned	Good internal consistency (Cronbach's α - 0.93) & good test-retest reliability (r = 0.73)	No	Unclear	Original: https://pubmed.ncbi.nlm.nih.gov/7298991/	Free for use clinically and in research.	Nil
Mood Disorder Questionnaire	13 items	Less than 5 minutes	Adequate internal consistency with a Cronbach's alpha of 0.79 and 0.90 and decent sensitivity (0.28-0.58) & specificity (0.67-0.97)	No	"Yes" to seven or more of the 13 items in question number 1; & "Yes" to question number 2; & "Moderate" or "Serious" to question number 3;	Original: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC314375/	None mentioned	None mentioned
Bipolar Spectrum Diagnostic Scale	19 items	None mentioned	Sensitivity-0.76 Specificity-0.85 to 0.93	No	Scores <6 denotes highly unlikely for bipolatity	Original: https://pubmed.ncbi.nlm.nih.gov/15708426/	Request to be sent to authors	None mentioned

Hypomania Checklist-32	20 items	None mentioned	Sensitivity of 82% & specificity of 57%	No	None mentioned	Original: https://pubmed.ncbi.nlm.nih.gov/16125784/	Can be used with proper citation to the original article	None mentioned
Mood Swings Survey	46 items	None mentioned	Sensitivity of 88.5% & specificity of 60%	No	>35 denotes chances of bipolarity	Original: https://pubmed.ncbi.nlm.nih.gov/18082895/	None mentioned	None mentioned

RATING SCALES TO ASSESS MOOD DISORDERS IN SPECIAL POPULATIONS:

Children and adolescents

Children's Depression Inventory

The Children's Depression Inventory (CDI) is a modification of BDI.[68] The CDI 2, a complete revision of CDI, is being utilized. CDI 2 is used to assess the severity of depression in children and adolescents (aged 7 to 17 years). CDI 2 has different protocols: Self-report, Teacher, and Parent. It can be administered using paper-and-pencil format as well as online. The CDI 2 (self-report) is a 28-item assessment tool. The scale yields a total score, two scale scores (emotional problems and functional problems), and four subscales (negative mood/physical symptoms and negative self-esteem under the emotional problems scale and interpersonal problems and ineffectiveness under the functional problems scale). Each item is scored from 0 to 2 (0: absence of symptoms, 2: mild or probable symptom, and 2: definite symptom). CDI self-report has a full-length as well as a short version. The administration time ranges between 5-15 minutes.

Children's Depression Rating Scale-Revised

The Children's Depression Rating Scale (CDRS) was adopted from Hamilton Depression Rating Scale. It was initially designed to measure depression in children aged six to twelve years.[69] However, the scale can be used for adolescents up to 18 years of age. The CDRS – R is a 17-item scale. The items range from 1 to 5 or 1 to 7. A total score of 40 or more strongly suggests the possibility of depression. A score of 28 or less indicates remission. The scale's internal consistency among children and adolescents is good.[70] The scale uses a semi-structured interview with the child/adolescent. The usual time for administration is 10-15 minutes. This is one of the most commonly used scales for clinical and research work on child and adolescent depression. The scale has been used and validated in India, but no translation in Indian languages exists.[71,72]

Centre for Epidemiological Studies Depression Scale for Children

The Centre for Epidemiological Studies Depression Scale for Children (CES-DC) was adapted from the widely used CES-D scale.[73,74] The CES-DC is a 20-item self-report depression inventory. The score ranges from 0 to 60. Each item is scored from 0 to 3 for most items (0: not at all; 1: a little; 2: some; and 3: a lot). A higher score on CES-DC suggests higher depression. A score of 15 and above indicates clinical depression. The CES-D scale has been used in India to assess depression in children and adolescents.[75,76] In addition, the scale has been translated and validated in the Gujarati language, recently.[77]

Revised Child Anxiety and Depression Scale

Due to the substantial comorbidity of depression and anxiety in children and adolescents, the Revised Child Anxiety and Depression Scale (RCADS), a self-report measure, was developed. [78] The new RCADS added items of depression symptomatology and those related to generalized anxiety and negative affect to the already existing Spence Children's Anxiety Scale (SCAS).[79,80] The RCADS contains a total of 47 items groped six subscales: (1) Major depressive disorder (10 items) (2) Generalised anxiety disorder (6 items) (3) Separation anxiety disorder (7 items) (4) panic disorder (9 items) (5) Social phobia (9 items) and (6) obsessive-compulsive disorder (6 items). RCADS is a valid and reliable tool for assessing depression and anxiety disorders in children and adolescents in general populations and clinical samples [81]. Furthermore, the scale has been

translated and validated in multiple languages, including German, French, Spanish, and Danish.[82] In addition, the scale has been translated into Hindi and Urdu.[83]

Revised Kutcher Adolescent Depression Scale

The original version of the Kutcher Adolescent Depression Scale (KADS) contained 16 core symptoms of depression in adolescents. Based on initial testing and validation studies, an 11-item shorter version was developed, optimized for monitoring treatment response among adolescents (12-17 years), especially for those receiving pharmacological treatment for depression. [84,85] The responses are scored on a 4-point scale (from 0 to 3), and a total score is used in the studies and clinical practice. The score ranges from 0 to 33. There are no diagnostic cut-offs, and the scores are compared to an individual's baseline score. The administration time is around five minutes. Studies suggest that a change in score is both a sensitive and valid measure of change in depression severity over time.[85] However, some studies use a diagnostic cut-off of 9 or above, indicative of depression.[86] The scale was previously used in Indian studies. [86–89] However, no translation in Indian languages exists.

Reynolds Adolescent Depression Scale - 2

The Reynolds Adolescent Depression Scale was developed to assess depression severity among adolescents aged 12 to 18 years.[90,91]The RADS consists of 30 items – based on DSM – III. Response ranges from 1 to 4 (almost never, hardly ever, sometimes, and most of the time). The total score may range from 30 to 120, with a mean score of 60±2 in most large school-going adolescents' studies. Cut off score for depression is 77 points. RADS-2 contains four subscales (derived factorially) and an extension range from 12-18 years to 11-20 years.[91]Four subscales of RADS-2 are dysphoric mood, somatic complaints, negative self-evaluation, and anhedonia/negative affect. However, RADS-2 does not provide a diagnosis of depression. It is mainly developed to evaluate the severity of depressive symptomatology. RADS-2 is a brief and easy-to-administer self-report scale with around 5-minutes of completion time. Numerous studies have provided its validity and reliability data across countries and different settings.[92] Although some Indian studies have used this scale, it is yet to be validated and translated in India.[93,94]

Child Mania Rating Scale

Child Mania Rating Scale – Parent version (CMRS-P) is a 21-item rating tool to assess manic symptoms in children and adolescents aged nine to 17 years.[95,96] The scale is based on DSM-IV criteria for a manic episode. The items are age-specific. The items are considered a problem only if they are causing an impairment, which is deviation from the normative for the child's age-appropriate behaviours during the past one month. The items are scores from 0 to 3 (0: never/rare; 1: sometimes; 2: often; and 3: very often). The scale can differentiate between childhood bipolar disorders from ADHD and no disorder. A cut off of 20 is set form the diagnosis of paediatric bipolar disorder. CMRS-P takes around 15 minutes for administration. It has good internal consistency (0.96). A shorter version, Brief CMRS-P, of 10 items also exists. The scale has been used in India, but no validation/translation has been tried. [97,98]

Geriatric population

Geriatric Depression Scale

The Geriatric Depression Scale (GDS) is a 30-item yes/no format self-report measure. The scale was first developed and validated over two studies and is the most widely used tool for screening geriatric depression.[99,100] The 30-item questionnaire asks participants how they felt over the last one week in a yes/no format. A score of 0-10 is considered normal, and more than 10 suggests the possibility of underlying depression. The cut-off has 84% of sensitivity and 95% of specificity. A short GDS (SGDS) was also developed, consisting of 15 items [101,102]. The GDS has 92% sensitivity and 89% specificity when compared with diagnostic criteria [103]. On the SGDS, a score of 0-4 is considered normal; 5-8 indicates mild depression, while a score of 9-11 and 12-15 indicate moderate and severe depression, respectively. The scale can also be used in medically ill, healthy, and mild to moderately cognitively impaired elderly. However, the GDS does not assess suicidality. The scale has been extensively used in India. Its usage has been validated in studies and translated into many Indian languages, including Hindi, Tamil, Malayalam, Kannada, Telugu, and Gujarati.[104–109]

Postpartum period

Edinburg Postnatal Depression Scale

Edinburgh Postnatal Depression Scale (EPDS) is a self-report tool developed in 1987 to screen for postpartum depression in women and contains ten items.[110] The questions asked are about how the person has felt over the last one week. The maximum score is 30. Any score of 12 or higher suggests the possibility of underlying depression (however, the cut-offs of 10 and 13 are also used with acceptable sensitivity and specificity).[111] The cut-off value of 12 has a sensitivity of 0.86 and a specificity of 0.87.[112] The scale is completed in around five minutes. The scale has been extensively used worldwide over the past three decades. A recent review suggested that EPDS was the most commonly used scale (in 29 out of 38 prevalence studies) in India assessing postpartum depression.[113] The scale has been validated in clinical and community samples in India and has been translated into eight regional languages: Hindi, Assamese, Gujarati, Bengali, Kannada, Konkani, Marathi, Punjabi, and Tamil.[114]

Scale for Dysthymia

Cornell Dysthymia Rating Scale

Cornell Dysthymia Rating Scale (CDRS) was first developed in 1993 to screen for dysthymia.[115,116] The scale contains 20 items scored on 0 to 4. Higher score suggests higher severity. CDRS is a sensitive tool to change and hence it works as a tool to monitor response to treatment in dysthymia patients. The scale is in public domain and is free to use.

Scale for Premenstrual Dysphoric Disorders

Premenstrual Tension Syndrome Rating Scales

Premenstrual Tension Syndrome Rating Scales (PMTS) were developed in 1980 in both observer rated and self-report rating format.[117] The PMTS assesses ten domains of symptoms related to

PMDD. Maximum score on PMTS-O is 36. The scale was been updated later on to reflect the DSM-IV criteria of PMDD.[118]

Premenstrual Syndrome Scale

Premenstrual Syndrome Scale (PMSS) was developed in 2006 to assess Premenstrual Dysphoric Disorder (PMDD). [119] The PMSS contains 44 items on nine subscales (depressive mood, anxiety, fatigue, irritability, depressive cognition, appetite disturbances, sleep disturbances, swelling, and pain). These items are scored on 5-point Likert scale (0: never; 1: rarely; 3: sometimes; 4: very often; 5: always). The total score ranges from 44 to 220 and score more than 132 suggests possibility of PMDD. Further, the higher score suggests higher severity. The PMSS has an inter-rater reliability ranging from 0.81 to 0.97 with a sensitivity of 83-100% and specificity of 64-90%.

Presence of other psychiatric disorders

Calgary Depression Scale for Schizophrenia

The Calgary Depression Scale for Schizophrenia (CDSS) is a 9-item clinician-rated questionnaire to assess depression in patients with schizophrenia.[120–123].It is the only scale developed for this purpose and is widely used worldwide. The scale differentiates depression symptoms from positive and negative symptoms of schizophrenia and extrapyramidal symptoms. The CDSS items are graded on a 4-point Likert scale (0: absent; 1: mild; 2: moderate; 3: severe). A score higher than 6 has 82% specificity and 85% sensitivity.[124] The Cronbach's alpha for CDSS was 0.79 for all patients. The scale is quick to administer. However, it is used only by experienced raters and is not meant for self-administration. The scale has been translated into many languages, including Hindi.

Cornel Scale for Depression in Dementia

Cornell Scale for Depression in Dementia (CSDD) is a 19-item clinician-administered tool to assess depression in patients with dementia.[125] The instrument uses information both from the patient and a nursing staff member. The CSDD contains items related to mood-related signs, behavioural disturbance, physical signs, cyclic functions, and ideational disturbance. The total time for administration is around 30 minutes. Each item is scored from 0 to 2 (0: absent; 1: mild or intermittent; and 2: severe) and a (unable to evaluate). Rating is based on past one-week symptoms and signs. The total score ranges from 0 to 38. A score of more than 10 suggests probable major depression, while a score of more than 18 suggests definite major depression. The interrater reliability of the scale is 0.67, while Cronbach's alpha is 0.84.

Presence of other medical disorders

Beck Depression Inventory – Fast Screen for Medical Patients

Beck Depression Inventory – Fast Screen (BDI-FS) is a 7-item self-report screening questionnaire to assess depression in patients with medical illnesses such as chronic pain, multiple sclerosis, stroke, and parkinsonism.[126] The BDI-FS exclusively assesses psychological symptoms of depression and thus can be applied to patients with somatic medical illnesses. It assesses dysphoria, anhedonia, suicidality, and cognitive symptoms. Scores range from 0 to 21. Higher scores suggest higher depressive symptoms. The scale has previously been used in Indian studies.[127]

Hospital Anxiety Depression Scale (HADS):

The HADS is a 14-item self-report instrument with 7-item depression sub-scale (HADS-D) and a 7-item anxiety sub-scale (HADS-A). It has 0-3 Likert scale and takes less than 5 minutes for application.[128] A study from India has suggested the utility of the total score rather than its sub scores [129]. It has been used in different studies in India with local translation like Punjabi, Malayalam, however, exact validity and reliability of translated versions have not been studied.[130,131]

Table 3: Psychometric properties of scales used to assess mood disorders in special populations								
Name of tool	**Number of items**	**Administration time**	**Psychometric properties**	**Indian vernacular translation available** (yes/no); if yes, mention which all languages	**Cutoffs** (validated in Indian or Western context; mention both. if Indian cutoff NA, mention as such.	**Scale URL** (including URLs to vernacular translations, whatever available)	**Copyrighted or in public domain** (if opyrighted, provide URL of copyright holder)	**Licensing fee)**
Children and adolescents								
Children's Depression Inventory	28 items	15 minutes	Cronbach's alpha: 0.71 to 0.89	No	13 in clinical samples 19-20 in non-clinical samples	https://psycnet.apa.org/doiLanding?doi=10.1037%2Ft00788-000	Copyrighted (https://mhs.com/info/cdi2/)	3.75$ ea plus 469$ for complete scoring software kit
Children's Depression Rating Scale – Revised	17 items	15 minutes	Cronbach's alpha: 0.85	No	40 or more	https://www.sciencedirect.com/science/article/abs/pii/S0002713809601382	Copyrighted (https://www.wpspublish.com/cdrs-r-childrens-depression-rating-scale-revised)	180 USD kit + 110 USD manual + 82 USD administration booklet
Center for Epidemiological	20	10 minutes	Internal consistency of α =	Yes (Gujarati)	15 and above	https://journals.lww.com/jonmd/Abstract/1980/12000/Children_	In public domain	Free

Studies Depression Scale for Children			.89, and sensitivity was 80% with a cutoff score of 15			s_Symptom_and_Social_Functioning.5.aspx https://novopsych.com.au/wp-content/uploads/2021/03/Center-for-Epidemiological-Studies-Depression-Scale-for-Children-CES-DC-pdf.pdf		
Revised Child Anxiety and Depression Scale	47	10 minutes	Cronbach's alpha: 0.85 to 0.95	Yes (Hindi)	70 and above	https://www.sciencedirect.com/science/article/abs/pii/S0005796799001308?via%3Dihub https://www.childfirst.ucla.edu/resources/ https://www.childfirst.ucla.edu/wp-content/uploads/sites/163/2018/03/RCADS25-Youth-Hindi-2018.pdf	In public domain (request to be sent to developers)	Free to use
Kutcher Adolescent Depression Scale	16 (revised 11 items)	5 minutes	Cronbach's alpha: 0.84	No	No cut off	https://guilfordjournals.com/doi/epdf/10.1521/capn.9.5.4.52044	In public domain (request to be sent to Permissions Department of Guilford publications)	Not mentioned

Reynolds Adolescent Depression Scale	30 (revised 11-item)	5 minutes		No	77 or more	https://www.researchgate.net/profile/William-Reynolds-3/publication/229579050_Reynolds_Adolescent_Depression_Scale/links/60539b15458515e834559b00/Reynolds-Adolescent-Depression-Scale.pdf https://www.wpspublish.com/rads-2-reynolds-adolescent-depression-scale-second-edition	Copyrighted (Prof William M Raynolds)	482 USD for kit + 123 USD manual + 103 USD test booklets (pkg/25)
Geriatric population								
Geriatric Depression Scale	30 (short version 15 items)	10 minutes	84% of sensitivity and 95% of specificity	Yes (Hindi, Tamil, Malayalam, Kannada, Telugu, and Gujarati)	10 or more	https://www.tandfonline.com/doi/abs/10.1300/J018v01n01_06 Hindi https://pubmed.ncbi.nlm.nih.gov/10521880/ Tamil https://www.thieme-connect.com/products/ejournals/abstract/10.4103/0976-3147.158800	In public domain	Free to use

						Malayalam https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8208219/ Kannada https://www.jgmh.org/article.asp?issn=2348-9995;year=2019;volume=6;issue=2;spage=84;epage=87;aulast=Rajgopal Telugu https://d1wqtxts1xzle7.cloudfront.net/61676677/B180710050920200104-56473-1jww0y9-libre.pdf?1578133908=&response-content-disposition=inline%3B+filename%3DValidation_Study_of_Telugu_Version_of_Ge.pdf&Expires=1673624305&Signature=JoLdMp7JC1WSu4rZ1HxfXF75xSH0lkhvhcHUt7LSjYFRzgLj1G-HCsDi1sClfqlHT27eZ		

						nnXGH6vSbuTbWb~qbLpDQfG39QV1KmZyo7Q3hnEev1k49CGWARw0eAV4QmB8A0Xe5uqjXuzp-GWhj-j3yLh~nDMtSg47czc5CA8MX~BfvWSSZJQj4QF9UsKzVaNfqhYFe~AeNF1gf-QCfBCwNLR8zmMc5CoATj1P73YU7K-6QOr332OwmjbekFi3XgwpVHAMUeiEMmXuKZSbuNu7-VyI7MaCiTIoWKEgqK~XL1mTkMV2bUw0BycM8PbZv9JxRHNhIg5adAXTIb5xtV2WA__&Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA Gujarati https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5682718/ Bengali https://www.ijph.in/article.asp?issn=0019-557X;year=2020;volu		

						me=64;issue=2;spage=109;epage=115;aulast=Lahiri		
Postpartum period								
Edinburg Postnatal Depression Scale	10	10 minutes	0.86 sensitivity and 0.87 specificity	Yes (Hindi, Assamese, Bengali, Gujarati, Kannada, Konkani, Marathi, Punjabi, Tamil)	12 or more	Hindi https://www.sciencedirect.com/science/article/abs/pii/S1876201819308317 Assamese https://www.researchgate.net/profile/Kamal-Kalita/publication/281432434_A_Clinical_Study_of_Postpartum_Depression_Validation_of_EPDS_Assamese_Version/links/55e69fe908aecb1a7ccd6f8d/A-Clinical-Study-of-Postpartum-Depression-Validation-of-EPDS-Assamese-Version.pdf Bengali https://www.tandfonline.com/doi/abs/10.1080/02646830220134603	In public domain	Free to use

						Gujarati https://academic.oup.com/tropej/article/61/5/364/1647953?login=false Kannada https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0122079 Tamil https://www.researchgate.net/profile/Ks-Jacob/publication/285730196_Validation_of_the_Tamil_version_of_Edinburgh_post-partum_depression_scale/links/5811c6e908ae009606beff96/Validation-of-the-Tamil-version-of-Edinburgh-post-partum-depression-scale.pdf Marathi https://www.njcmindia.com/index.php/file/article/view/617		

						Punjabi https://www.sciencedirect.com/science/article/abs/pii/S0020748904002287		
Presence of other psychiatric disorders								
Calgary Depression Scale for Schizophrenia	9	5-10 minutes	Cronbach's alpha: 0.79	Yes (Hindi)	6 and above	https://pubmed.ncbi.nlm.nih.gov/2278986/ https://cumming.ucalgary.ca/research/calgary-depression-scale-schizophrenia/about-scale Hindi	Copyrighted (Dr D Addington)	Free to use for students, physicians, non-funded research

						https://cumming.ucalgary.ca/sites/default/files/teams/106/Hindi%20CDSS.pdf		
Cornell Scale for Depression in Dementia	19	30 minutes	Cronbach's alpha is 0.84	No	10 and above	https://www.biologicalpsychiatryjournal.com/article/0006-3223(88)90038-8/pdf	Copyrighted (Dr George Alexopoulos)	Not mentioned

DISCUSSION:

From our review, we could identify substantial number of tools that can be used for rating mood disorders. However, we could also identify a few lacunae in the existing evidence base which need to be addressed in the future research. Firstly, though we could identify various tools that have been developed for this purpose; currently, we could find very few tools that have been developed from the India sub-continent. Mood disorders are susceptible to changes in their presentations and also the dysfunction arising out of the disorders may manifest in different ways across various cultures.[132] Thus, to make the assumption that scales developed in Western milieu can be easily applicable in Indian context may be a very simplistic and imprecise one. Secondly, the Indian vernacular translation is available for very few tools mentioned in the chapter. Though we admit, that in spite of our best efforts we could have inadvertently missed existing translation. But even then, we felt that there is scope for investment of more efforts in this regard. Thirdly, we also found that there is skewness in terms of choices made towards use of scale in Indian context. There are a few tools that are extremely popular amongst Indian researchers (like the HAM-D, YMRS, MADRS etc.) while a large majority of the others have been ignored. Though it has to be admitted that this phenomenon is not only restricted to Indian context and also stands true for other research circles as well, the reason behind that needs to be better understood. Certain factors like permission, ease of administration and past experience of using a tool are understandable causes of frequent use. However, whether other reason exist behind this phenomenon needs to be looked into.

Fourthly, it has to be appreciated that these tools have now been in use for about 2-4 decades. The scales were developed based on the concurrent understanding of mood disorders. However, our understanding has since undergone a sea of change, but that has not adequately reflected on the construct of the scales.[133] To illustrate this point let us consider the changes proposed by Diagnostic and Statistical Manual- fifth edition Text Revision (DSM 5 TR). Though the past classificatory systems like DSM III and International Classification of Diseases (ICD) 9^{th} and 10^{t} edition (ICD 9 & ICD 10) have stressed on mood changes as the most important symptom cluster for the diagnosis of bipolar mania, DSM 5 TR have included change in psychomotor activity as an equally important symptom cluster (and thus included in Criteria A). However, this change of weightage is not adequately represented in most of the scales used for rating mania. For example, in the YMRS psychomotor activation accounts for only 7% of the maximum possible points. Thus, it is important to state that the scales need to revised to be in sync with the recent changes of the classificatory systems. Finally, we felt that one very important aspect that is missing in our armamentarium is tools to distinguish unipolar and bipolar depression. This is probably one of the most difficult clinical challenges encountered by a clinician dealing with mood disorders and a successful development of such a tool can be helpful in avoiding errors in management of mood disorders.

CONCLUSION:

To conclude, in our review we could identify considerable number of options to be used for the purpose of rating mood disorders. Most of the scales were found to have satisfactory psychometric properties. The status of the rights and permission of the scales are not explicitly mentioned in most of the original research introducing the scale and thus it is better to seek documentary

evidence of permission from the original authors before using a scale. Certain lacunae in the existing literature could also be identified.

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Chapter 10

RATING SCALES IN SCHIZOPHRENIA AND OTHER PSYCHOTIC DISORDERS

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Take Home Message

- Rating scales for schizophrenia measures clinical outcomes, functional outcomes, quality of life, objective measures of cognition, subjective measures of cognition, comorbidities, recovery, insight, adherence and disability.
- Various rating scales have been developed for use in the western countries with limited validation for non-English speaking countries.
- More scales have to be developed specific to the geographic population being addressed to.
- Onus is on the mental health professional to choose the appropriate rating scales that has been validated and is relevant to the target population.

INTRODUCTION

Schizophrenia, a debilitating mental illness with high morbidity as well as mortality[1], affects all aspects of an individual's functionin.[2] Due to the subjective nature of how schizophrenia is experienced, identifying, assessing, and treating the illness become challenging.[3] Rating scales were developed for the purposes of treating the illnesses to assess for functionality, symptomatology and to demonstrate the value of the pharmacological and psychosocial interventions on the individuals experiencing mental illness.[4] The different scales have various purposes in assessing different needs. There are multitudes of rating scales available worldwide to assess the impact of psychotic disorders, including schizophrenia.[5] However, the evolution of mental illness through time, made it such that the rating scales evolved to better serve the current demands of the population. This extensive choice presents challenges to the mental health professionals in choosing the most appropriate rating scale for use. Understanding which scale to use is based on a multitude of choices, and the objective of this is to enable professionals in mental healthcare to make informed decisions. Tools that could place numerical values on subjective experiences such as thoughts, feelings, and behaviours became necessary with the advent of medications and interventions. The onus falls on the mental health professional in choosing the most appropriate tool. There are scales which are considered the "gold standard" of tools and are most used due to their psychometric properties. There have been numerous scales

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developed and validated in the west. Assessment tools developed in one population cannot be directly used in another culturally different context. Mere translation of the tool to another language does not serve the purpose. So, it is possible that the items used in western tools are not suitable or relevant for usage in our population. Psychometric properties established in one culture will not hold good for the scale to be used in a different culture. Hence developing reliable and valid instruments or culturally adapting and validating already existing tools are very important.

This chapter would focus on assessment tools that are widely used within the Indian setting among persons with psychotic disorders, including schizophrenia.

Outcome measures in schizophrenia and other psychotic disorders

Clinical Outcome measures

Evaluating outcomes in schizophrenia has gained so much importance in the last 30 years. Standardised instruments have been developed to measure both clinical and functional outcome in persons with schizophrenia. Some of the most frequently used clinical scales in schizophrenia are explained below.

Global Symptoms

The **Brief Psychiatric Rating Scale** (BPRS),[10] a commonly employed instrument, can be used to assess psychotic as well as non-psychotic symptoms. Although it was not developed as an outcome measure, its purpose has been to measure sensitivity to change overtime with excellent inter-rater reliability. The limitations include a focus on only positive symptoms perspective on the illness. The Positive and Negative Syndrome Scale (PANSS) is the gold standard and most employed tool.[11] Its core purpose was to assess the positive, negative, anxiety, and mood symptoms of schizophrenia, as well as other clinical symptoms. This scale displays high inter-rater and split-half reliabilities of 0.80 with good criterion and construct validity. Although time consuming, can be used to assess symptomatology and assess pre and post assessment change. In comparison with BPRS, PANSS had shown consistently,[12] better outcomes.[13]

The **Clinical Global Impression-Schizophrenia** (CGI-SCH),[14] is an overall rating scale used in schizophrenia. Although it lacks an operational definition it is commonly used over many other common rating scales. The CGI–SCH has proven to be reliable and valid in the evaluation of symptoms. The Clinical Global Impression-schizoaffective disorder (CGI-SCA),[15] focuses on schizoaffective disorders which is characterised by concurrent psychotic and mood symptoms. Inter-rater reliability ranged from good to excellent with good reproducibility. The Schizotypal Personality Questionnaire (SPQ),[16] is a 74-item self-report questionnaire which focuses on 9 schizotypal traits. This measure displays high sampling validity and internal reliability of 0.91.

Negative Symptoms:

Nancy Andreasen created the **Scale for the Assessment of Negative Symptoms and the Scale for the Assessment of Positive Symptoms** (SANS and SAPS) for use with persons with schizophrenia to measure the severity of positive and negative symptoms. Clinicians as well as

researchers have been extensively using SAPS and SANS in various research studies to understand the treatment response.[6-7] SAPS is a 34-item positive symptom rating on a 6-point scale whereas SANS utilises a 25 item, 6-point scale to evaluate negative symptoms.[7] Since the development of these two scales, there were many studies which had reported the validity and reliability, while its temporal stability has been the focus of some studies focusing on the effect of treatment. The inter-rater reliability (IRR) of SANS was established in 1986 by a team of psychiatrists from PGI, Chandigarh, who found that the tool has high IRR and suggested that it can be used in India without any modifications.[8] There were no similar studies found regarding SAPS from India.

Negative Symptoms Assessment-16 (NSA-16),[9] examines the negative symptoms associated with schizophrenia. It has excellent psychometric properties regarding validity, reliability, sensitivity to change, and good clinical utility. It is also brief and simple to use. SANS and NSA-16 offer a targeted assessment of negative symptoms; however, they must be employed in conjunction with a rating scale evaluating positive symptoms. The Brief Negative Symptom Scale (BNSS),[17] and Clinical Assessment Interview for Negative Symptoms (CAINS),[18] are further scales developed to measure negative symptoms. These scales displayed good psychometric properties specifically in blunted affect and alogia.[19]

Positive Symptoms:

The **Belief about Voices Questionnaire** (BAVQ), [20]developed by Chadwick and Birchwood, contains 30 items that assess the beliefs, feelings and behaviours associated with the presence of auditory hallucinations. Benevolence, malevolence, omnipotence, engagement, and resistance are the domains measured in BAVQ. In the year 2000 a revised version of BAVQ was developed by the same authors which had 35 items that were scored using a Likert scale. It serves as the only tool that measures the interpretation or appraisal of the hallucinatory voices.[21] BAVQ-R was translated and validated in Hindi by Chaudhary et al from Banaras University, UP.[22] The authors reported the Hindi adaptation to have good psychometric features, with internal consistency, high divergent and convergent validity. Several studies which have tested the effectiveness of an intervention targeting auditory hallucinations in persons with psychosis have widely employed this tool as an outcome measure. Understanding the individuals' beliefs and experience about the voices is important as the findings would lead to development of appropriate interventions. The Brown Assessment of Beliefs Scale (BABS), [23] focuses on measuring insight delusionality with good psychometric properties. The Psychotic Symptom Rating Scales (PSYRATS) is another such scale used to assess the symptoms and is a more broad-based measure.[24] It includes two subscales, auditory and delusional, and is mostly used as a measure to quantify the subjective severity of positive symptoms. This instrument has been widely utilised in research setting for gathering more information about hallucinations and delusions. In studies of psychological treatment, it has also served as an outcome indicator.

Cognitive measures in schizophrenia and other psychotic disorders

Objective measures of cognition

Guidelines for determining whether the cognitive measures being employed are suitable for cognitive screening in a clinical context have been developed by the American Psychological Association's working group (WGSA).[25] Countries like India do not have any national level consortium to provide such guidance to the clinicians to develop a most appropriate cognitive

battery. A battery developed by the Post Graduate Institute from Chandigarh,[26] and another battery developed at the National Institute of Mental Health and Neurosciences, Bengaluru,[27] has been widely used in India which has its own limitations like time consuming, availability of these instruments, lacunae in the instrument to indicate the severity of cognitive deficits. These batteries are not exclusive for persons with schizophrenia.

Brief assessment of Cognition in Schizophrenia (BACS) is a comprehensive battery developed in the west and takes around 25 to 30 minutes.[28] This is tool that is most frequently evaluated with solid psychometric properties and most adaptations. In addition, it addresses comprehensive domains of neurocognition with shorter administering time. But BACS can be administered only with literate individuals who have at least 9 years of education. The same was the case with MATRICS Cognitive Consensus Battery (MCCB) which encompasses 10 different cognitive domains including social cognition and does not have Indian norms.[29] Hence, a culturally relevant cognitive battery must be developed for use with individuals who have schizophrenia and are illiterate or of low education level. In this context, a research team in China revised the method of administering MCCB in China for use in communities where illiteracy and untreated or inadequately treated psychosis are common, particularly among elderly residents with schizophrenia and found to be effective.[30] At present at SCARF a pilot study has been designed to test the feasibility of this adapted version of MCCB to assess the cognitive functioning in older, less-educated individuals with schizophrenia and healthy controls.

Assessing Social Cognition:

Social cognition is the ability to relate to others and the self, while also being able employ those perceptions effectively in a social situation. Recent research evidences state that social cognition contributes to functional outcome in persons with schizophrenia. There are various tools available to assess social cognitive deficits. These tools were developed to suit the western culture and have clear limitations for use with Indian patients.

The team from NIMHANS, Bangalore adapted these independent tests without modifying the original constructs and validated the tool named Social Cognition Rating Tool in Indian setting (SOCRATIS) whose psychometric properties are found to be satisfactory.[31] This scale consisted of tasks measuring Theory of mind, Attributional bias and social perception deficits in persons with schizophrenia. Both the content validity and known groups validity of the measure were good. Also, the Indian version of the social cure recognition test exhibited high concurrent validity and internal consistency.[31]

Subjective measures assessing cognition

Cognitive deficits are subjectively perceived and these perceptions are quite important in terms of functional and occupational outcome.[32] It is frequently reported by patients that *"Food is either overcooked or burnt due to my inattention"; "I always end up searching for my spectacles"; "I just become blank and confused and not able to take decisions". "I am unable to plan or schedule my tasks at work"* and so on. Improving functioning in individuals with schizophrenia is the core component of recovery and hence, to design interventions and evaluate them, it is crucial to obtain subjective reports of impairments. A limited number of tools are available to record data on subjective cognitive deficits in schizophrenia. In a study of the literature, 26 studies were found that used various scales to evaluate the subjective cognitive symptoms of schizophrenia.[33] These

instruments all deal with various subjective experiences, such as schizophrenia-related cognitive deficits. Subjective Scale to investigate cognition in Schizophrenia (SSTICS) is a tool created by Stip et al.,[34] which primarily focuses on cognitive deficits related to situations in the real world. This tool was translated and validated in Tamil language at SCARF. Moreover, despite the absence of a correlation with objective measures, SSTICS was found to be a valid tool for assessing subjective cognitive performance among people with schizophrenia within the context of daily functioning. This could facilitate the development of suitable interventions. This could facilitate the development of suitable interventions.[35]

Assessments used for at risk and early psychosis group:

In assessing other psychotic disorders, ultra-high-risk state and early psychosis is measured through the following scales, Comprehensive assessment of ARMS (CAARMS), [36] focuses on the at-risk mental states (ARMS), attenuated symptomatology and brief limited intermittent psychosis (BLIP). The scales mentioned above are usually used in the ultra-high risk (UHR) screening. The diagnosis of UHR is ambiguous, but it is essential to identify at the earliest phase to reduce the severity of illness progression. The CAARMS has also been translated for use in Hindi. Two instruments, SIPS and SOPS, were created by the Yale University PRIME prodromal research team to evaluate and monitor early signs of psychosis so that it would enable the clinicians to identify them early and provide necessary intervention.[37] SIPS is a structured clinical interview like that for DSM IV (SCID) and other diagnostic interviews. SOPS is included in SIPS, and it consists of 19 items that assess the prodromal symptoms severity under 4 major domains: positive, negative, disorganisation and general symptoms. SOPS is analogous to PANSS, BPRS. This tool is a clinician administered scale and studies using this scale from India are very less. “PRIME Screen-Revised” (PS-R) is a short self-report screening version to identify prodromal al symptoms in psychosis. It has been translated and used in India.[38]

Interview Schedules:

Interview schedules are used to comprehensively diagnose various mental illnesses, it mostly consists of structured questions that serve as a guide to the mental health practitioner in collecting data about a particular diagnosis. For schizophrenia, the following schedules will be described. The Structured Clinical Interview for DSM (SCID),[39] the current version being SCID-5, is a semi-structured interviewing tool that helps in making diagnoses in accordance with the Diagnostic and Statistical Manual of Mental Disorders’ (DSM) established diagnostic criteria. The SCID-P was created for those with psychotic illnesses. The Schedule for Affective Disorders and Schizophrenia (SADS),[40] is a diagnostic interview that is semi-structured and captures the sensitivity of the illness regardless of presentation of the illness, increasing the inter-rater reliability of the resulting diagnosis. Diagnoses can also be made in accordance with the DSM-IV or ICD-10 using the Mini International Neuropsychiatric Interview (MINI),[41] which is a brief structured clinical interview. The MINI has solid inter-rater and test-retest reliability and focuses mainly on the current diagnosis.

Functional outcome measures

In LAMI countries, Schizophrenia has been shown to have better outcomes in terms of social and occupational functioning compared to other high-income countries. The importance of social

functioning as a key treatment objective for schizophrenia has prompted a critical need for appropriate and reliable psychometric evaluation tools.

The International Pilot Study of Schizophrenia (IPSS) was one of the seminal investigations on the progression and outcome of schizophrenia.[42] Using a similar methodology, a study was conducted in Chennai, India which determined the clinical outcome of first episode schizophrenia patients after a follow up of 10 years and discussed the social, demographic, and clinical factors linked to favourable and unfavourable outcomes.[43] This is a notable study on the progression and outcome of schizophrenia that comes from India. Both these studies used clinical scales like Present state examination (PSE),[44] and Psychiatric and Personal History Schedule (PPHS)[45] to collect history of illness, socio demographic details. Also used the Follow up version of PPHS (FU-PPHS) which was employed in the DOSMED study to capture change during illness. Later, several scales have been developed and validated for population from low- and middle-income countries like Schedule for the Assessment of Psychiatric Disability (SAPD),[46]Scarf Social functioning Index (SSFI),[47] and more recently Social Occupational Functioning Scale (SOFS).[48] These scales were developed for usage within the Indian setting and have established good psychometric properties.

Various scales were also developed from high-income countries such as the Groningen Social Disability Schedule,[49] the Life Skill Profile, [50] the Social Function Scale, [51] the Social Adaptive Functioning Evaluation,[52]and the Independent Living Scale Survey. [53]In assessing the level of functioning, Global assessment of functioning (GAF),[54] and Social and Occupational functioning assessment (SOFAS),[55] were the two most used tools worldwide.

Some of the scales also measure clinical symptoms like thought process, mood, impulse control etc., and many assess functioning in terms of marital or parental roles. Many of our patients might not be functioning in these roles and hence it was emphasised that a better way to measure social functioning would be to look at more fundamental aspects including the capacity for everyday tasks, amount of independence and interpersonal interaction. SSFI has been widely used across various other physical illnesses like leprosy, cancer etc., apart from mental illness. SOFS, a comprehensive scale developed at NIMHANS, can be easily administered in a busy clinical setting and it attempted to address some of the shortcomings of the former tool. It possesses satisfactory psychometric properties with regards to reliability and validity. A three-factor structure consisting of interpersonal skills, social appropriateness and adaptive living skills was identified by exploratory factor analysis.

Psychosocial rehabilitation is a series of psychosocial and social intervention strategies which complement pharmacological management and whose aim is to improve functioning in the personal, social, and occupational domains of individuals with schizophrenia. Assessments serve as the foundation of all intervention for individuals with psychiatric disabilities. Knowing the needs of the individual is the first step in determining the issues that need to be addressed most urgently and in measuring the effectiveness of rehabilitation interventions. As a result, assessment plays a role in every facet of rehabilitation, and the prowess of accurately determining a person's needs is necessary for working effectively with those who have psychiatric illnesses. Research studies that seek to better identify the needs of persons with schizophrenia have utilised the Camberwell assessment of Needs – Research version (CAN-R).[56] It consists of a list of 22 areas of clinical and social needs, with four sections in every one of the 22 areas. The CAN-R is a tool

that is valid and reliable in terms of evaluating the needs of those with serious mental disorders and a full assessment using this instrument takes about 25 min.[56] A short version of CAN-R called the Camberwell Assessment of Need Short Appraisal Schedule,[57] was developed and used across regions and cultures.

Quality of life

The notion of quality of Life is complex and provides overall information about all facets of a person's life. The Quality-of-Life Scale (QLS),[58] measures of quality of life, specifically with regards to positive symptoms to assess the debilitating effect of schizophrenia. Though this scale assesses from the viewpoint of the patient, it does so use an objective view. Though it cannot lay out cut-off scores, clinical effectiveness can be observed and monitored through the scale following medications or psychosocial interventions. Health is another important aspect of quality of life. The Health-Related Quality of Life questionnaire (HRQoL),[59] seems to be one such scale used to measure health and clinical improvement and functioning in schizophrenia. The Schizophrenia Quality of Life Scale Revision-4 (SQLS-4) is another such instrument that has good psychometric properties.[60] The WHO Quality of Life-BREF (WHOQOL-BREF) is another commonly preferred scale, although not developed specific to schizophrenia, it is often used to assess subjectivity.[61]

Comorbidity measures in schizophrenia and other psychotic disorders

There are some tools that are commonly used in schizophrenia and other psychotic illness but they were not developed specifically for schizophrenia. Beck Depression Inventory – II (BDI-II),[62] is one such tool which assesses both cognitive and neurovegetative symptoms of depression (including suicidal ideation). Individuals with schizophrenia have a higher risk of suicide, and few appropriate scales have been developed to address the same. The Schizophrenia Suicide Risk Scale (SSRS),[63] is useful in identifying high risk for suicide in individuals with schizophrenia but with selective psychometric properties. Scale for Suicidal Ideation (SSI),[64] is a self-report measure which rates the severity of suicidal thoughts and plans; however, this scale is not sensitivity enough to differentiate between diagnosis and not specific to schizophrenia and unable to differentiate between affective symptoms. Hamilton Rating Scale for Depression (HRSD) and Calgary Depression Rating Scale for Schizophrenia (CDSS) are the mostly used to assess depression in schizophrenia, which are mostly subjective.[65,66]

Recovery measures in schizophrenia and other psychotic disorders

"The concept of recovery has emerged as a central concept in the rehabilitation of persons with severe enduring mental illness, especially schizophrenia".[67] It is stated that understanding the concept of recovery would pave way to the development of rehabilitation interventions focusing on the aspects of recovery stated by the patients and family. There have been numerous research studies that have explored the concept of recovery using qualitative methodology, but generalisation from these studies is limited because of the small sample sizes. Hence the need for quantitative measures to understand the concept of recovery in a larger population across different cultures is important. A recent review of literature identified around 11 scales that specifically assess recovery orientation of the psychiatric services. Many scales were available, but the most used are: Recovery Assessment Scale (RAS),[68] Illness Management and Recovery Scales,[69] Stages of recovery instrument, [70] and Recovery process inventory.[71] These were tested for its

psychometric properties and found to be reliable and valid. RAS measures various aspects of recovery from the service user's perspective and the tool specifically emphasizes on hope and self-determination. It is a 41-item scale rated on a 5-point Likert scale. The factor structure of RAS and its correlates among severe mental illness was studied and concluded that RAS follows a 5-factor model in Indian context which is different from previous studies and few clinical and sociodemographic correlates of recovery were reported.[72]

Another study from Chennai developed a questionnaire including 31 indicators of recovery using two previous studies as references. The developed questionnaire was circulated among mental health professionals for their expert opinion and piloted the same with 25 patients and their family members. This tool starts with an open-ended question "When do they consider themselves/or their family member as recovered?" and after which they will be asked to respond yes or no for the indicators of recovery.[73]

Stages of Recovery Instrument (STORI), [70] is a 50-item self-report measure and this assess different stages of recovery from mental illness on a 6-point Likert scale. This instrument was translated and validated in Hindi language. This version has shown to have good internal consistency (Cronbach's alpha: 0.854) for the entire scale and for each stage of STORI (Cronbach's alpha of Stage 1: 0.746; Stage 2: 0.755; Stage 3: 0.752; Stage 4: 0.745 and Stage 5: 0.756). The Hindi version also has good split-half reliability as indicated by a high Spearman-Brown coefficient (0.781) and Guttmann's split-half coefficient (0.778).[73]

Insight measures in schizophrenia and other psychotic disorders

Lack or reduced insight has been a vital feature in psychosis and this feature differentiates schizophrenia from other psychiatric disorders.[74] There are 3 main aspects of insight about any psychiatric illness: A. When an individual has the capacity to recognise that they have a psychiatric illness; B. When they can label the abnormal or uncommon psychological experiences as pathological; and C. being adherent to the recommended treatment. Insight can be broadly classified into clinical and cognitive. Assessing clinical insight in persons with mental illness is part of the routine clinical examination which is usually done by psychiatrists. Formal assessments such as Schedule for Assessment of Insight — extended (SAI-E)[74] and Scale for Assessment of Unawareness of Mental Disorder (SUMD)[75] are used to evaluate clinical insight.

Based on various published study on Insight Dr K S Jacob discusses in an article about the cultural differences that needs to be kept in mind while assessing insight across the globe and it should not be based on a universal yardstick. Also, this paper reports insight scales should evaluate awareness, attribution, and action.[76]

Schedule of Assessment of Insight – Expanded version has been widely used to evaluate insight across the globe.[77] This tool covers three dimensions of insight: awareness, relabelling of symptoms and adherence, plus a "hypothetical contradiction" item included in the tool to assess the persons capacity to consider another's perspective. There are 2 to 3 questions in each dimension and scored on a 3-point scale from 0 – (no insight) to 2 (good insight), with a maximum total score of 24. The additional question on "hypothetical contradiction" is scored on a 0–4-point scale and it is added to the total score. This version also has items on awareness of change, difficulties resulting from mental illness.

The Scale to Assess Unawareness of Mental Disorder -SUMD,[75] is one of the most widely used instruments to measure insight. There are two SUMD versions (the long form and the short form), and they vary in content, scoring, and interpretation of insight scores. SUMD was developed in USA in English language. It needs to be translated and culturally modified when used in other population and cultures.

On the other hand, **Beck Cognitive Insight Scale** – BCIS, [78] which has been widely used in studies, assess the cognitive processes involved in evaluation of abnormal experiences. It is a self-report questionnaire which has 15 items that are divided into two subscales such as self-reflection and self-certainty. It takes 5 to 10 minutes to complete. Each item is scored on a Likert scale ranging from 0 to 3. Sum of scores on self-certainty subscale items is subtracted from the sum of scores on self-reflection subscale items to derive the BCIS composite index. This tool has been validated in Taiwanese and Japanese language. A team from CMC Vellore, India translated the tool in Tamil language and validated it. They reported that the BCIS-Tamil version was internally consistent and had good convergent and discriminant validity with SAI-E.

Adherence measures in schizophrenia and other psychotic disorders

The measures that have been described below are not specifically designed for measuring adherence among persons with schizophrenia and other psychotic disorders but have been commonly used in assessing adherence in mental illnesses. The earlier tools on insight quantified the patients subjective experience of treatment with antipsychotic medications. The following tools assess the impact of medications on their quality of life and the relationship between patient's subjective experience and their attitudes and adherence to medications.

Drug Attitude Inventory (DAI)is a 30 item self-report questionnaire,[79] but the short version with 10 questions has been validated. This short version explores about various aspects of the patient's perceptions and experiences of treatment. Personal Evaluations of Transitions in Treatment (PETiT),[80] is another self-administered questionnaire. This assessment focus on changes perceived by a patient receiving antipsychotic drugs, and particularly to measure the effects of atypical antipsychotic drugs on outcomes such as subjective well-being. Considering the lacunae in the DAI scale Medication Adherence Rating Scale (MARS),[81] was developed, and considered to be a valid and reliable measure of adherence to psychoactive medications. Clinician Rating Scale (CRS), [82] used to assess the clinician's assessment of level of adherence and mostly focused on compliance therapy. Brief Adherence Rating Scale (BARS),[83] is a clinician administered tool consisting of three questions about the patient's knowledge of their own medication regimen and episodes of missed medication.

Disability measures in schizophrenia and other psychotic disorders

Individuals diagnosed with schizophrenia experience impairment in multiple domains and it affects their self-care, independent living, social functioning, cognitive ability, and employment. The reasons behind deterioration in functioning are due to cognitive impairments and severe negative symptoms. These deficits persist even after the remission of symptoms. Many individuals do not reach their premorbid level and they underperform compared to the expectation of their family members. "In India it is estimated that more than 2.27 million people are disabled due to mental illnesses and intellectual sub-normality". Individuals with schizophrenia have disability in

various domains and hence assessing the same would require information from multiple resources such as patients, family members and or a case manager/case worker.

WHO developed the **Disability Assessment Schedule**,[84] as a standardised way to measure health and disability across cultures. It is a practical, common measure that can assess health and disability at population level or in regular clinical practice. It captures the level of functioning in six domains of life such as cognition, mobility, self-care, getting along, life activities and participation. For all the six domains the scale provides a profile and a summary measure of functioning and disability that is reliable and applicable across cultures in all adult populations.

The **PGI Disability Scale, and Schedule for Assessment of Psychiatric Disability** (SAPD),[35] is some of the assessments developed for assessing psychiatric disability in the Indian context - Development of the Indian Disability Evaluation and Assessment Scale (IDEAS) for measuring disability in patients with mental disorders was coordinated by the task force of Rehabilitation Committee of the Indian Psychiatric Society (IPS) in 2001. This scale is gazetted in 2001 and disability is assessed based on patient's performance in domains such as self-care, interpersonal activities, communication and understanding and work. The scale was field tested at eight centres across the country, involving 1,078 patients. It is found to have good internal consistency, face, content, and criterion validities. In 2001, a committee was constituted by the Department of Health, Government of India (GOI) and the committee approved IDEAS as developed by IPS with some modifications for the assessment and certification of disability associated with mental illnesses.[85]

CONCLUSION

Various scales are available to measure the different illness dimensions of schizophrenia and other psychotic disorders. Most of the available scales were developed in the western world with little or no cross-cultural validation. Moreover, many scales are yet to be translated and validated for local settings in India before they can be used for the local population. Hence, it is essential to carefully choose the scales from the long list of available scales taking into consideration the purpose and psychometric properties of the scale in the local target population.

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Table 1: List and relevant information about important rating scales used in schizophrenia and other psychotic disorders

Name of the tool	Number of items	Indian vernacular translation available	Scale URL	Copyrighted public domain	Licensing fee
Scale for the Assessment of Negative Symptoms (SANS)	25	No	https://www.ncbi.nlm.nih.gov/projects/gap/cgi-bin/GetPdf.cgi?id=phd000807.2	Nancy c Andreasen - Google Scholar Nancy C. Andreasen, MD, PhD | Interdisciplinary Graduate Program in Neuroscience - The University of Iowa (uiowa.edu)	N/A
Scale for the Assessment of Positive Symptoms (SAPS)	34	No	https://ifrg.ch/PDF/saps.pdf	Nancy c Andreasen - Google Scholar Nancy C. Andreasen, MD, PhD | Interdisciplinary Graduate Program in Neuroscience - The University of Iowa (uiowa.edu)	N/A
Negative Symptoms Assessment-16 (NSA-16)	16	Gujarati, Hindi, Marathi, Kannada, Malayalam, Tamil, Telugu	https://eprovide.mapi-trust.org/instruments/negative-symptom-assessment https://eprovide.mapi-trust.org/download?token=2757f2cf0	Copyright holder – Larry Email: larryd349@comcast.net Larry D Alphs Publications (PubMed)	N/A

			c2c1a9f1f80ca198a341d49dcdec59e9b42cb8867dc29d4b9b069cb	ePROVIDE™ - Online Support for Clinical Outcome Assessments (mapi-trust.org)	
Brief Psychiatric Rating Scale (BPRS)	16 to 24	No	https://www.smchealth.org/sites/main/files/file-attachments/bprsform.pdf?1497977629	Public	N/A
Positive and Negative Syndrome Scale (PANSS)	30	Tamil	https://www.theinnercompass.org/sites/default/files/2017-05/Positive-and-Negative-Syndrome-Scale.pdf	Copyright holder – Pearson/MHS PANSS™, Positive and Negative Syndrome Scale | Product Details (pearsonassessments.com) http://www.mhs.com/	Pearsonassessments.com
Clinical Global Impression-Schizophrenia (CGI-SCH)	Two categories: Severity of illness Degree of change	No	https://pubmed.ncbi.nlm.nih.gov/12755850/	Public	N/A
Belief about voices questionnaire-Revised (BAVQ-R)	30	Hindi	https://dhhs-dbhtraining.unl.edu/wp-content/uploads/2020/12/Beliefs-About-Voices-Questionnaire.doc Appendix: BAVQ–R (wiley.com)	Paul Chadwick — the University of Bath's research portal	On request from the author

Psychotic Symptom Rating Scales (PSYRATS)	17	No	http://www.riabilitazionepsicosociale.it/wordpress/wp-content/uploads/2016/04/PSYRATS-Psychotic-Sympton-Rating-Scales.pdf	Gillian Haddock — Research Explorer The University of Manchester	On request from the author
Comprehensive assessment of At-Risk Mental States (CAARMS)	28 items, across 7 domains	No	https://www.orygen.org.au/Training/Resources/Psychosis/Manuals/Manual-PDF-files/orygen-the-caarms-pdf.aspx	Copyright holder – Orygen/Yung Alison Yung | Deakin The CAARMS: Assessing Young People at Ultra High Risk of Psychosis - Orygen, Revolution in Mind	On request from the author
Structured Interview for Psychosis-Risk Syndromes (SIPS)	19	No	Microsoft Word - SIPS_5-5_032514.doc (easacommunity.org)	*****Thomas McGlashan, MD < Yale School of Medicine Team | Yale PRIME Clinic	On request from the author
Scale of Psychosis-Risk Symptoms (SOPS)	19	No	Microsoft Word - SIPS_5-5_032514.doc (easacommunity.org)	*****Thomas McGlashan, MD < Yale School of Medicine Team | Yale PRIME Clinic	On request from the author

Schedule for the Assessment of Psychiatric Disability (SAPD)	4 main areas of personal, occupational, social and global disability	Unclear	NA	Dr. Thara R Rangawsamy THARA | Director | PhD, FRCPsych | Schizophrenia Research Foundation, Chennai | Research profile (researchgate.net)	On request from the author
Scarf Social Functioning Index (SSFI)	17?	Tamil	NA	Dr. Padmavati R - padmavati@scarfindia.org Dr. Thara R Rangawsamy THARA | Director | PhD, FRCPsych | Schizophrenia Research Foundation, Chennai | Research profile (researchgate.net)	On request from the author
Global Assessment of Functioning (GAF)	100 point single-item global scale	No	https://www.concordia.ca/content/dam/concordia/services/health/docs/forms/global-assessment-of-functioning-scale.pdf	Copyright – APA Authors - Endicott J; Spitzer RL; Fleiss J; Cohen J	On request from the author
Social and Occupational functioning assessment (SOFAS)	100 point single-item global scale	No	http://www.people.ku.edu/~tkrieshok/epsy890/lectures/sofas.pdf	Copyright – APA Authors - Goldman HH; Lave TR; Skodol AE	On request from the author

Camberwell assessment of Needs – Research version (CAN-R)	4 sections for each of its 22 need areas	Hindi Kannada	https://www.researchintorecovery.com/files/CAN-R%202nd%20edn.pdf	Research use - Research Into Recovery	On request from the author
Quality-of-Life Scale (QLS)	21	Unclear	NA	Copyright holder – Heinrichs DW	On request from the author
Brief assessment of Cognition in Schizophrenia (BACS)	brief assessments of four of the seven neurocognitive domains	Hindi, Tamil	NA	Copyright holder – Duke University (for all translations) Richard S.E. Keefe | Scholars@Duke	BACS © Duke University. All rights reserved. Duke University retains the copyright for all translations of the BACS
MATRICS Cognitive Consensus Battery (MCCB)	10 measures with 7 domains	Hindi, Kannada, Marathi, Tamil and Telugu	NA MCCB Kit to be purchased	Keith Nuechterlein, Ph.D. | Semel Institute for Neuroscience and Human Behavior (ucla.edu)	Parinc.com
Subjective Scale to investigate cognition in Schizophrenia (SSTICS)	21	Tamil	https://psychiatrie.umontreal.ca/wp-content/uploads/sites/5/2014/09/SSTICS_English.pdf	Emmanuel STIP | Chair | United Arab Emirates University, Al Ain | UAEU | CMHS | Research profile (researchgate.net)	On request from the author

Beck Depression Inventory-II (BDI-II)	21	Hindi Kannada Tamil Marathi Malayalam	https://www.ismanet.org/doctoryourspirit/pdfs/Beck-Depression-Inventory-BDI.pdf	Copyright holder – Pearson/ Aaron T Beck BDI-2 Beck Depression Inventory (pearsonassessments.com)	Pearsonassessments.com
Schizophrenia Suicide Risk Scale (SSRS)	25	No	Appendix of - Sci-Hub | The Schizophrenia Suicide Risk Scale (SSRS): development and initial validation | 10.1016/s0920-9964(00)00126-2 (hkvisa.net) (Scihub)	*Author – Taiminen T tero.taiminen@utu.fi Tero Taiminen | University of Turku (utu.fi)	On request from the author
Hamilton Rating Scale for Depression (HRSD)	17 or 21 item	Urdu Kannada	https://dcf.psychiatry.ufl.edu/files/2011/05/HAMILTON-DEPRESSION.pdf	Public	N/A
Calgary Depression Rating Scale for Schizophrenia (CDSS)	9	Hindi Urdu	https://psychscenehub.com/wp-content/uploads/2020/02/schizophrenia_cdss.pdf	The Calgary Depression Scale for Schizophrenia | Cumming School of Medicine | University of Calgary (ucalgary.ca) Copyright holder - Dr. Donald Addington (for all translations) Donald Emile Addington | UCalgary Profiles | University of Calgary	User fee applies

Recovery Assessment Scale (RAS)	24	Unclear	https://www.cms.gov/files/document/ras-24-instrument.pdf	*Author – Giffort D	On request from the author
Stages of Recovery Instrument (STORI)	50	Hindi	NA	Copyright holder – author Retta Andresen Illawarra Institute for Mental Health University of Wollongong Northfields Avenue Wollongong NSW 2522 Australia Telephone: 02 4221 5605 Email: mja02@uow.edu.au	On request from the author
Schedule for Assessment of Insight — extended (SAI-E)	11	Tamil	Appendix of https://pubmed.ncbi.nlm.nih.gov/2207510/	https://pubmed.ncbi.nlm.nih.gov/?term=David+AS&cauthor_id=2207510	On request from the author
Scale for Assessment of Unawareness of Mental Disorder (SUMD)	74	NA	NA	https://pubmed.ncbi.nlm.nih.gov/8494061/ https://pubmed.ncbi.nlm.nih.gov/?term=Amador+XF&cauthor_id=8494061	On request from the author
Beck Cognitive Insight Scale (BCIS)	15	Tamil	https://pubmed.ncbi.nlm.nih.gov/15099613/	https://pubmed.ncbi.nlm.nih.gov/15099613/	On request from the author

				https://pubmed.ncbi.nlm.nih.gov/?term=Beck+AT&cauthor_id=15099613	
World Health Organization Disability Assessment Schedule 2.0 (WHODAS 2.0)	36	Bengali, Hindi, Kannada, Tamil	https://www.psychiatry.org/File%20Library/Psychiatrists/Practice/DSM/APA_DSM5_WHODAS-2-Self-Administered.pdf	World Health Organization 2010	
Patient Generated Index Disability Scale	4	NA	NA	NA	NA
Indian Disability Evaluation and Assessment Scale (IDEAS)	4 domains	No	http://wbcommissionerdisabilities.gov.in/link/pdf/Disability-Assessment%20Guidelines.pdf	Public	N/A

SOCRATIS	Battery of tests that measures 3 social constructs	Hindi Kannada	NA	*Author - Urvakhsh MEHTA | Professor (Additional) | National Institute of Mental Health and Neuro Sciences, Bengaluru | NIMHANS | Department of Psychiatry | Research profile (researchgate.net). Email: urvakhsh@gmail.com	On request from the author
PRIME Screen – Revised (PS-R)	12	Hindi	prime_screen--revised.pdf (psychosisscreening.org)	*Thomas McGlashan, MD < Yale School of Medicine Team | Yale PRIME Clinic Hindi version: Email of one of the authors - cricsai@gmail.com	On request from the author
Medication Adherence Rating Scale (MARS)	10	6 Translations available – unclear whether it includes Indian languages	Medication Adherence Rating Scale (MARS) (hmpgloballearningnetwork.com)	*Thompson, Katherine N. - Author details - Scopus Preview Author email: knt@mhri.edu.au	On request from the author

* Unclear whether the tool is copyrighted or free to use. Hence, link(s) to the author's profile have been provided wherever possible.
N/A: Not Available

Chapter 11

Rating scales in anxiety and somatoform disorders

Harkishan Mamtani [1], Shivraj Phurailatpam [2], Geetha Desai [3*]

Take Home Message

- Anxiety scales validated and translated in Indian setting include Beck Anxiety Inventory, Depression Anxiety and Stress scale and Hospital Anxiety Depression Scale.
- Though scales aid in measuring general anxiety states or specific disorders, clinical interview remains the gold standard.
- Somatoform disorder, referred to as bodily distress disorder in ICD-11, can now be diagnosed even in the presence of a medical condition if the excess importance is given to the symptoms by the sufferers.
- Combining Whiteley index and Scale for Assessing Illness Behaviour with Patient Health Questionnaire has shown to improve the diagnostic accuracy of somatoform disorder.

INTRODUCTION

Rating scales are crucial tools for both clinical practice and research. This chapter deals with rating scales used in two groups of common mental disorders: anxiety disorders and somatoform disorders. Both these disorders are important from the public health point of view, as they have a high prevalence with significant disability for the sufferers.

The global prevalence of anxiety disorders was found to be 7.3% (4.8% - 10.9%) in a systematic review of 87 studies.[1] From the Indian perspective, the National Mental Health Survey (NMHS) found the prevalence of anxiety disorders to be 2.94% (95% C.I.: 2.92% - 2.97%).[2] A meta-analysis of nearly 3000 subjects found the quality of life of people suffering from anxiety disorders to be significantly worse than healthy controls, and the same was reflected in all types of anxiety disorders.[3]

Somatoform disorders too are fairly common in the clinical setting. A meta-analysis found the prevalence of somatoform disorders to be ranging from 0.8% to 5.9% in the primary care setup.[4] A recent Indian study found the prevalence of somatization disorder at a quaternary mental

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health centre to be 5%.[5] While another study conducted among 1210 Indian women in an urban setting found the prevalence of somatization to be as high as 40.8% (95% C.I.: 38.09% - 43.62%).[6] Even somatoform disorders are associated with a marked disability, similar to that seen in other mental illnesses.[7]

Hence, it is crucial to get reliable estimates of these important public health problems, and rating scales can serve as useful measures for the same. Scales for anxiety disorders measure the following symptom domains: Severity of the emotional experience of anxiety, physical symptoms (restlessness, muscle tension, fatigue, sweating, dry mouth, etc.), cognitive symptoms (worries, fear, racing thoughts, etc.), behavioural symptoms (avoidance, hypervigilance, startle response, etc.), and functionality affected due to symptoms. Whereas, the scales for somatoform disorders mostly rate the somatic symptoms (organ systems involved, nature of symptoms), cognitive aspects (increased preoccupation with symptoms), behavioural symptoms (help-seeking behaviour), and emotional symptoms (distress and anxiety).

This chapter covers the important rating scales for anxiety and somatoform disorders, with a special focus on the Indian perspective.

NON-SPECIFIC INTERVIEW SCHEDULES

Primary Care Evaluation for Mental Disorders (PRIME-MD) was designed to identify mental illnesses in the primary care setting.[8] It is a 26-item self-administered questionnaire. The anxiety section of the questionnaire can screen the presence or absence of panic disorder and generalised anxiety disorder.[9] The somatoform section of the questionnaire enquires about 15 physical symptoms, encompassing all the major body systems, and has been validated for the diagnosis of somatoform disorder. The GAD-7 is an anxiety symptom subscale derived from PRIME-MD and has been discussed below. The Patient Health Questionnaire (PHQ) is a subscale derived from the self-administered version of PRIME-MD.[10] Being a self-reported questionnaire, it might have limited utility in capturing the psychological features of somatoform disorders. However, a systematic review of 40 questionnaires found PHQ-15 to be one of the two scales, which were fit for large-scale studies.[11] It has been used in the Indian setting to screen for common mental disorders, including somatoform disorder.[6,12] A case was also made for combining the somatic, anxiety, and depressive symptom scales from PHQ, called PHQ-SADS, as there is a significant overlap in these symptoms in patients with common mental disorders.[13]

Structured Clinical Interview for DSM (SCID) is a semi-structured clinical interview that covers the major anxiety disorders as per DSM-5 diagnoses. It also looks at the presence of somatic symptom disorder, as per the DSM nomenclature.[14] SCID is an expert-rated instrument, where the interviewer makes diagnostic decisions based on the patient's report as well as the other information available (E.g. informants' account, previous reports, observations during the assessment etc). SCID has found use in a few older Indian studies evaluating somatoform disorders.[15,16] Anxiety Disorder Interview Schedule for DSM-5 is also a structured clinical interview that covers anxiety disorders.[17]

MINI International Neuropsychiatric Interview (MINI) is another non-specific diagnostic scale, where psychiatric diagnoses are made based on both ICD and DSM systems.[18] It is a structured

assessment tool, with 'Yes' and 'No' answers, which help the clinician arrive at a diagnosis objectively. The MINI-7, though shorter than SCID, covers fewer anxiety disorders leaving out separation anxiety disorder and specific phobias. A couple of recent studies from India looked at the prevalence of somatization disorder using MINI.[5, 19]

Other non-specific interview schedules, which look at psychiatric disorders in general are Diagnostic Interview Schedule (DIS), Composite International Diagnostic Interview (CIDI), Schedule for Clinical Assessment in Neuropsychiatry (SCAN), and Schedule for Affective Disorders and Schizophrenia (SADS).[20]

SCALES FOR ANXIETY DISORDERS

Nosology

Anxiety disorders have carved their niche into the psychiatric classifications since the 20th century. These include disorders with excessive anxiety and fear and related behavioural disturbances. The Diagnostic and Statistical Manual of Mental Disorders- Fifth Edition (DSM-5), defines "anxiety as an anticipation of future threat which is different from fear, which is defined as an autonomic arousing response to a real or perceived threat".[21] Anxiety is a normal human emotion which has an evolutionarily adaptive function. Therefore, the threshold between normal anxiety and pathological anxiety lies on clinical judgement and rating scales play a role in identifying and quantifying this pathology. In the International Classification of Diseases- Tenth edition (ICD-10),[22] it is captured in the section of 'Neurotic, Stress-Related and Somatoform Disorders' linked by the common concept of neurosis. In DSM-5, it is represented in a separate chapter called 'anxiety disorders'. The ICD-11 has designated a separate chapter called 'Anxiety or Fear Related Disorders' with the addition of Separation Anxiety Disorder and Selective Mutism.[23]

Classification of Scales

Scales for anxiety disorders can be broadly classified as self-rated or clinician-rated. Self-rated scales include The State-Trait Anxiety Inventory (STAI), Beck Anxiety Inventory (BAI), Hospital Anxiety Depression Scale (HADS), Depression Anxiety and Stress Scale (DASS), Generalized Anxiety Disorder-7 scale (GAD-7), Mobility Inventory for Agoraphobia and Short Health Anxiety Inventory (SHAI). Clinician-rated scales include Hamilton Anxiety Scale (HAM-A), Panic Disorder Severity Scale (PDSS), and Leibowitz Social Anxiety Scale (LSAS).

Similarly, scales can be divided into those used for screening the general population (e.g., GAD-7) or rate clinical population (e.g., BAI, HADS). However, there can be overlap between the two categories.

It can also be classified into scales for general anxiety symptoms and scales for specific anxiety disorders, as discussed below.

Scales for general anxiety symptoms

STATE TRAIT ANXIETY INVENTORY (STAI)

It is a self-report scale that distinguishes the current anxiety symptoms (state) and a general tendency for having anxiety (Trait). Separate versions are available for adults and children (STAIC). It consists of 2 subscales with a total of 40 items. The State Anxiety Scale with 20 items evaluates the current anxiety symptoms 'at the moment' and measures the responder's subjective

feelings of worry, apprehension, and arousal. The Trait Anxiety Scale with 20 items evaluates the responder's tendency to develop anxiety symptoms which is relatively stable such as states of security and calmness. All items are rated on four-point Likert scale with higher scores indicating greater anxiety. Normative values are available in the manual.[24] A cut-off of 39 or 40 has been noted to detect clinically significant symptoms for the State-Anxiety scale.[25, 26]

Short versions of the scales are also available independently.[27, 28] The STAI can be obtained from the publisher. It requires about 10 minutes to complete the test.

Psychometrics:

The scale has shown a high Internal consistency with alpha Cronbach value ranging from .86 to .95 with test-retest reliability coefficients ranging from .65 to .75 over a 2-month interval.[29]

Utility in the Indian settings:

This scale has been translated into many Indian languages like Hindi, Kannada, Malayalam, Marathi, Urdu, Bengali, and Tamil.[30] This scale is copyrighted and needs to be purchased. The Hindi version of STAI has been found to be highly correlated with the English version which makes it suitable for use in studies involving cross-cultural differences.[31]

Strengths:

- It is among the most widely used and researched measures of general anxiety and is available in more than 40 different languages.
- It is simple and brief. It gives separate scores for state and trait.

Limitations:

- The STAI is highly correlated with depression and it has difficulty in differentiating anxious from depressed patients in few studies.[32]

BECK ANXIETY INVENTORY

This measure of anxiety focuses on somatic symptoms associated with anxiety. It was developed by Aaron T. Beck and colleagues with a focus on discriminating anxiety from depression.[33] It has 21 items, scored based on how much they are bothered by the symptoms in the last week. A Likert score from 0 (not at all) to 3 (severely- It bothered me a lot) is used and includes measurement of the level of nervousness, fear, unsteadiness, inability to relax, etc.

It requires about 5-10 minutes to complete for adults. The total score ranges from 0 to 63 with scores 0–9 interpreted as normal or no anxiety, 10–18: mild to moderate anxiety, 19–29: moderate to severe anxiety, and 30–63: severe anxiety. The scale is not available in the public domain and is under the copyright of the developer.

Psychometrics:

This scale has high internal consistency (Chronbach's alpha, α=0.92) and reliability over 1 week (Reliability coefficient, r=0.75).[33] Studies on construct validity show good convergence with other measures of anxiety such as the Hamilton Anxiety Rating Scale (r = 0.51) and the anxiety scale of the Symptom Checklist-90 (r = 0.81). BAI has been comparatively less correlated with depression scales (BDI: r = 0.61 and revised HAM-D Scale, r=0.25).[33,34]

Utility in Indian context: The BAI has also been translated into Hindi and validated in Indian students. It is highly reliable and valid with content validity (r=0.614) and Internal consistency (α=0.882).[35]

Strengths:

- BAI is relatively brief, easy to administer and score.
- It has good psychometric properties including sensitivity to change.
- It is less contaminated by depressive symptoms.
- It has been successfully used in different patient groups.

Limitations:

- 15 out of 21 items measure physiological or somatic symptoms which may not emphasize the cognitive and behavioural components associated with anxiety.
- In individuals with medical comorbidity or elderly, there is an increased propensity for overlapping with physical symptoms of medical conditions leading to lesser discriminant validity.[36]
- It functions relatively better in anxiety disorders having high somatic components like panic disorder as compared to disorders like social phobia which have stronger cognitive or behavioural components.
- It does not differentiate between trait anxiety and state anxiety.

HOSPITAL ANXIETY AND DEPRESSION SCALE ANXIETY (HADS-A)

It is a short measure of general symptoms of anxiety and fear used for screening for clinically significant anxiety in medically ill patients.[37] It can be used for the detection and quantification of the magnitude of anxiety symptoms. It has seven items that assess current generalized anxiety symptoms such as worry, tension, panic, fear, difficulties in relaxing, and restlessness. Responses range from 0 to 3 on a Likert scale depending on the item.

This self-administered questionnaire takes less than 5 minutes. Final scores are obtained by adding scores for items. The total score ranges from 0 to 21 with scores of ranges 0–7 interpreted as normal or no anxiety, 8–10 as mild anxiety, 11–14 as moderate anxiety, and 12–21 as severe anxiety.

Psychometrics:

Validity: A cut-off score of 8 provided a sensitivity of ~80% and specificity of 90% in a community cohort for the detection of anxiety disorders.[38] The use of the anxiety subscale as an independent or stand-alone measure has been supported by many studies. Overall, its concurrent validity was reported to be high in comparison with other lengthy scales such as General Health Questionnaire.

Reliability- Internal consistency is high (α = 0.84–0.90) on testing community, medical, and psychiatric samples.[39,40]

HADS-A is noted to be sensitive to change.[41]

Utility in the Indian context:

HADS was translated into Malayalam which showed it as a reliable and acceptable measure for assessing anxiety among cancer patients. The Cronbach's alpha was reported to be 0.81 for the HADS anxiety subscale.[42]

Strengths:

- Brief, easy to use, and easily obtained
- Helps to detect clinically significant anxiety in medical populations.

Limitations:

- The sensitivity and specificity to detect anxiety disorders in elderly medical patients are limited,[43] though a study recommended its use in the elderly general population.[44]
- It is not helpful to detect individual anxiety disorders.
- The use of Colloquial expressions can be difficult to translate into local languages.

Hamilton Anxiety Scale

The Hamilton Anxiety Rating Scale is one of the most commonly used rating scales that measure the severity of anxiety symptoms. It is a clinician-based questionnaire consisting of 14 items and comprises of psychological as well as somatic symptoms. Each item is scored from 0 (not present) to 4 (severe). A final score of more than 17 out of 56 is interpreted as mild anxiety and 25-30 as moderate to severe. It takes about 10-15 minutes to complete. It is freely available in the public domain.

Psychometrics:

It has been shown to have sufficient concurrent validity and reliability with fair inter-rater reliability and good one-week retest reliability.[45] It is also valid and reliable for use in an adolescent population.[46]

Utility in Indian setting:

It has not been validated or translated in an Indian setting.

Strengths:

- HAM-A has been in existence for more than 50 years and is used as a standard outcome measure in various pharmacological randomized control trials.
- It is helpful to assess anxiety-related symptoms and is used in generalized anxiety disorder (GAD) outcome measures.

Limitations:

- It is a semi-structured interview and there is a need to train professionals which becomes a challenge in routine clinical use.
- It is a clinician-administered scale and comes with interviewer bias and clinician-related factors. Therefore, a better way to assess primary outcomes is to include self-report measures.
- Since DSM had changed the features of GAD from diffuse anxiety to a disorder of excessive worry, HAM-A has not been considered a good outcome measure for GAD as it does not measure its central symptom of worry.[47]

Depression, Anxiety Stress scale

It is a 42-item self-report questionnaire answered on a four-point Likert scale of 0-3. There are 14 items each, assigned for Depression, Anxiety, and Stress. It takes into account the frequency or severity of experiences of the respondent over the last 1-week period. The scale takes about 10 to 20 minutes to complete. A shorter 21-item version, DASS-21 was also created with 7 items each

for the three measures which take 5 to 10 minutes to complete. The DASS-10 recently revised following the COVID-19 pandemic has a two-level factor structure that assesses stress anxiety and depression.[48]

Psychometrics:

Internal consistency for subscales of both the 42-item and the 21-item versions are high (α of 0.84-0.92 for DASS-Anxiety).[49] There is evidence for the stability of scales over time.[50] Similarly, construct and convergent validity are also found to be high in both versions.[51,52]

The DASS-21 has certain advantages like fewer items, less time consumption, smaller inter-factor correlations, and a better factor structure. However, the DASS-42 provides more clinical information.

Utility in Indian setting:

The DASS-21 Hindi version is shown to be a culturally appropriate, valid, and reliable tool for the evaluation of the psychological burden in cancer patients.[53] The same has also been validated in the Indian adult population with its subscales strongly correlating with each other (r=>0.80) and the Hindi version is found to be reliable and valid.[54, 55]

Strengths:

- The DASS excludes somatic items which can help provide an accurate assessment of their patient's anxiety symptoms, especially in comorbid medical conditions.
- Good Psychometric properties.

Limitations:

- Symptoms related to sleep and fatigue might not be captured as it excludes somatic symptoms.
- Specific cutoffs may not be valid across languages and cultures.

Scales for specific anxiety disorders

Generalized Anxiety Disorder-7

It is a self-reported questionnaire with seven items, used for screening and measuring the severity of GAD. It is scored on a Likert scale of 0 to 3 based on how bothered the respondent is in the last 2 weeks. It also includes a separate measure of functional impairment due to the symptoms. Scores can be interpreted as 5-9 as mild, 10-14 as moderate, and 15 and above as severe levels of anxiety. A cut-off score of 10 is considered for identifying cases.[56]

Psychometrics

The GAD-7 has an internal consistency of $\alpha = 0.92$, test-retest reliability: intraclass correlation of 0.83, and procedural validity of intraclass correlation of 0.83.[56]

Utility in the Indian setting

Studies in the Indian population showed comparable psychometric properties with studies in Western settings and this stability supports its use.[57]

It has been translated into Hindi, Gujarati, Kannada, Marathi, Malayalam, Punjabi, Tamil, Telugu, and Urdu. Most of these are linguistically valid. Few of the translations, in contrast to the English

version of the GAD-7, have been psychometrically tested against a separate structured psychiatric interview.

Strengths

- It is brief and can be easily completed by the patient.
- It is an efficient and valid scale for screening and assessing the severity of GAD in both clinical practice and research.

Limitations

- It only provides a probable diagnosis of GAD that requires confirmation by further evaluation. Further, GAD requires 6 months as per DSM 5 but GAD 7 measures symptoms in the previous 2 weeks.
- Its performance as a screener for GAD is not adequate in acute psychiatric samples.[58]

GAD-2:

It is a shorter version of GAD-7 used for screening patients for GAD. It is scored from 0 to 6 with scores 3 and above indicative of possible anxiety disorder and would require diagnostic evaluation. Its sensitivity is 86% and specificity is 83% for diagnosing GAD.[59]

GAD-7 and GAD-2 can both be used for screening anxiety disorders in the general population and can also be used for other anxiety disorders namely post-traumatic stress disorder, panic disorder, and social anxiety disorder.

Panic Disorder Severity Scale

It is a clinician-rated questionnaire used to measure the severity of panic disorder modelled after the Yale-Brown obsessive Compulsive scale.[60] It has seven items; each item score ranges from 0 - 4. The component items assess the frequency, distress, anticipatory anxiety, avoidance, and impairment in functioning. The final score ranges from 0 - 28. PDSS-SR is a self-report version that is used to screen for the presence of panic symptoms. A score of 9 and above warrants the need for diagnostic assessment.[61]

Psychometrics:

The scale showed adequate reliability and internal consistency. It has excellent inter-rater reliability, good discriminant validity, and good sensitivity to change. PDSS has been found to have acceptable validity and promising validity for the self-report version. Results indicate that the total scores of both versions provide useful information on panic symptoms severity.[62]

Utility in Indian setting:

No studies validating its use in an Indian setting were found.

Strengths:

- It is a simple and reliable tool to monitor treatment outcomes for panic disorder.

Limitations:

- Research on a broader range of discriminant and convergent validity measures is required.

Leibowitz Social Anxiety Scale

LSAS is a clinician-rated 24-item scale that assesses fear and avoidance of social and performance situations that occurred in the last 1 week. It measures fear and avoidance separately with 11 social interactions and 13 performance situations. Each item is rated from 0-3, The scale provides six different scores for the following components: total fear, total avoidance, fear of performance situations, fear of social situations, avoidance of performance situations, and avoidance of social situations. A total score can also be calculated by summing the subscales. A self-report version of the scale has been validated [63] A children's version of the scale is also available.[64] Scores less than 30 show that social anxiety disorder is unlikely. A score of 30-60 is probable and a score of 60-90 is very probable. Scores more than 90 are highly probable.[65]

Psychometrics:

Both forms of the scale were internally consistent and the subscale intercorrelations were identical. It also has strong convergent and discriminant validity, reliability, and sensitivity to treatment change.[66,67]

Strengths

It is an efficient tool used for screening SAD and also used in studies assessing the efficacy of psychotropic medications in the treatment of SAD.

Mobility Inventory for Agoraphobia

It is a self-reported, 27-item inventory for measuring avoidance behaviour associated with agoraphobia and the frequency of panic attacks. A total of 26 situations are rated for avoidance both when respondents are accompanied and when they are alone.

Psychometrics:

It has strong convergent and divergent validity, satisfactory internal consistency, reliability, and concurrent and construct validity.[68,69]

Strengths

It is a useful tool for both treatment planning and research in Agoraphobia.

The Short Health Anxiety Inventory

The Short Health Anxiety Inventory (SHAI-18) is a self-report questionnaire which has 18 items. It assesses the severity of health anxiety over the last 6 months.

Each item is scored from 0–3 and added to get a total score. SHAI has 14 items along with a 4-item subscale which measures the perceived negative consequences of getting ill. The 4-item subscale is not a direct measure of health anxiety. Therefore the 14-item subscale is scored 0–42 and few studies use an 18-item score of 0–54 which includes the subscale.[70] There is no precise cut-off but higher scores indicate the severity of anxiety. According to a study by Alberts et al. in 2013, a score of more than 28 was considered for a clinical diagnosis of health anxiety.[70]

Psychometrics:

It has shown comparable strong validity and reliability (α=.86) and sensitivity to treatment with its initial version, the Health Anxiety Inventory (HAI) which has 64 items.[71,72]

Strengths:

- It assesses health anxiety independently of an individual's physical health with the ability to differentiate hypochondriasis from medical illness.
- It is a suitable measure for cognitive aspects of health anxiety in clinical and research settings

Anxiety scales in special populations:

- In children and adolescents, The Multidimensional Anxiety Scale (MASC) [73], Screen for Child Anxiety Related Emotional Disorders (SCARED) [74], and Revised Child Anxiety and Depression Scale (RCADS) [75] are commonly used self-report measures with good psychometric properties.
- In the elderly, similar adult scales are used. However, care should be taken as medical comorbidities and medications may complicate anxiety symptoms.
- In substance use disorders and comorbid anxiety, accurate differentiation between drug-related states and primary anxiety disorders should be made. Observation during the period of abstinence helps in this regard. Patients presenting with anxiety should also be screened for alcohol and other drug use.

SCALES FOR SOMATOFORM DISORDERS

Nosology

Somatoform disorders find a place in the major diagnostic systems across the world due to their clinical relevance. The DSM-5 has a separate section titled 'Somatic symptom and Related Disorder', which entails the diagnosis of somatic symptom disorder.[76] It is diagnosed when distressing and dysfunctional somatic symptom(s) are present with excessive thoughts, feelings, or behaviours related to the same.[76]

The International Classification of Diseases – Tenth edition (ICD-10) places somatoform disorders in the section 'Neurotic, stress-related, and somatoform disorders[77] The main features include repeated presentation of physical symptoms with persistent requests for medical investigations. The symptoms persist despite repeated negative findings and reassurances by the doctors.[77]

The recently released International Classification of Diseases – Eleventh edition (ICD-11) encompasses this group of disorders in a new section titled 'Disorders of bodily stress or bodily experience'.[78] In a bid to have more reliable diagnostic criteria, ICD-11 gave birth to a new nomenclature, bodily distress disorder. The modification lies in the fact that this can be diagnosed even in the presence of a medical condition that explains the symptoms, however, there is excessive attention given to these symptoms by the sufferer.[78] Although this novelty is promising in terms of being more inclusive and less stigmatizing, however, still not free from criticism.[79]

Specific scales for somatoform disorders

The World Health Organization (WHO) Somatoform Disorders Schedule (SDS) or Somatoform Disorders Symptom Checklist is a standardized instrument to assess somatoform disorders according to the ICD-10 and DSM-4. It incorporates culturally specific symptoms (such as loss of semen in India), and has been translated into Kannada, and also validated in the Indian setting.[80]

Screener for Somatoform Disorder (SSD) is another 12-item scale developed under the aegis of WHO.[81] The presence of distress because of three or more of these 12 symptoms is considered to

be positive. It was recently used in an Indian study to screen for somatoform symptoms in frontline healthcare workers during the COVID-19 pandemic.[82]

Screening for Somatoform Disorders (SOMS) is a screening questionnaire, comprising 53 bodily symptoms, where the symptoms for which a clear organic basis is not found. It includes all symptoms mentioned in DSM-4 and ICD-10.[83] Its advantage is that it also looks at the severity of the symptoms, in two versions: SOMS-2 (counting each symptom as present or absent in the past two years) and SOMS-7 (symptom severity rating on a Likert scale for the past seven days).

Somatic Symptom Disorder-B Criteria Scale (SSD-12) is said to be the first self-report questionnaire, which operationalized the psychological characteristics of somatic symptom disorder of DSM-5 (i.e., criterion B of the disorder). It is a 12-item scale, with the three psychological sub-criteria of somatic symptom disorder being measured by four items each, with sufficient reliability and validity.[84]

Seven symptom screening test is another screening instrument, that screens for the diagnosis of somatoform disorder as per DSM.[85] The presence of three symptoms in this test yields a decent sensitivity and specificity for somatization disorder.[86]

Swartz and colleagues came up with another 11-item screener, where the presence of 5 symptoms yielded a sensitivity of 97.6% and a specificity of 99% for DSM-3 somatization disorder diagnosis.[87]

Whiteley Index has a seven-item subscale to assess health anxiety, focusing on catastrophizing health-related thoughts, which gives an added advantage of it capturing the cognitive and to some extent the emotional aspects of somatoform disorders.[88] Scale for assessing illness behaviour (SAIB) looks at excessive illness behaviour, like the expression of symptoms, verification of diagnosis, body scanning, etc., and hence might be useful in capturing the behavioural aspects of somatoform disorders.[89] A recent study advocated for combining the aforementioned two scales along with PHQ for improving the diagnostic accuracy for somatoform disorders.[90]

Scales for somatic symptoms

Symptom Checklist-90 Somatization scale (SCL-90) is a part of the Hopkins Symptom Checklist (HSCL), and looks at symptom dimensions, with somatization being one such dimension.[91] In addition to PHQ-15, it was the second scale considered suitable to evaluate somatic symptoms in large-scale studies in the aforementioned systematic review.[11]

Other such scales which look at somatic symptoms include the Somatoform Dissociation Questionnaire,[92] Bradford Somatic Inventory,[93] Scale for assessment of somatic symptoms,[94] Somatic symptom scale (SSS-8),[95] and Depression and somatic symptoms scale.[96]

Pain is one of the commonest somatic symptoms, and there are numerous scales to assess the same. These commonly include Visual analogue scales, McGill Pain Questionnaire (MPQ), and West Haven-Yale Multidimensional Pain Inventory (WHYMPI).[20] A more extensive list of the scales for pain symptoms can be found elsewhere.[97]

Limitations

- Lack of scales translated into most Indian languages
- Lack of scales standardized in the Indian setting

- Lack of incorporation of Indian culture-specific somatic symptoms in many of the scales

Future directions

Somatic symptoms can vary across cultures, hence more scales must be validated in the Indian context, to get more reliable data about somatoform disorders in India. Also, since India is a multilingual nation, more scales need to be translated and validated in the local languages, to cover the remotest of the populations in our country.

The well-recognized NMHS did not look at the prevalence of somatoform disorders.[2] With the development of scales suitable for the local population, the process of finding nationwide prevalence data for the same might be better.

CONCLUSION

This chapter summarizes the various available scales to evaluate anxiety and somatoform disorders, two of the commonest conditions encountered in clinical practice. Although it deals with several scales, it is left to the researchers and clinicians to find scales that suit their purpose.

As is evident in this chapter, we still do not have ample scales validated for use in the Indian context. Since both anxiety and somatic symptoms can be culture-specific, future research should focus on validating more of these scales in the Indian context, for them to be used reliably in our population.

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Table 1: Overview of scales for anxiety disorders

Name of the tool	No of items	Administration time	Self-reported / Observer rated	Psychometric property	Cut off scores	Indian vernacular translation	Scale URL	Copyrighted/ public	Licensing fee
The State-Trait Anxiety Inventory (STAI)	40 items, each scored from 1-4	10 minutes	Self-reported	α = 0.86-0.95 r = 0.65- 0.75 [29]	40	Translated in Hindi, Kannada, Malayalam, Marathi, Bengali, Urdu and Tamil.	-	Copyrighted (Mind Garden, 855 Oak Grove Avenue, Suite 215, Menlo Park, CA 94025 (URL: http://www.mindgarden.com/index.htm.))	-
Beck Anxiety Inventory (BAI)	21 items, each item scored from 0-3	5-10 minutes	Self-reported	Construct validity: r= 0.51 with HAM-A [98] Reliability: α= 0.92 [33]	10	Translated in Hindi. α= 0.882 r=0.614 [35]	-	Copyrighted by Dr. Aaron T. Beck	Beck Anxiety Inventory (BAI) - Pearson Clinical
Hospital Anxiety Depression Scale-Anxiety (HADS-A)	Anxiety sub scale has 7 items, each scored from 0-3	Less than5 minutes	Self-reported	Validity: Sensitivity ~80% and Specificity ~90% [38] Reliability: α= 0.84-0.90 [39 40]	8	Translated in Malayalam. α = 0.81 [42]	https://eprovide.mapi-trust.org/instruments/hospital-anxiety-and-depression-scale#need_this_questionnaire	Copyrighted. R.P. Snaith and A.S. Zigmond, 1983, 1992, 1994.	-

Hamilton Anxiety Scale (HAM-A)	14 items, each scored from 0-4	10-15	Observer rated	Inter-rater reliability: Intraclass coefficient=0.74 [45]	17	nil	https://eprovide.mapi-trust.org/instruments/hamilton-anxiety-scale#need_this_questionnaire	Copyright: The British Psychological Society, managed by Wiley Original content as well as existing translations are licensed by and can be obtained from Mapi Research Trust on behalf of Wiley	-
Depression Anxiety and Stress Scale (DASS)	DASS-42: 42 items, scored from 0-3 and DASS-21: 21 items (Final score multip	10-20	Self-reported	Reliability: α= 0.84-0.92 [49]	8	Translated in Hindi. α= 0.990 [53,99] Confirmatory factor analysis done in Indian population. [100]	http://www2.psy.unsw.edu.au/groups/dass/	Public	-

	lied by 2)								
Generalized Anxiety Disorder-7	7 items, scored from 0-3	1-2	Self-reported	Procedural validity: Intraclass correlation= 0.83 Reliability: α= 0.92 [56]	5, score of 10 used for identifying cases.	Studied in Indian setting with comparable psychometrics to Western findings [57] Translations in Hindi, Gujarati, Kannada, Marathi, Malayalam, Punjabi, Tamil, Telugu and Urdu.	https://www.phqscreeners.com/ (including Indian translations mentioned)	Public	-
Panic Disorder Severity Scale (PDSS)	7 items, scored from 0-4	-	Observer rated	Reliability: α= 0.83. α= 0.80 (PDSS-SR) with moderate validity [62]	9	nil	https://www.mcgill.ca/psy/files/psy/pdss.pdf	Instrument copyrighted by Dr. Katherine Shear	-
Leibowitz Social Anxiety Scale (LSAS)	24 items, scored from 0-3	-	Observer rated	Reliability: α= 0.92-0.95 Validity: Sub scale correlation 0.56-0.98. [66]	30	nil	https://nationalsocialanxietycenter.com/liebowitz-sa-scale/	Copyright appears to be with the authors	-

Mobility Inventory for Agoraphobia	27 items, scored from 1-5	-	Self-reported	Reliability of items: median r = 0.76 [69]	NA	nil	-	Copyrighted 1984, Dianne L. Chambless	-
Short Health Anxiety Inventory	18 items, scored from 0-3	-	Self-reported	Reliability: α= 0.86 Items correlations range from 0.30–0.61 [71,101]	28	nil	https://psychology-tools.com/test/health-anxiety-inventory	Copyright appears to be with the authors	-

(- = Data could not be found in our search; α = Cronbach's alpha; r = Reliability coefficient)

Table 2: Overview of scales for somatoform disorders

Name of tool	**Number of items**	**Administration time**	**Self-reported/ observer-rated**	**Psychometric properties**	**Indian vernacular translation**	**Cut-offs**	**Scale URL**	**Copyrighted or in public domain**	**Licensing fee**	**Indian data**
Patient Health Questionnaire-15 (PHQ-15)	15, each scored from 0 to 2 (Score range 0-30)	PRIME-MD- 5-6 minutes for those without a mental illness, 11-12 minutes for those with a	Self-reported	Sensitivity: 78%, Specificity: 71% [102]	Hindi translation available for PHQ	≥5: Mild ≥10: Moderate ≥15: Severe; Not speci	https://www.sciencedirect.com/science/article/pii/S0163834310000563#bib9	Public domain	Free	Prevalence of somatization in adult women from urban background: 40.8% [6] Prevalence of somatoform disorders in

		mental illness Not available for PHQ-15 specifically				fic for India n cont ext				medical outpatient department: 5.6% [12]
Structur ed Clinical Intervie w for DSM (SCID)	-	SCID in general- Variable (ranging from 30 minutes to 180 minutes, depending on the version) Not availablle for somatic symptom disorder specifically	Observer-rated	Kappa coefficient: 0.22 [103]	Kannada translation available for SCID 3	Som atic sym ptom disor der (SS D) of DS M-5 estab lishe d whe n both Crite ria A and B satisf ied One B criter ion-	https://ww w.appi.org/ products/str uctured-clinical-interview-for-dsm-5-scid-5#:~:text=T he%20SCI D%2D5%2 DRV%20a nd,%2C%2 0training% 20course% 2C%20and %20others.	Copyrighted by American Psychiatric Association	Variable, depending on the version	Stigma scores were inversely correlated with somatoform symptoms.[15] Somatoform pain disorder was the most common somatoform diagnosis, however there was a doubt about the distinctivenes s of depressive, anxiety, and somatoform disorders.[16]

						Mild SSD Two B criteria- Moderate SSD Two B criteria and C criterion- Severe SSD				
MINI International Neuropsychiatric Interview (MINI)	-	Entire MINI- 15 minutes Not known for somatic symptom disorder specifically	Observer-rated	-	MINI available in Assamese, Gujarati, Tamil, Malayalam, Bengali, Hindi, Punjabi, and Kannada.	SA1, SA2, and SA3 codes 'YES'- SSD present	https://harmresearch.org/product/somatic-symptom-and-related-disorders-modules-for-the-mini-internationa	Copyrighted by Harm Research Institute (David V Sheehan and Jennifer M Giddens)	$2 for downloading the soft copy- Permission needs to be taken separately	Prevalence of somatization disorder in psychiatric outpatient department: 5% [5] Stressful life events are associated with somatoform

							l-neuropsychiatric-interview-mini-7-0-2-2/			disorders, which cause significant impairment of quality of life.[19]
World Health Organization (WHO) Somatoform Disorders Schedule (SDS)	-	15 minutes	Observer-rated	Intraclass Correlation Coefficient: 0.76, Overall Kappa value: 0.58 [80]	Kannada	-	http://apps.who.int/iris/bitstream/handle/10665/61007/MNH_MND_94.1.pdf;jsessionid=AC6406D6D844DC1D7AAAD9553588E5D3?sequence=1	Copyrighted by World Health Organization (WHO)	Information not publicly available	WHO SDS was validated in the Indian setting with a intraclass correlation coefficients of 0.60 and 0.70 in primary care and

										general psychiatry settings, respectively.[80]
Screener for Somatoform Disorder (SSD)	12	-	Self-reported/ observer-rated	-	None	3 or more screened positive	http://apps.who.int/iris/bitstream/handle/10665/61007/MNH_MND_94.1.pdf;jsessionid=AC6406D6D844DC1D7AAAD9553588E5D3?sequence=1	Copyrighted by WHO	Information not publicly available	In a study on frontline healthworkers during the COVID-19 pandemic, 27.4% had somatoform symptoms.[82]
Screening for Somatoform Disorders (SOMS)	53	-	Self-reported	72 hour test-retest reliability: 0.85, Internal consistency across all	None	Cutoff of 4 for somatoform disorder in chro	https://www.sfu.ac.at/wp-content/uploads/Instrument_SOMS-7.pdf	Copyright appears to be with the authors	Information not publicly available	-

				symptoms: 0.88, Sensitivity: 82%, Specificity: 85% [83]		nic pain patients [104]				
Somatic Symptom Disorder-B Criteria Scale (SSD-12)	12	2-3 minutes	Self-reported	Sensitivity: 69% Specificity: 70% [105]	None	≥23 for patients at risk for SSD [105]	https://www.sciencedirect.com/science/article/pii/S002239991730051X?via%3Dihub	Copyright appears to be with the authors	Information not publicly available	-
Seven symptom screening test	7	-	Self-reported	Accuracy: 80-90% [85] Sensitivity: 73%, Specificity: 94% [86]	None	≥3 symptoms for a preliminary diagnosis of somatizati	https://ajp.psychiatryonline.org/doi/pdf/10.1176/ajp.142.10.1146	Copyright appears to be with the authors	Information not available publicly	-

						on disorder [85]				
Somatization screening index	11	-	Observer-rated	Sensitivity: 97.6%, Specificity: 99% [87]	-	5 [87]	https://www.sciencedirect.com/science/article/abs/pii/0022395686900361?via%3Dihub	Copyright appears to be with the authors	Information not available publicly	-

(- = Data could not be found in our search)

Chapter 12

RATING SCALES FOR SUICIDAL BEHAVIOUR, VIOLENCE AND AGGRESSION

Kathleen Anne Mathew [1], Miriyam Joseph[2], Priya Sreedaran [3*]

Take Home Message

- Rating scales in suicidal behaviour are self-reported or clinician-rated and can be used in a variety of populations.
- Rating scales in aggression help estimate state level of aggression as well as provide risks of repeat aggression
- Use of rating scales in suicidal behaviours and aggression could provide a measure of severity and improvement and thus help the patient and caregiver

INTRODUCTION

Suicidal behaviours and aggression are psychiatric emergencies. Measuring their magnitude helps predict the likelihood of the risk of harm to self and others. Structured measurements could also assist in communicating the severity level of such emergencies to patients and caregivers. Rating scales can serve as additional measures in assessment of capacity and fitness of the individual to take decisions in medico-legal situations.

This chapter focuses on rating scales in suicidal behaviours and aggression. For ease of reading, the chapter is divided into two sections: suicidal behaviours (including non-suicidal self-injurious behaviours) and aggression.

Suicidal behaviours refer to all thoughts and behaviours related to an individual intentionally wanting to take their own life.[1] Non suicidal self-injurious (NSSI) behaviours are those that result in deliberate, direct destruction of body tissue in the absence of intent to die.[2] As the differentiation between suicidal behaviours and NSSI is a challenge, this chapter will also cover scales on NSSI. Tables 1 & 2 summarize the various scales pertaining to suicidal behaviours and NSSI.

SCALES ON SUICIDAL IDEATION

Persistent suicidal ideation is a risk factor for suicidal behaviours. Aaron T Beck and others have developed scales for suicide ideation like Suicide Intent Scale (SIS), Beck's Scale for Suicide Ideation (BSI) and Scale for Suicidal Ideation (SSI).[3,4&5]

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The SIS records the objective and subjective circumstances of a recent suicide attempt and suicidal intent. Each item is scored from 0 to 2. A score of 15- 19 indicates low, 20-28 indicates medium and above 29 denotes high intent. SIS has strong internal consistency ($\alpha = .95$) and inter-rater reliability ($r = 0.95$).[3]

Beck's Scale for Suicide Ideation (BSI) measures attitudes, plans and behaviours in relation to suicide. The initial five screening items assess wish to live, wish to die, reasons to live/die, active suicidal ideation and passive suicidal ideation. If the respondent denies active or passive suicidal ideation, they can skip the remaining 14 questions. The severity is calculated by adding the scores for the first 19 items. The total scores range from 0 to 38. Internal reliability, test–retest stability and concurrent validity for the BSS have been established in earlier studies.[4]

Scale for Suicidal ideation (**SSI)** is interviewer-administered and measures the intensity of attitudes, behaviours, and plans to commit suicide. The ratings for the first 19 items are summed to yield a total score ranging from 0 to 38. This is one of the few instruments in research demonstrated to have predictive validity for death due to suicide.[5]

The SIS, BSI & SSI are copyrighted and are not free to use unlike the Columbia Suicide Severity Rating Scale (CSSRS).[6]

Columbia Suicide Severity Rating Scale (C-SSRS) is interviewer rated as well as self-reported. The four constructs measured are ideation severity, ideation intensity (frequency, duration, controllability, deterrents, reasons for ideation), suicidal behaviour (actual, aborted interrupted attempts; preparatory behaviour; non-suicidal self-injurious behaviour) and lethality. The scores on C-SSRS can be interpreted on a per item basis, categorical basis, or overall. One can also derive ratings specific for lethality and ideation. The three versions of C-SSRS include a lifetime version to assess for a lifetime history of suicidal ideation and behaviours, a version to assess the same since the last visit and a screening version of 3-6 items. Validated translations are available in Kannada, Malayalam, Tamil, Telugu, Hindi, and several other Indian languages.

Suicidal ideation assessment in special populations

Suicide is a significant cause of mortality in adolescents and young adults.[7] The Suicidal Behaviours Questionnaire-revised (SBQ-R) is a validated four-item questionnaire to assess lifetime ideation and attempt and likelihood of future suicidal behaviour in this population.[8]
In elderly, the Geriatric Suicide Ideation Scale (GSIS) focuses on 4 aspects: suicidal ideation, perceived life orientation, loss of personal and social worth and death ideation.[9]

SCALES ON LETHALITY OF SUICIDE ATTEMPT

Rating scales for lethality assessment help identify and measure likelihood of death due to means of the suicide attempt. Some scales with published psychometric properties include Scale for Assessment of Lethality of Suicide Attempt (SALSA), Lethality of Suicide Attempt Rating Scale (LSARS) and Risk-Rescue Rating scale (RRRS).[10,11&12]

Scale for Assessment of Lethality of Suicide Attempt (**SALSA)** assesses the seriousness of the act irrespective of the intention to die. SALSA has two components. The first component includes four items (method of suicide attempt, likelihood of being rescued, physical consequences and

medical intervention need) scored on history and observations. The second is Global Impression of Lethality derived from the final impression of the assessor. In this clinician rated scale, higher scores indicate higher lethality.[10]

Lethality of Suicide Attempt Rating Scale (**LSARS)** is an 11-point equal interval scale that can be administered by clinicians as well as research fellows and other non-medical personnel. This scale is based on historical data and is not dependent on individual's consciousness.[11]

Risk-Rescue Rating Scale (**RRRS)** consists of ten items describing risk (method used, impaired consciousness, toxicity, reversibility and treatment required) and rescue factors (location, person initiating rescue, probability of discovery, accessibility to rescue and delay until discovery).[12]

Other risk factors for suicide attempt

Hopelessness and impulsivity are risk factors for suicidal behaviours.[13&14] Beck's Hopelessness Scale (BHS) comprises of true-false statements that measure severity of self-reported hopelessness.[15] This is based on negative feelings about the future, loss of motivation and pessimistic expectations. Hopelessness measured on this scale has been demonstrated to have a significant association with suicidal intent in Indian studies.[16]

Barratt Impulsiveness Scale-11 (BIS-11) is a self-report questionnaire to assess impulsivity.[17] The scale derives six first-order factors (attention, motor, self-control, cognitive complexity, perseverance, cognitive instability) and three second-order factors - attentional impulsiveness, motor impulsiveness and non-planning impulsiveness. Scores range from 30 to 120 with higher scores indicating higher levels of impulsivity. Though many studies have reported only the total scores on BIS-11, the developers recommend considering the individual contribution of second-order factors to the relationship being assessed.

SUICIDE SCREENING TOOLS

Screening tools are intended to provide rapid and reliable estimates of suicide risk. Ask Suicide-Screening Questions (ASQ) is a brief suicide risk screening tool for use in medical settings (emergency department, outpatient department, medical/surgical inpatient units). It can be administered by non-psychiatric medical professionals. It is a four-item test on which a 'yes' response to any of the four questions is considered a positive screen.[18]

Suicide Ideation Attributes Scale (SIDAS) is used as a screening tool to evaluate the presence and severity of suicidal thoughts in the community. A cut-off score of 21 indicates a high risk of suicidal behaviour. It has been validated for web-based use.[19]

PHQ-9: Item 9 is useful for screening passive thoughts of death or self-injury in the preceding two weeks in depressed individuals with suicide risk. Studies have shown specificity of 84% and sensitivity of 69% in identifying individuals at risk of suicide.[20]

USE OF SUICIDE RATING SCALES

In emergency, C-SSRS- screening version, ASQ and PHQ-9 can be used to assess current suicidality. In community settings, SIDAS & PHQ-9 can provide rapid and sensitive assessments of suicidality.

Lifetime suicidality refers to presence of suicidal ideation, suicidal behaviours and attempts over one's lifetime and differs from assessment of suicidal ideation at a particular time or event. Scales to measure lifetime suicidality include Columbia Suicide Severity Rating Scale CSSRS- lifetime version, The Mini-International Neuropsychiatric Interview (M.I.N.I.) and Linehan Suicide Attempt Self Injury Interview standard version (SASII). For a more detailed and personalized suicidal risk assessment, the use of scales for lethality to study dangerousness of potential modes of suicide attempts and risk factors like hopelessness can be considered.

Table 1. Scales to assess suicidal ideation, lethality and other risk factors

Name of the tool	Number of items	Administration time	Psychometric properties	Indian vernacular translation available	Cutoffs	Scale URL	Copyright	Licensing fee
Suicide Intent Scale (SIS)	15	5 to 10 mins	Strong internal consistency (α = .95) and inter-rater reliability (r = 0.95)	No	Score: 15-19: low, 20-28: Medium Above 29: high intent	https://beckinstitute.org/wp-content/uploads/2021/06/SIS-Full-Documents.pdf	Yes (Aaron T Beck, D. Schuyler & Herman) https://beckinstitute.org/permission-to-use-beck-institute-materials/	No. Contact author for permission
Beck Scale for Suicide Ideation (BSI)	21	10 mins	Internal consistency (0.90), concurrent validity (0.90), High interrater reliability (0.87 to 0.97).	No	Not mentioned	https://pubmed.ncbi.nlm.nih.gov/3170753/	Yes (Pearson) https://www.pearsonassessments.com/store/usassessments/en/Store/Prof	Yes

							essional-Assessments/Personality-%26-Biopsychosocial/Beck-Scale-for-Suicide-Ideation/p/100000157.html	
Scale for Suicide Ideation	21	10 mins	Moderately high internal consistency with Cronbach coefficient alphas ranging from 0.84 to 0.89.	No	Not mentioned	https://www.researchgate.net/publication/226733360_Assessment_of_suicidal_intention_The_Scale_of_Suicide_Ideation	Yes (Pearson)	Yes
Columbia Suicide Severity Rating Scale (C-SSRS)	18	5 mins	High internal consistency (ordinal α = .95) Convergent validity- moderate correlation with Scale for Suicide Ideation (r=0.69).	Yes; available in Bengali, Hindi, Gujarati, Punjabi, Marathi, Urdu, Odia, Kannada, Malayalam,	Not mentioned	https://cssrs.columbia.edu/wp-content/uploads/C-SSRS-Baseline-Screening_AU5.1_eng-USori.pdf	Yes (Kelly Posner) Contact author for permission to use	No Free for use in clinical settings

				Tamil and Telugu.			https://cssrs.columbia.edu/wp-content/uploads/C-SSRS-Baseline-Screening_AU5.1_eng-USori.pdf	
Suicidal Behaviours Questionnaire-revised (SBQ-R)	4	5 mins	High internal reliability with coefficients ranging from .73 to .92.	No	Cut off: 7	https://msrc.fsu.edu/system/files/SBQ-R%20Download.pdf	Yes (A. Osman) https://pubmed.ncbi.nlm.nih.gov/?term=Osman+A&cauthor_id=11785588	No
Geriatric Suicide Ideation Scale (GSIS)	31	10 mins	High test–retest reliability (r= 0.86), high internal consistency (0.93)	No	No cut off described	https://pubmed.ncbi.nlm.nih.gov/16943171/	Yes (Marnin Heisel, Gordon Flett)	No Contact author for permission
Scale for Assessment of	5	5 mins	High internal consistency (Cronbach's alpha:0.94).	No	No cut off described	https://www.ncbi.nlm.nih.gov/pmc/a		

Lethality of Suicide Attempt (SALSA)			Significant correlation between SALSA and LSARS (Pearson Correlation: 0.89).			rticles/PMC4279290/		
Lethality of Suicide attempt rating scale	11	10-15 min	High interrater reliability (.81 to .88)	No	No cut off described	https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1943-278X.1984.tb00678.x	No	Contact author for permission
Risk-Rescue rating scale	10	5 mins	Adequate interrater reliability (kappa=.67)	No	No cut off described			
Barratt Impulsiveness Scale-11 (BIS-11)	30	10 to 15 mins		Yes, available in Hindi	No cut off described		Yes (Barratt and Patton)	Yes
Beck's Hopelessness Scale (BHS)	20	5 to 10 mins	Internal consistency scores ranging from a Cronbach's	No	Cut off: 8	https://cdn.fs.teachablecdn.com/1ihJ	Yes (Pearson) https://www.pearsonasse	Yes

			alpha score of α = .82 to α = .93 among patients with psychiatric illness and α = .88 in a non-psychiatric sample			BtXWQN24ytuezoc6	ssments.com/store/usassessments/en/Store/Professional-Assessments/Personality-%26-Biopsychosocial/Beck-Hopelessness-Scale/p/100000105.html	
Ask Suicide-Screening Questions (ASQ)	4	20 seconds	Sensitivity of 100%, a specificity of 89% and a negative predictive value of 100%	No	Cut Off: 4	https://www.nimh.nih.gov/sites/default/files/documents/research/research-conducted-at-nimh/asq-toolkit-materials/asq-tool/screening_tool_asq_nimh_toolkit.pdf	No	No
Suicide Ideatio	5	30 to 60 seconds	High internal consistency	No	Cut Off: 21	https://nceph.anu.edu.au	No	No

n Attributes Scale (SIDAS)			(Cronbach alpha = 0.91) and good convergent validity with C-SSRS.			/research/tools-resources/suicidal-ideation-attributes-scale-sidas		
PHQ-9 item 9	1	5 seconds	Specificity of 84% and sensitivity of 69% in identifying individuals at risk of suicide	Yes, available in Assamese, Bengali, Gujarati, Hindi, Marathi, Odia, Punjabi, Kannada, Malayalam and Tamil	Answering yes to question 9	https://www.apa.org/depression-guideline/patient-health-questionnaire.pdf	No	No

SCALES FOR NSSI

Self-Injurious Thoughts and Behaviours interview is a structured interview in adults and adolescents that consists of screening for the lifetime occurrence of self-injury followed by a detailed assessment of frequency, age of onset and characteristics like degree of physical pain and impulsiveness. Mental health professionals can evaluate through quantitative (rating) and qualitative (open ended questions and interview) methods.[21]

Other tools include Functional Assessment of Self-Mutilation (FASM), the Alexian Brothers Urge To Self-Injure (ABUSI) and Linehan Suicide Attempt Self Injury Interview (SASII) Standard version.

The FASM is a self-reporting tool comprising of a checklist for frequency, severity, age of onset, duration of the behaviour and intent along with probes for motivations underlying behaviours.[22] The ABUSI provide, unidimensional assessment of NSSI with subcategories looking into the frequency and intensity of the urge to carry out the behaviour in psychiatric populations.[23] SASII evaluates forms, behaviour, intent, and reasons as part of a comprehensive assessment of NSSI along with separate evaluation of suicidal behaviour and is useful in clinical populations.[24]

Table 2. Scales for Non-suicidal self-injurious behaviors (NSSI)

Name of the tool	Construct Measured - NSSI	Measure type	No: of items	Psychometric properties	Administration time	Indian Vernacular translation available	Cut Offs	Scale URL and Usage
Self-Injurious thoughts and behaviours interview	Presence, frequency characteristics of NSSI	Structured Interview	169 items in 5 modules	Construct Validity, Reliability	Not mentioned by authors	No	Each module has screening and detailed assessment, each item on 0 to4, higher score, higher severity	https://www.harvardmagazine.com/sites/default/files/sitbi_longform.pdf
Functional Assessment of Self-Mutilation	Motivations, frequency, severity, methodology	Self-Report	59 items (screening module and 2nd module assessing functions (22))	Cultural Adaptation (Asia), Criteria Validity, Construct validity, Cross cultural validity (C FASM)	NA	No	No numerical cut off mentioned, higher score on each function increases the likelihood	Permission to use to be obtained from author: erichardson@lifespan.org
Alexian Brothers Urge to Self-Injure Scale	Urgency of self-Injury	Self-report	5 items	Internal consistency, construct validity and reliability	10-15mins	No	Score on 7-point scale, higher score - increased severity	Contact author: jason.washburn@abbhh.

								net (J.J. Washburn)
Inventory of Statements about Self-Injury	12 types of NSSI - Functions, frequency	Self-Report	39 items	Construct validity, internal consistency	30-40mins	No	Each item scored on 0 to 3, with increasing relevance	https://www2.psych.ubc.ca/~klonsky/publications/ISASmeasure.pdf
Suicide Attempt Self Injury Interview	17 forms of self-injury and functional analysis	Structured Interview	25 items	Internal consistency, Reliability	30-45mins	No	No numerical cut offs	https://depts.washington.edu/uwbrtc/resources/assessment-instruments/

SCALES FOR PROTECTIVE FACTORS IN SUICIDE

Among the scales that examine protective factors for suicide, Reasons for Living Inventory (RFL) focuses on life oriented and adaptive elements. The subscales include survival coping beliefs, Responsibility to family, Child related Concerns, Fear of Suicide, Fear of social disapproval and Moral Objections subscale. The score can be calculated as total, subscale, and mean item score.[25]

The Suicide Resilience Inventory-25 conceptualizes suicide resilience as an ability or resources to regulate suicidal thoughts.[26] This self-report tool assesses the cognitive and affective factors in suicide resilience and has been used in studies of Low- and Middle-income countries with cultural adaptations.

AGGRESSION

Aggression is the physical harm caused by an individual to another individual. Agitation is a state of excess psychomotor activity with irritation that can result in behaviours causing harm to others. Agitation is differentiated from aggression in the absence of intent to cause harm which is a key element in defining aggression.[27] Rating scales can help predict as well as quantify severity of agitation and aggression. Some scales rate aggression independently while others assess it as part of a psychiatric disorder. Table 3 shows scales assessing aggression.

Nurses Observation Scale for Inpatient Evaluation (NOSIE) and **Brief Psychiatric Rating Scale (BPRS)** are observer rated scales that are used to evaluate behavioural disturbances in persons with severe psychiatric disorders but are not specific for evaluating aggression.[28, 29] The NOSIE is 30 item scale that uses only nursing observation. However, only 3 items are about aggression. Authors have recommended that the scale has good reliability and is easy to implement in in-patient psychiatry wards with existing human resources.[28]

Buss Perry Aggression (**BPA**) questionnaire is a Likert type of tool to assess anger and aggression as a trait in respondents. The scale yields total scores as well as scores in four factors: physical aggression, verbal aggression, hostility and anger.[30]

The Overt Aggression Scale (**OAS** is rated on the basis of observations of others. It is easy to complete and can be used longitudinally to monitor aggression in in-patient and out-patient settings.[31] The Broset Violence Checklist (BVC) is an easy to use, checklist that attempts to predict risk of violence in the in-patient ward over 24 hours. BVC measures boisterousness, confusion, irritability, physical threats, verbal threats and attacking objects with each item scored for yes or no and has 92% accuracy in prediction of non-occurrence of violence.[32] The Violence Risk Screening-10 (V-RISK-10) is used to screen for violence during in-patient stay as well as discharge to family. It is structured with historical, clinical and future risk assessment items with administration time of less than 10 minutes.[33]

Historical, Clinical and Risk Management-20 (HCR-20) The HCR-20 is a 20-item checklist that has been used in the measurement of aggression in forensic psychiatric populations. Ten items are of historical nature, 5 are of clinical, dynamic nature and 5 of situational risk factors. HCR-20 is not a self-report tool but a guide that requires clinical practice, experience and some training.[34]

Table 3. Scales for aggression

SCALE	Aggression	Measure type	No: of items	Psychometric properties	Cut Off Scores	Scale URL
Buss-Perry Aggression Questionnaire (BPA)	Trait of aggression. Assesses in four domains: Physical aggression, Verbal aggression, Anger and hostility	Self-reported	29 items, Likert rated 1-5	Construct Validity, Reliability present. Used in India in adolescents and adults	Scale has 4 factors scored from 0 to 1, no numerical cut off, higher score indicate higher severity	https://psychology-tools.com/test/buss-perry-aggression-questionnaire
Overt Aggression Scale (OAS)	4 types of aggressive behaviours: verbal aggression, physical aggression towards objects, physical aggression towards self and physical aggression towards others	Observations from treating team and caregivers	16 items, check all that applies	Construct Validity, Reliability present. Used in India in adolescents and adults	Higher score indicating higher severity	Instrument copyright by Dr. Stuart C Yudofsky
Broset Violence Checklist (BVC)	Risk of violence over next 24 hours	Observation of treating team	6 items, yes or no	Moderate sensitivity and good specificity.	Score of 1-2 and above indicates moderate risk of violence and higher	Copyright: Linaker & Bush Iversen (1995). Almvik & Woods (2000). Use requires the written permission of the copyright holders. https://www.risk-assessment.no/files/bvc-versions/BVC%20English.pdf
Violence Risk Screening	Screening for violence risk in	Assessment by treating team	10 items, 3-point 0-2	Validity very high for severe psychiatric disorder.	No numerical cut offs. For each items degree	https://sifer.no/wp-content/uploads/2019/09/v_risk_10_english.pdf

10(V RISK 10)	ward and at time of discharge	through history and observations		Used in adolescents in India	of likelihood of risk factors can be marked	
HCR-20 (Historical Clinical and Risk management-20)	Measures using historical information, clinical examination and situational assessment	Guide to be done by trained or experienced professional	20 items, 3-point scale 0-2	Validity presents for violence. Used in India in adult forensic settings	No recommended cut offs, score =30 or more, used in studies to categorise severe violence	https://ltctoolkit.rnao.ca/sites/default/files/resources/RNAO_Safety_Alternative_App_to_Use_Restraints_AppH_pg101.pdf Permission from: Ronald Roesch, Professor, Director of Mental Health Law and Policy Institute, Simon Fraser University

Relevant points for the Indian mental health professional

A key issue with management of patients with suicide risk is the inadequate help-seeking. Stigma is a crucial barrier that decreases help-seeking of such individuals. Table 4 shows scales relevant to stigma. Table 5 lists Indian studies that have used relevant scales.

Table 4. Scales for stigma in suicide

Scale	Items	Construct measured	Psychometric properties	Cut Offs	URL scale and usage
Personal Suicide Stigma Questionnaire	16 items scale rated on 5-point format	Stigma that persons experienced suicidal behaviour has received /perceived from environment[35]	Good internal consistency	Score range from 16-80, higher score indicating higher stigma	To contact author: Jurgita Rimkeviciene: jurgita.rimkeviciene@gmail.com Jurgita.rimkeviciene@griffithani.edu.au
Suicide Opinion Questionnaire	100 items on 5-point format	Evaluates attitudes towards suicide; 1.Acceptability 2.Perceived Factual Knowledge 3.Social Disintegration 4. Personal Defect 5.Emotional Perturbation and other factors (Demographics, religion, ethics, acceptability, risks) of suicide[36]	Good test-retest reliability	Scores on 5 factors: higher score on each – accepting opinion	NA Author: G. Domino., University of Arizona

Stigma of Suicide Scale	Long form – 58 items Short form – 16 items, each item rated on 5-point scale format	Measures stigma and attitudes of community to people who suicide[37.38]	High internal consistency Strong concurrent validity	Higher score indicates higher level of stigma	https://nceph.anu.edu.au/research/tools-resources/stigma-suicide-scale-soss Usage: permission required. Author: Philip Batterham Philip.Batterham@anu.edu.au

Table 5. Indian studies using scales for assessment of suicide

Scale	Sample	Author (Year)
Suicide Intent Scale (SIS)	55 patients with attempted suicide attending Psychiatry outpatient clinic	Ramanathan et al, 2016 [39]
Beck Scale for Suicide Ideation (BSI)	200 elderly patients (aged > 65 years)	Shoib et al, 2021[40]
Scale for Suicide Ideation (SSI)	52 patients with OCD	Dhyani et al, 2013 [41]
Columbia Suicide Severity Rating Scale (C-SSRS)	200 patients with bipolar disorder 488 patients aged ≥ 60 years	Dhiman et al [42] Grover et al, 2019 [43]
Scale for Assessment of Lethality of Suicide Attempt (SALSA)	494 individuals with suicide attempt- chart review	Sreedaran et al, 2020 [44]
Barratt Impulsiveness Scale-11 (BIS-11)	131 patients with OCD	Gupta et al, 2014 [45]
Beck's Hopelessness Scale (BHS)	312 patients with attempted suicide, record-based study	Menon et al, 2015 [46]

CONCLUSION

This chapter has summarized scales for assessment of various aspects of suicidal behaviours and aggression. Systematic assessment through these scales could provide valuable assistance to monitoring of psychiatric emergencies and assist clinical practice.

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Chapter 13

RATING SCALES FOR PERSONALITY DISORDERS

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Take Home Message

- The diagnostic debates continue to influence the assessment measures in personality disorders.
- Both dimension/traits based and category-based assessment tools seem necessary in clinical and research fields in the current context.
- Most self-report measures are lengthy and developmental aspects are not taken into consideration.
- There is a skewed distribution of assessment measures for specific disorders.
- There are fewer attempts at adaptation and development of self-report measures in the Indian context.

INTRODUCTION

Personality disorders (PD) are common conditions, and it has a significant impact across the domains of functioning and on other comorbid mental health problems.[1] The current diagnostic systems also reflect the complexity of covering psychopathology in terms of symptoms, traits and psychosocial dysfunction.[2]

Assessment of personality disorders

The assessment of PD is time-consuming and complex as it involves a range of abnormalities. Often the diagnosis has to be corroborated through multiple sources (self-repots, informant reports, clinical assessment, performance-based tests etc) due to the unreliability of information provided by one person having the problem.[3] The use of multiple methods in conjunction with each other is usually considered ideal when diagnosing PDs. Self-rated measures are popular in assessing the severity of the symptoms/disorder and functioning in the mental health field. However, the self-rating methods were explored later for personality disorders compared to other conditions. This is mainly because of a lack of clarity in the conceptualization, and categorization of these disorders and heterogeneity of the condition (10- personality disorders under this diagnosis). Individuals with personality disorders often fulfil criteria for more than one

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subtype of personality disorder (about 50% have co-morbid other personality disorders) as well as axis 1 disorders.1

A few personality characteristics appear as criteria for more than one personality disorder (e.g., fear of abandonment) which may be seen in persons with avoidant and borderline personality disorder, which requires the assessor to carefully ascertain the meaning and function of the behavior/problem.[4] In addition, the prevalence rates of different PDs are varied, with certain conditions being diagnosed more frequently compared to others e.g. Borderline is diagnosed more frequently across the countries[5] as they are more likely to seek help.[6] Thus, there is an availability of more scales for borderline PD compared to other disorders.

A few personality disorders do not seek help or consult mental health facilities due to lack of/limited insight or knowledge e.g., paranoid personality, schizoid personality. This becomes a major limitation because the persons themselves have to report the distress, dysfunction as well as the nature of the symptoms/problems.[7] Another major challenge is having scales to assess personality problems across the age range (e.g., adolescents/youth to older adults). This is crucial because of the changing nature of the manifestation of personality traits across the age span.[8] All these factors have limited uniform development of self-rating scales.

Categorical and dimensional approach to personality disorder

The categorical approach to the diagnosis of personality disorder made it difficult to assess the comorbidities and the traits being present on a continuum. Many of these categories do not have sufficient research data to support their existence. Additionally, half the patients with PD do not meet the criteria for any specific disorders but will have symptoms spanning across disorders, thus being diagnosed as PD Not Otherwise Specified (NOS). [5,9] The dimensional assessment of PD across ICD-11(International classification of diseases) and DSM-5 (Diagnostic and Statistical Manual of mental disorders) though has made assessment easier, as it is based on personality traits and views personality along a continuum. These systems delineate six trait domains: negative affectivity, detachment, antagonism/dissociality, disinhibition, anankastia and psychoticism.[10] However, it is important to distinguish the normal and abnormal trait elevation if trait domains are used for assessment. The inter-rater agreement of categorical diagnosis varied from 0.25 to 0.90 whereas the dimensional system of the assessment showed consistently higher correlation ranging from 0.1-0.2 points higher.[11]

The dimensional approach facilitates better exploration of the personality in both clinical and non-clinical populations. Though it is not clear if the clinicians can be trained to make reliable ratings (its clinical utility is uncertain).[12] Conversely, the categorical approach to assessment also cannot be discarded as it gives important inputs for planning psychological therapies and research worldwide.[13] Thus, retaining both is useful compared to one approach.[8,14,15] The practitioners are still comfortable with categories. Researchers also opine that the distinction between PD (mixture of traits and behavioural adaptations) and trait is one of degree rather than of kind.[16] High comorbidity of axis 1 disorders confounds the accuracy of assessment in personality disorders. This is mainly because of the overlap of symptoms, and if the clinician is not oriented to personality

disorders diagnosis, it results in over diagnosing or underdiagnosis of the problem. Thus, as long as the diagnosis of PD remains unsettled, the lack of clarity in assessment systems also continues.[3] However, assessment of functioning is given importance in both models.

The goals and types of assessment in personality disorders

The nature of the assessment depends on the purpose, the setting and the time available for assessment. However, the broad areas assessed include the following [17, p.284]

1. To provide an accurate diagnosis (PD and comorbid conditions)
2. The severity of personality disorder
3. Treatment planning
4. Functioning across domains of life and the burden
5. Distress to self and others
6. Comorbid conditions
7. Strengths and protective factors

Interview methods including history taking, structured and semi-structured interviews including significant others, and other sources of information seem to be the best to capture the complexity of the problem.[11,18,19] However, these methods are labor intensive and may not be feasible for research purposes as well as routine clinical practice.[20,21] While measures that provide information about different facets of personality, kinds of dysfunction, and quick screening tools are preferred in research. Scales having a strong normative base, validity scales, and comprehensive interpretive and training materials have the advantage of being used in clinical settings.[22] The studies have used a variety of methods ranging from case history to rating scales across clinical and community samples. Often, rating scales and self-report methods used for adults as well as self-report and parent reports used for adolescents for assessment of PD are also lengthy making it not feasible to administer in clinical settings, especially for a quick evaluation.[23] Recently, there have been attempts to develop briefer measures for screening as well as assessing severity and functioning. However, it is doubtful if such brief self-report measures can identify PD.[20]

The literature also shows that there is poor inter-rater agreement between, clinicians and self-ratings and research and treatment contexts.[24,25] However, when there are no time constraints, comprehensive diagnostic interviews are useful. In the clinical settings, the treatment planning is largely based on the symptoms which are closer to the dimensional approach, but if it has to be empirically supported, then there is a need to use both interviews and rating scales. However, there is a need to have efficient self-report and semi-structured measures which can be realistically applied in the time constrained clinical settings.[26,27] For the time being it is safe to say that there are no 'gold standard' self-report measures to assess PD.

Most of the assessment methods are developed for adults, and when it comes to assessment of youth and older adults, the adults' measures are modified to suit the age group. There are serious concerns about the validity of such measures as they do not capture the developmental changes and manifestation of maladaptive and adaptive behaviours.[28-30]

This chapter focuses on evaluating the rating scales; the discussion is limited to self-rated and other rated scales and questionnaires with the aim of helping the clinicians and the researchers to have

a good idea of the scales that are reliable and which can be used in regular work. Along with highlighting the important features of the scales, the chapter also covers the important research to support the validity of the scales as well as evaluation of their strengths and limitations. There are very few attempts at cultural adaptation of the tools to assess personality, though culture plays a significant role in the development of personality.[31] We have also attempted to present the cultural adaptations of the tools to Indian context. The rating scales reviewed include diagnostic and screening tools, the scales assessing severity, traits and functioning. We have limited the coverage to those scales which can be used across PDs and briefly mentioned the disorder specific scales.

Table 1: Self-report measures used for diagnostic and screening purposes

Tool	Description	Psychometric properties	Indian vernacular translation available	Cut-offs	Scale URL	Copyrighted / public domain
Millon Clinical Mutliaxial Inventory (MCMI)-III (Millon et al.)[32]	Items:175 Administration time: 25-30 minutes Consists of 14 PD scales (11 moderate and 3 severe personality pathology scales), 10 clinical syndrome scales, 5 correction scales - 42 Grossman personality facet scales	diagnostic validity: .33 - .93, with an average coefficient of .64.	No	75 and above - presence of a syndrome; 85 and above- prominence of a syndrome Indian cut off: Grossman facet scales (BPD): 11/28	To be purchased	https://www.pearsonassessments.com/store/usassessments/en/Store/Professional-Assessments/Personality-%26-Biopsychosocial/Millon-Clinical-Multiaxial-Inventory-III/p/100000662.html

Personality Assessment Inventory (PAI) (Morey)[35]	Items: 344 Administration time:25-55 minutes Consists of 22 non-overlapping full scales: 4 validity scales, 11 clinical scales, 5 treatment scales, & 2 interpersonal scales.	Internal consistency reliability on average = .82. Subscale reliabilities averaging at .66. Convergent and discriminant validity present with more than 50 other measures of psychopatholo gy	No	T scores greater than or equal to 70 indicative of presence of personality disorder. Indian cut off only available for PAI-BOR: 32/72.	To be purchased	https://www.parinc.com /Products/Pkey/287

Wisconsin Personality Inventory IV (WISPI-IV) (Klein & Benjamin)[36]	Items: 214 Administration time:25–30 minutes. Consists of categorical and dimensional scales for 11 PD categories based on DSM-IV criteria	Strong internal consistency, with the 11 PD scales of WISPI-IV ranging between .81 to .95	No	PD diagnosis given if at least one item scores 6 or higher for the minimum number of DSM-IV criteria needed for each PD category/ z-score of 1.96 or greater received on a PD scale. *Indian cut off NA*	To be purchased	https://www.psychiatry.wisc.edu/wispi/
Schedule for Nonadaptive and Adaptive Personality (SNAP) (Clark)[37]	Items: 375 Administration time: 60-70 minutes. Consists of 34 scales: 12 trait scales, 3 temperament scales, 6 validity	Test-retest correlation coefficients over 7 to 14 months - ranged from .59 to .84.	No	Each PD criterion is represented by minimum two items, however the number of items needed to meet each specific criterion varies	To be purchased: https://marketplace.unl.edu/buros/schedule-for-nonadaptive-and-adaptive-	

	scales, and 13 diagnostic based on DSM-III(Revised)				personality.html	
Omnibus Personality Inventory (OMNI) (Loranger)[38,39]	Items: 375 Administration time: 60-90 minutes Consists of scales that assesses all 10 DSM-IV PDs.	Alpha reliabilities for the normal scales moderate to high, ranging from .53 to .86, with a median of .72	No	Cut off score - a raw score that corresponds to a T score of 70 Indian cut off NA	To be purchased	https://www.parinc.com/Products/Pkey/283

Personality Disorder Questionnaire (PDQ-4)(Hyler)[40]	Items: 99 Administration time: 20-25 minutes Consists of scales that assesses all 10 DSM-IV PDs.	Internal consistency - a = 0.83. Test–retest reliability over 4 weeks for the total PDQ mean score was 0.91.	No	scores under 20 – No PD; 20-30 require further assessment; scores above 30 - probable PD diagnosis Indian cut off NA		http://www.pdq4.com/
Standardised Assessment of Personality Abbreviated Scale (SAPAS) (Moran et al.)[43]	No. of items: 8 Administration time: <5 minutes. Assesses for only presence/absence of a PD	Good psychometric properties with Sensitivity of 0.94 and specificity of 0.85	No	Total scores of 4/8 or more indicates likelihood of personality disorder.[43] Indian cut off: 4 or more	Freely available, URL: https://www.nhshighland.scot.nhs.uk/Services/Documents/Personality%20disorder%20service/3%20Assessment/SAPAS.pdf	

Inventory of Interpersonal Problems-Personality Disorders (IIP-PD) (Pilkonis et al.)[44]	Items: 28 Adm. time: 10-15 min 5 subscales: Interpersonal Sensitivity, Interpersonal Ambivalence, Aggression, Need for Social Approval, & Lack of Sociability	Good positive predictive power (PPP; > .85) and high sensitivity (.71 to .91)	No	No PD (less than 0.7/0-4), possible to probably (0.7-1.1/5-6), definitely (mbi 1.1/mbi 7) Indian cut off NA	Can be obtained freely by seeking permission from author.	

DIAGNOSTIC RATING SCALES

There has been no agreement within the scientific community with respect to diagnosis of personality disorders for a long time. This section focuses on highlighting some scales that are commonly used in research as well as to diagnose PDs based on DSM-1V, DSM V and ICD-10 diagnostic classification.

Based on a strong theoretical understanding, the Millon Clinical Multiaxial Inventory (MCMI)[33] is useful for providing information about the different personality traits that help distinguish between different disorders corresponding with the DSM diagnostic criteria. MCMI-III is a useful self-report measure for diagnosing PDs as well as dysfunctional relationship styles/patterns.[32] The most recent version of it is MCMI-IV.[34] While many studies have used this scale in research, it is commonly used in clinical practice as well.

Personality Assessment Inventory (PAI)[35] is another widely used self-report measure which assesses different psychopathological syndromes, providing information for screening personality psychopathology, making clinical diagnoses, and aiding in treatment planning. Wisconsin Personality Inventory IV (WISPI-IV) [36] is a useful tool as it conforms to both the DSM-IV and DSM-5 diagnostic classification of PDs. The scale is theoretically based on Benjamin's Structural Analysis of Social Behavior model (SASB). [45] It has been found that the scale has better discriminant and convergent validity for its dimensional scales as compared to the categorical scales.[46]

A commonly used self-report measure, Schedule of Nonadaptive and Adaptive Personality (SNAP) [37] assesses all the DSM-IV Personality Disorders. Its scores can further better distinguish between and predict cluster A and cluster C diagnoses. Scores on SNAP scales are relatively stable over months, making it a valid tool.[47] Its most recent version, the Schedule for Non-adaptive and Adaptive Personality (SNAP-2) is a comprehensive measure of the maladaptive range of personality traits.[48] Another rating scale, the Omnibus Personality Inventory (OMNI) has the advantage that it can be used with computer software that automatically generates comprehensive evaluation reports. The scale has been applied in multiple academic, clinical, and occupational settings. [38,39]

SCREENING RATING SCALES

Some criticisms of personality assessments such as being lengthy, time consuming and costly led to the need for developing brief screening measures for assessing PDs. These have been especially helpful in case of identification of PD when used in research as well as in routine clinical practice. Within research, screening rating scales have been useful when studying both clinical and community samples.

PDQ-4[40] is one of the most commonly used screening tools in research and clinical practice, especially in India. It assesses the PDs according to the DSM-IV-TR along with depressive and passive-aggressive PDs. However, one of the criticisms of the scale is that it measures personality traits, which may not be severe, making predictions of DSM diagnoses difficult. [49] It has been further suggested that PDQ 4+ results in several false positives, with two of its validity scales being questionable, making it a less effective screening tool in clinical practice.[50]

The Inventory of Interpersonal Problems-Personality Disorders-25 (IIP-PD) is another widely used screening tool that predicts the presence or absence of a PD.[44] However it is more effective when studying a clinical/psychiatric sample, especially when the objective is predicting more severe PDs. [20]

The Standardized Assessment of Personality Abbreviated Scale (SAPAS) [43] is a brief screening tool that can be used to assess dimensional classifications of PDs which can in turn predict the presence of personality pathology, while it may not screen for a categorical personality disorder type. In a study, it was concluded that SAPAS is an appropriate and valid screening tool for the anxious/fearful, i.e. 'cluster C' and odd/eccentric, i.e. 'cluster A' dimensions of PD than impulsive/dramatic, i.e. 'cluster B'. [51]

Evaluation of diagnostic and screening scales

Though rating scales come with the advantages of being less time-consuming, requiring lesser administrator training and being more cost-effective, when it comes to using diagnostic methods, most studies prefer to use semi-structured interview schedules, such as Structured Clinical Interview for DSM-IV and V (SCID-II/SCID-5 PD)[52] and The International Personality Disorder Examination (IPDE)[53] for diagnosis of personality disorders. Interview schedules provide the advantage of getting an idiosyncratic understanding of the responses to questions and the ability to gather and examine evidence to the responses, which rating scales may not be able to tap into. One main criticism of self-report rating scales when diagnosing PD is that individuals with PDs may not be able to recognize their difficulties leading to interpersonal problems resulting in under-reporting or over-reporting of responses.[47]
Within India, studies have mostly used rating scales in surveys, trying to establish PD prevalence rates and screening of PD. [54-56]

Table 2: Assessment of severity, personality traits, and interpersonal functioning

Name of the tool	**Number of items** **Administration time** **Description of the Tool**	**Psychometric properties**	**Indian vernacular translation available**	**Cut-offs**	**Scale URL**	**Copyrighted/ public domain**
The Level of Personality Functioning Scale - self rated (LPFS- SR) (Morey)[57]	Items- 80 Administration time- 45 min Measures impairment in identity, self-direction, empathy, intimacy & identifies five levels of functioning . It also offers a severity index for personality pathology.[57]	Test-retest reliability - .90, .89, and .91 for self-functioning, interpersonal functioning, and the total score, respectively. Correlations with concurrent validity measures were large, with associations at the global level of dysfunction often exceeding .80.	No	308.8 (+ 1.0 SD) Indian cut-off NA	Free URL-https://www.researchgate.net/publication/327510670_Level_of_Personality_Functioning_Scale_-_Self_Report_questionnaire_from_Morey_LC_2017_Development_and_initial_evaluation_of_a_self-report_form_of_the_DSM-5_Level_of_Personality_Functioning_Scale_Psych	

The Level of Personality Functioning Scale- Brief Form-2.0 (Bach & Hutsebaut)[58]	Items- 12 Administration time- 15 minutes It is a briefer form of LPFS to be rated 'yes' or 'no'.	Cronbach's alpha coefficients: .89 for the LPFS–BF total scale, .86 - self-functioning subscale, and .80 - interpersonal functioning subscale.	No	Indian cut-off NA	Copy of the instrument could be obtained by writing to Joost Hutsebaut	
Standardized Assessment of Severity of Personality Disorder (SASPD) (Olajide et al.)[59]	Items - 9 Administration time- 10 Minutes Assesses personality disorder (PD) severity according to ICD-11.	The SASPD had good predictive ability for determining mild (AUC =0.86) and moderate (AUC=0.84) PD at cut points of 8 and 10 respectively. Test retest reliability - high (intraclass correlation coefficient =	No	8 Indian cut off NA	https://spiral.imperial.ac.uk/handle/10044/1/45473	

		0.93, 95% CI = 0.88 to 0.96)				
Personality Disorder Severity–ICD-11 (PDS-ICD-11) scale (Bach et al.)[61]	Items-14 Administration time-20 min Measures PD severity according to ICD-1.	Item response theory supported the unidimensionality of PDS-ICD-11 (median item loading of 0.68) Correlation and regression analyses supported	No	Score of 17.5 may serve as a benchmark for pronounced dysfunction Indian cut-off NA,	https://onlinelibrary.wiley.com/doi/10.1002/pmh.1510	

		both criterion validity and incremental validity in predicting impairment and PD symptoms				
The Personality Inventory for DSM-5 (PID-5) (Krueger et al.) [62]	Items- 220 Administration time- one hour 25 facets organized within five domain-level factors.	Adequate psychometric properties, replicable factor structure, convergence with existing personality instruments.	No	Indian cut-off NA,	https://www.psychiatry.org/File%20Library/Psychiatrists/Practice/DSM/APA_DSM5_The-Personality-Inventory-For-DSM-5-Full-Version-Adult.pdf	
UPPS-P Impulsive Behavior Scale (Whiteside & Lynam)[63]	Items- 59 Administration time- 45 minutes to one hour Measures 5 dimensions of impulsive behavior.	Reliability coefficients - Impulsive Behavior Scale - .82 to .91. Across all scales, convergent corrected item-total correlations: .38 to .79, the	No	Higher percentiles represent a higher level of impulsivity compared to this sample. Indian cut-off NA		UPPS-P Impulsive Behavior Scale (UPPS-P) – BetterMind Software (betterworldhealthcare.com)

		average divergent item-total correlations: .05 to .33.				
Barratt Impulsivity Scale (Patton et al.)[64]	Items- 30 Administration time- 20-30 min Measures 3 facets of impulsivity - attentional, motor & non planning.	BIS is an internally consistent (0.71–0.83) measure of impulsivenes s across diverse cultures	Yes. Hindi, Kannada	72 and above shows high impulsivity	https://onlinelibrary.wiley.com/doi/pdf/10.1002/9781118638279.app2 (PDF) BIS-11A - Hindi version: A preliminary study of impulsivity in rural and urban Indian adolescents (researchgate.net) Correlation of Cognitive Resilience, Cognitive Flexibility and Impulsivity in Attempted Suicide - Dushad Ram, Suhas Chandran, Aarsha Sadar, Basavana Gowdappa, 2019 (sagepub.com)	

Difficulty in Emotion Regulation Scale (DERS) (Gratz & Roemer)[65]	Items-36 Administration time- 30-35 min Measures six facets of emotion dysregulation - nonacceptance of emotional responses, difficulty engaging in goal directed behavior, impulse control difficulties, lack of emotional awareness, lack of emotional clarity, limited access to emotion regulation strategies.	Test-retest reliability - 0.88 and the internal consistency of 0.93.	DOI:10.1007/s10862-020-09796-6Yes. Hindi.	Higher scores on each sub-scale indicate greater difficulties in emotion regulation	https://www.researchgate.net/publication/286383944_DERS-SF_scoring_and_measure	
Inventory of Interpersonal Problems-32/64 (Horowitz et al.)[66]	Items- 32 & 64 Administration time- 30 & 45 min Measures 8 dimensions of interpersonal functioning-domineering, vindictive, cold/distant,socially inhibited, nonassertive,overly accommodating, self-sacrificing, intrusive/needy.	Internal consistency of the whole scale is 0.96 (Cronbach's alpha), and test retest reliability is 0.78.	No	T scores >70 = significant difficulties Indian Cut off NA	To be purchased	Inventory of Interpersonal Problems - Mind Garden

SEVERITY SCALES

Most of the scales assessing the severity of personality functioning are based on the dimensional approach to the classification of PD. A few scales are specific to borderline personality disorder. The ICD-11 and DSM-5 Alternative Model of Personality Disorders (AMPD)'s dimensions of PD severity rely on core capacities of self- and interpersonal functioning.[69] The Level of Personality Functioning Scale - self-rated (LPFS- SR) assesses personality functioning impairments and severity according to the DSM 5 alternative model of personality disorder independent of current symptoms, in addition to clinical assessment of areas of strengths and vulnerabilities.[70] While the Level of Personality Functioning Scale- Brief Form provides a quick idea about personality pathology severity and also has potential use as a routine outcome monitoring instrument.[71]

Standardized Assessment of Severity of Personality Disorder (SASPD) captures maladaptive personality features' effects on social interaction and harm to self and others.[69] Personality Disorder Severity–ICD-11 (PDS-ICD-11) scale provides a quick assessment of personality disorder severity based on ICD-11. Bach et al.[72] have reported an association between the PDS-ICD-11 and Level of Personality Functioning Scale (LPFS). It was found that Standardized Assessment of Severity of Personality Disorder emphasized interpersonal and aggressive features while LPFS-BF emphasized self-pathology and distress.[72]

Trait based scales

Apart from those based on the dimensions of DSM-5 most other scales assessing personality traits look at various traits specific to different personality disorders based on the psychopathology of a particular disorder. The Personality Inventory for DSM-5 (PID-5) assesses pathological personality traits. It is the official measure of the AMPD and has a large research base.[73] UPPS-P Impulsive Behavior Scale provides a multifaceted measure of impulsivity. While Barratt Impulsivity Scale has been widely used in research and gives scores for attentional, motor and non-planning impulsivity. Difficulty in Emotion Regulation Scale (DERS) is widely used in treatment and research settings to evaluate emotion dysregulation across countries.

Interpersonal functioning

Interpersonal dysfunctions are central to personality disorders. Inventory of Interpersonal Problems-32/64 is used in treatment and research settings to identify problem areas and difficulty levels in interpersonal functioning.[66] LPFS could also be used as a measure of personality functioning and severity. MDPF and GAPD both predated LPFS construction which is based on DSM 5. Compared to other areas of personality assessment, personality functioning assessment is a relatively new area with ongoing research and development of measures.

Evaluation of scales assessing severity, trait/dimensions and interpersonal functioning

The scales mentioned above have been used in clinical practice to drive treatment. While in research, they have been used to gather information about the prevalence of trait profiles and personality functioning within those profiles. These assessments often will have to be used in conjunction with other PD measures as they will present a well-rounded picture. For example, DERS, BIS, and IIP have been used with PID, LPFS, and diagnostic interviews in doctoral research.[74,75] Quick and easy

administration makes them favourable to use in large-scale research. However, lack of localized norms is a disadvantage.

Rating scales used to assess specific personality disorders

Among the PDs, Borderline Personality Disorder (BPD) has been extensively studied which has given rise to a number of rating scales being developed specifically to assess BPD. One of the most commonly used and readily available screening instruments is the McLean Screening Instrument for Borderline Personality Disorder (MSI-BPD) (Zanarini et al.).[76] The Borderline personality questionnaire (BPQ) (Poreh et al.)[77] provides an extensive measurement of BPD traits based on DSM IV criteria, another one being the Minnesota Borderline Personality Disorder Scale (MBPD) (Bornovalova et al.)[78] which has excellent diagnostic accuracy. One unique rating scale, the Borderline Evaluation of Severity over Time (BEST) (Pfohl et al.)[79] assesses the BPD symptomatic change over time, which is especially useful in research and clinical practice. Two scales most extensively used to assess the severity of BPD are the Borderline Symptom List 23 (BSL-23) (Kleindienst et al.)[80] and the Zanarini Rating Scale for Borderline Personality Disorder (ZAN- BPD) (Zanarini).[81]

While research on other cluster B disorders is sparse, there are some useful rating scales with good psychometric properties available for use. The Antisocial Personality Questionnaire (APQ) (Blackburn & Fawcet) [82] measures antisocial PD traits, and is especially useful for studying criminal behaviour. There are not many scales to study histrionic PD. However, one that is widely used is the Five-Factor Measure of Histrionic Traits (FFM-HIS) (Tomiatti et al.). [83]

Just like BPD, Narcissism has been widely studied. A number of scales are available to assess Narcissistic PD, such as Murray's Narcissism Scale (1938); the Pathological Narcissism Inventory (PNI) (Pincus et al.) [84]; Five Factor Narcissism Inventory (FFNI) (Glover et al.) [85] and the most widely used, Narcissistic Personality Inventory (NPI) (Raskin & Hall)[86] which has been further developed to NPI-40 (Raskin & Terry)[87] and NPI-16. (Ames et al.).[88]

Cluster A PDs are possibly the most understudied PDs. Within this cluster, Schizotypal PD has been fairly studied with the Schizotypal Personality Questionnaire (SPQ) (Raine) [89] being widely used as a diagnostic measure in research and clinical practice. However, the scale is based on DSM III diagnostic classification. A shorter version and screening measure of the same has also been developed, called Schizotypal Personality Questionnaire-Brief (SPQ-B) (Raine & Benishay).[90]

With respect to cluster C PDs, the Five-Factor Avoidant Assessment (FFAvA) (Lynam et al.) [91] and the Five Factor Obsessive-Compulsive Inventory (FFOCI) (Samuel et al.) [92] help assess anxious avoidant and obsessive-compulsive PD traits. The Dependent Personality Questionnaire (DPQ) (Tyrer et al.) [93] is a valid screening tool to identify DPD. The Dependent Personality Inventory (DPI) (Huber) [94] and Five-Factor Measure of Dependent Traits (FFM DPT) (Gore et al.) [95] are more commonly used to identify traits and for diagnostic purposes.

USE OF PERSONALITY RATING SCALES INDIAN CONTEXT

Personality research in India still lags compared to Axis I disorder research. Most Indian studies on personality disorders have preferred using SCID and IPDE diagnostic interviews for screening and diagnostic purposes. Few studies that have used rating scales either as a standalone measure of

personality or as an adjunct to diagnostic interviews have been mentioned in the following section. Sahithya and Raman [96] used Neo Five-Factor Inventory III (NEO-FFI-3) to assess parental personality in a study on children with anxiety disorders, whereas Malhotra Temperament Schedule was used to assess child temperament. Lodhi et al.[97] examined the psychometric properties of the Marathi adaptation of the Revised NEO Personality Inventory. The results provided validity evidence for NEO-FFI and NEO-PI-R in the Indian population. In another study with college students, Singh [98] found the English version of NEO PI-R to be reliable and valid. Piedmont and Braganza [99] examined the usefulness of the English version of the NEO PI-3 using a multi-ethnic Indian sample. In comparison to earlier studies, Cronbach's alpha and retest reliability scores were higher. [97,98]

Temperament and Character Inventory (TCI) and The Millon Clinical Multiaxial Inventory-3rd Ed (MCMI-III) have also been used to look at personality characteristics among BPD patients[100] and Alcohol dependent patients. [101] The utility of SAPAS as a screening tool in an emergency setting in India has been explored and established by Sen et al.[102] and Innocent et al. [103]. SAPAS has also been used in rural settings to establish personality disorders.[104] Chaudhary, [31] aimed to identify BPD using adapted versions of Millon's Clinical Multiaxial Inventory (MCMI–III) Grossman Facet Scale-C for Borderlines, and Personality Assessment Inventory-Borderline Features (PAI–BOR), and McClean Screening Instrument (MSI). These questionnaires were translated and adapted to reach equivalence between the original source and target versions of the questionnaire, and they were validated on a small sample of BPD patients. All three measures were found to be efficient in diagnosing BPD. Puri et al. used the Borderline Personality Questionnaire in their study on BPD.[105] In a recent research, Personality Inventory for ICD-11 (PiCD) has been used to assess dimensional personality traits.[106]

Difficulty in emotion regulation scale is a widely used tool in Indian research. [107-111] The factor structure of the Hindi version of DERS (DERS-H) was examined by Bhatnagar et al. The sample included 434 healthy participants (303 females, 131 males) of middle socio-economic status. The results established the psychometric properties of DERS-H.[112] Bhat et al. have validated the Barratt Impulsiveness Scale-short form among the adolescent population, establishing it as a reliable measure of impulsivity.[113] Singh et al. translated and validated the Hindi version of BIS-11.[114] Ram et al. used the Kannada version of BIS in their study on cognitive resilience, cognitive flexibility, and impulsivity in attempted suicide.[115] Inventory of interpersonal problems (IIP 32/64) has also been used in research in India, especially in doctoral research. [74,75]

Psychoticism Extraversion and Neuroticism (PEN) Inventory[116] measures personality traits and comprises of 78 yes–no type items, providing scores for psychoticism, extraversion, and neuroticism domains. It has been validated in the Indian population and was used by Grover et al. [117] and Irpati et al.[118] in their studies. Rathi et al. examined personality and cognitive errors and strategies in adolescents using the Millon adolescent clinical inventory (MACI) and Temperament and Character Inventory (TCI).[119]

Despite attempts at adaptation, for many personality tests, foreign norms are still being used.[120] While other Asian countries have developed indigenous personality assessments, India is still lagging in this area. Asthana's remarks from 1988 still holds good - "except for a few attempts at adapting available tests, scales and inventories and applying them in the clinical and research setting, very little innovation are in evidence so far as personality assessment is concerned".[121,p.177] The information regarding a few indigenous personality tests, for example, the Hindi personality trait inventory developed in PGIMER,

is not available. Many of the available tests must be purchased, making research an expensive endeavor for researchers.

CONCLUSION

Personality disorders are complex to conceptualise and assess. The diagnostic systems also contribute to the confusion of understanding personality disorders. Published literature on personality disorders is sparse, though clinically these disorders are encountered often. Recently there has been increased interest in the scientific examination of PD. The gap between understanding PD for clinical management and research purposes also has contributed to the lack of clarity in the assessment of personality disorders. While diagnostic interviews and projective tests are favored in clinical settings, objective measures to assess different facets of personality, the dysfunction across domains of life, and screen for personality traits are preferred for research purposes.

The categorical and dimensional approaches to diagnosis have created different sets of assessment tools with both approaches having their own strengths and limitations suggesting the need for integration of both methods. There are several scales looking at traits, symptom domains and dysfunction. However, there are very limited tools which can be used effectively across the personality disorders/domains. There is a skewed distribution of tools with respect to various PD diagnoses.

Most of the diagnostic measures, including the self-report measures as well as interview methods are lengthy and cumbersome to be used in both clinical settings and for research purposes. There is still a need to develop valid and briefer measures to assess personality disorders. Each scale mentioned in the chapter has its own advantages and disadvantages. In research, using scales from different domains of PD measurements may supplement the information by providing a multifaceted understanding of the PD phenomenon.

The chapter is limited to scales that are popularly used and easily accessible for use. Thus, it is not exhaustive in nature. It is also limited to adults and does not cover the scales used across the age groups (life span). Though there are no tests developed and validated in the Indian context, there are a few attempts to adapt and validate a few scales. Some scales are frequently used in clinical and research settings. However, the norms are not established for most tools used in the Indian context.

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Chapter 14

RATING SCALES IN CHILD AND ADOLESCENT PSYCHIATRY

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Take Home Message:

- Rating scales in child and adolescent psychiatry are a very useful tool in assessment and evaluation.
- A clinician must hence be aware of which scale to choose for which disorder, to help them reach an accurate diagnostic formulation.

INTRODUCTION

Assessment of mental health and illness in children and adolescents can be challenging. Training in this area is largely restricted to post-doctoral courses. This coupled with the fact that this population has a fairly different presentation in terms of phenomenology and self-description of symptoms can challenge even the most seasoned psychiatrist. In lieu of the same, and in order to standardise the assessment and evaluations, the use of rating scales in child and adolescent practice is probably more prevalent than use in adult settings. Although the entire list of scales available is too exhaustive to include, we have attempted to bring forward through this article the common scales that a practitioner can use either stand alone or in multi-disciplinary practice to aid in reaching a diagnosis.

Rating scales have numerous benefits to be an effective guide in assessment. It is easier to administer, and clinicians can gather information from multiple informants and how a child behaves across different settings (e.g., home vs school) without having to interview informants directly. Many children have difficulty sharing their feelings/behaviours directly, rating scales can help fill in the blanks.

Rating scales can be used to assess current symptoms, monitor treatment efficacy, evaluate the outcomes and guide the clinician in making effective and prompt decisions. During clinical evaluation, considering multiple sources of information in this age group becomes utmost important. The scales for different sources like parents, teachers, and adolescents' self-report information enhances the accuracy. There is a paucity of open access and culturally adapted,

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validated tools for the Indian population. An accurate translation could be an important step towards using the current scale in various cultural settings.

We have attempted to classify the scales, based on their area of use.

CLASSIFICATION OF SCALE

Assessment of functioning

Children's Global Assessment Scale (CGAS):

The Children's Global Assessment Scale (CGAS) is an adaptation of the adult Global Assessment scale (GAS). It was developed by Endicott et al. in 1976. It is aimed at assessing the global functioning of 6-17 year old children. It is a clinician-rated scale consisting of 1 item which is rated on a scale of 100 points. The scale provides descriptive examples for each decile. The scoring is done in either of 10 categories which range from 'need constant supervision' (1-10) to 'superior functioning' (91-100). It is free, easily available, simple and has less administration time based on prior clinical assessment.

Reliability: Test-retest intra-class correlations range from 0.69 to 0.95 across a 6-month interval. Interrater intraclass correlations among various raters on two separate occasions were 0.84 and 0.85. Validity also correlated notably with other clinician-rated measures of impairment and correlations ranged from 0.76 to 0.92. The cut-off value is 60 or less.[1][2] Clinicians can administer this scale to measure how much the symptoms affect a patient's day-to-day life/ activities easily in their busy OPDs.

Columbia Impairment Scale (CIS):

The Columbia impairment scale is designed to evaluate multiple dimensions of functioning in 4-16 years old. It is available in two versions: one is administered by parents (Parent CIS) and another is a self-report form administered by children or adolescents (CIS-Youth Version).

CIS contains 13 items assessing functioning in interpersonal relations, functioning at school or work, psychopathology, and use of leisure time. It is rated on a 5-point scale, ranging from no problem to very bad problem. A value of 15 or more indicates definite impairment.

Reliability: Test-retest intraclass correlations were 0.89 (parent-report CIS) and 0.63 (self-report CIS) across 15–19 day intervals. Cronbach's alphas were 0.85 and 0.89 for the parent-report CIS and 0.70 and 0.78 for the self-report CIS on two occasions.

Validity: The parent-report CIS correlated moderate to high with other indicators of psychological dysfunction. The correlations of the indicators with the self-report CIS were lower than with the parent-report CIS. The canonical correlation was 0.51.[3]

Clinicians can use this scale to assess functional impairment and differ from other measures of functioning in being respondent based rather than on the basis of clinician's judgement.

Child and Adolescent Functional Assessment Scales (CAFAS):

The CAFAS scale is designed to assess children and adolescents' functional impairment in various domains. It is a clinician-rated scale used for children in the 5–18 year age group and takes about 10 minutes to administer. Another version is available for the 3–7 year age group, i.e. the Preschool & Early Childhood Functional Assessment Scale (PECFAS). The scale comprises 8 subscales and 4 levels of severity, ranging from severe to minimal or no impairment. Apart from these subscales, it comprises 2 subscales for caregiver functioning.

Reliability: Interrater correlations by clinicians ranged from 0.92 to 0.96 for the total score and 0.73 to 0.99 for subscale scores. Cronbach's alpha in samples of clinical children for the total score ranged from 0.63 to 0.78.

Validity: Total scores were remarkably higher for inpatients as compared to home-based treatment. More bed days, more restrictive care, higher cost, and more days of service were associated with a higher score on the scale.[4]

It is not freely available and requires training. For scoring and reporting an instruction manual and a computer program are available on the author's website.

Clinicians can use it in designing treatment plans and conducting outcome studies compared to other measures of functional impairment. This has an advantage of having a preschool version as well.

Assessment of general psychopathology

Child Behaviour Checklist (CBCL):

The CBCL is based on ASEBA (Achenbach System of Empirically Based Assessment). It is a checklist for parents and teachers to assess behavioural and emotional problems in children and adolescents. CBCL is a caregiver-based scale having 113 questions, used for children aged 6-18 years. The scoring is based on a 3-point Likert scale (0=absent, 1=occurs sometimes, 2=occurs often). It has 8 different domains: Social withdrawal, anxiety/depression, Somatic complaints, social problems, attention problems, thought problems, aggressive behaviour and rule-breaking behaviour. Scoring is divided into 3 groups: internalising problems, externalising problems, and total problems score. It is self-administered (both paper-pencil and computer versions are available) and takes about 15-20 minutes. It is widely used for clinical research and has been translated into more than 70 different languages including Malayalam and Kannada.

Reliability: Test-retest correlations for the CBCL range from 0.60 to 0.96 (syndrome scale), and from 0.62 to 0.95 (DSM-Oriented scale). Cronbach's alphas range from 0.71 to 0.97 for the syndrome scale, and from 0.67 to 0.94 for DSM-Oriented scale.[5][6]

Even though it is a bit lengthy, clinicians have the advantage of using multiple informants to know a child's behavioural issues.

Strengths & Difficulties Questionnaire (SDQ):

SDQ is a brief screening tool for behavioural concerns in 4-17 year olds. It is widely used by clinicians and also for research purposes. It contains 25 items and has a 3-point rating scale (not true, somewhat true, certainly true). These items are grouped into 5 subscales: conduct problems, emotional symptoms, peer relationship problems, hyperactivity/inattention and prosocial behaviour. There are several versions available for parents/teachers and a self-report version for adolescents (11-17 years). The scoring is as follows: 0-15 = normal, 16-19 = Borderline, and 20-40 = abnormal. It is freely available. Translations in Indian languages are also available on the official website in Hindi, Gujarati, Kannada, Malayalam, Tamil, and Punjabi.

Reliability: Test–retest correlations range from 0.21 to 0.82 across an interval of 4–6-month. The range of Cronbach's alpha is 0.41 to 0.88.

Validity: The Odds ratios from the comparison of SDQ scales with conceptually similar DSM-IV diagnoses were higher than the comparison with conceptually different diagnoses.[7][8][9]

Clinicians can easily use this scale in both clinical as well as research settings. It is available in many Indian languages which makes it more practical for parents/teachers/youth to use. It gives an idea about the patient's aggression episodes over the past week. They can look for different patterns associated with aggression based on individual items like physical or verbal aggression.

Behaviour Assessment Test for Children (BASC):

The BASC-2 is a screening system for behavioural and emotional symptoms created for schools, clinics, communities, and researchers. BASC was published in 1992 and its successor BASC-2 was published in 2004.

Table 1. The system includes 3 forms:

Scale	Age Group	Items	Duration (min)
The Parent Rating scale (PRS)	Preschool (3-5 years) child/adolescent (grade K-12th)	134-160 items	10-20
The Teacher Rating Scale (TRS)	Preschool (3-5 years) child/adolescent (grade K-12th)	100-139 items	10-15
The Self Report of Personality (SRP)	Grade K to 12th	139-185 items	20-30

All the scales can be rated on a 4-point Likert scale: never, sometimes, often and almost always. In SRP form, few items are additionally scored on a True-False scale. It is available on the publication's official website to be purchased, along with the training manual and scoring guide.

Reliability: The test-retest correlations range from 0.76 to 0.84 (PRS), from 0.79 to 0.88 (TRS) and from 0.71 to 0.84 (SRP) over 8 to 70 day intervals. The Cronbach's alphas range from 0.80 to 0.87 (PRS), 0.84 to 0.89 (TRS), and 0.75 to 0.86 (SRP).[10]

Clinicians can evaluate a child's emotions, behaviour, and perceptions of self in different settings like at home or school. It also provides additional insight into the child's strengths and adaptive skills.

Assessment of academic proficiency

Wide Range Achievement Test (WRAT):

The WRAT measures basic academic skills like spelling, word reading, sentence comprehension, and maths. It is a norm-referenced test used for 5-94 years old. The test series was first published in 1946. The latest edition, the WRAT5 was published in 2017 and it has changes made in the Maths Computation and Sentence Comprehension subtests. The test is Copyrighted and needs to be purchased. It takes around 15-45 minutes and requires trained psychologists or educators to apply the test. [11]

Woodcock-Johnson IV Test of Achievement:

The WJ-IV Test of Achievement is a norm-referenced instrument which is administered individually to ages 2-90 years. It is useful to screen, diagnose and monitor the progress in reading, writing, and mathematics achievement areas. It has two sets of tests: standard battery tests and extended battery tests. The Standard Battery contains eleven achievement tests having three parallel forms. The Extended Battery has nine additional diagnostic measures and a single form which can be used with any form of the Standard Battery.[12]

Vineland Adaptive Behaviour Scale (VABS):

The VABS-3rd edition is the instrument for the diagnosis of intellectual and developmental disabilities. It assesses adaptive behaviour skills and is used till 18 years of age. The scale is grouped into various domains like activities of daily living (ADL), communication, development and social relationships. Both web-based kits and complete kits along with manual scoring are paid for and can be purchased online. The Parent/caregiver and teacher forms, and survey forms are available as well. There are 333-502 items and it takes around 20-90 minutes to complete.

In children with autism spectrum disorder, assessment of intelligence with standardised tests has limitations because of social, behavioural and communication difficulties. In such children, VABS can be very helpful. In an Indian study conducted by SM Manohari et al. some difficulty in applying VABS because of cultural variations in self-care and gender-assigned roles was found.[13]

Assessment of Emotional and Behavioural Issues

Modified Overt Aggression Scale:

The scale was formulated to assess and track the aggressive behaviour among patients over time, mainly in one-week intervals. One can assess aggressive behaviours in children diagnosed with autism and intellectual disability. The scale is made up of four items: verbal aggression, aggression against self, aggression towards objects and aggression towards others. These items are scored on a 5-point scale where higher scores indicate more aggression.[14]

Some clinicians have been using this scale to measure the efficacy of treatment as well. The test is available in Italian, Chinese and French versions also. Clinicians can measure the incidence and the severity of each aggressive episode by applying this scale. It gives a fair idea about a patient's aggressive behaviours over the past week. Clinicians can also look for the different patterns of aggression based on individual items.

Children's Aggression Scale- Teacher Version (Cas-T):

It was formulated to identify the number of occurrences, the depth of aggression during each episode of aggressive behaviour in children between the age group of 5-18 years. It can be used to assist in treatment planning and monitoring in clinical and educational settings. The duration of the test is around 10-15 minutes. The scale has two versions- Parents and Teachers. Items include the following scales: verbal aggression, aggression against objects and animals, physical aggression and use of weapons. Various clusters for both these forms include initiated physical aggression, provoked physical aggression, aggression toward peers and adults. Both these forms include total score and total aggression Index.

Reliability and validity: Internal consistency coefficients for the scales and the total aggression index ranged from 0.72 to 0.94 for the teacher's version – clinical sample.

Test-retest stability for scales range from 0.84 to 0.99. Good interrater reliability coefficients were 0.87 to 0.97.[15][16] This scale can be applied by teachers of students showing aggressive behaviours so that such students can be referred to child guidance clinics for appropriate diagnosis and interventions.

Eyberg Child Behaviour Inventory:

Eyberg Child Behaviour Inventory is a parent-rated scale, which was standardised to assess disruptive behaviour in children between 2-16 years of age group. Time required to apply the scale is 10 minutes. All 36 items are rated on two scales: 1) a 7-point scale indicating the frequency of behaviours and 2) a Yes-No scale indicating if the child's behaviour is a problem or not. Intensity scale can be obtained by adding all responses on the 7-point scale and the Problem scale are calculated by no or yes responses.

Reliability: The test-retest correlations were 0.86 for the Intensity scale and 0.88 for the Problem scale, and 0.75 for both scales. The Cronbach's alpha was 0.95 for the Intensity scale and 0.93 for the Problem scale.[17][18]

As this scale measures parental perceptions of a child's behaviour, it has been widely used in treatment outcome studies for disruptive disorders.

Behavioural and Emotional Rating Scale:

This rating scale is used to measure a child's strength and competencies from three perspectives: self, parent and teacher. There are following domains: interpersonal strengths, family involvement, intrapersonal strength, functioning at school, affective strength and career strength.

The time of administration is 10 to 15 minutes. The 52 items on the teacher form and 58 items on the parent and youth forms are scored on a 4-point Likert rating scale from 0(not at all) to 3(very much). It has strong internal consistency with good construct validity and excellent test-retest reliability.[19][20][21]

Clinical psychologists can use this scale to evaluate children with problems directing attention, sustaining focus and regulating behaviour and to monitor the changes in their behaviour and emotional status.

Childhood Trauma Questionnaire:

It is a 70-item, Likert rating scale questionnaire that measures exposure to five types of traumas. These five subsets are emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect.

The responses on a 5-point Likert-type scale according to the frequency with which experiences occurred, with 1 = "never true" and 5 = "very often true." The time of administration is 10 to 15 minutes. The interrater reliability of the scale is 0.9-1.0.[22][23]

Clinicians use this scale to understand a child's trauma history and symptoms associated with it; and also, to determine if the trauma has affected the child's development on social, emotional and behavioural domain. This helps the clinician to plan treatment and monitor progress over time.

Paediatric Emotional Distress Scale:

The Paediatric Emotional Distress Scale (PEDS) is a 4-point Likert scale that measures the severity of symptoms in children between ages 2-10 years over the past month after exposure to a distressing or traumatic event. Of the 21 items, 17 items assess general behaviours, whereas the rest of the 4 items inquire about trauma-specific symptoms. Subscales for each item are as follows: Anxious/Withdrawn, Fearful, and Acting Out.

Reliability and validity: The internal consistency among its subscales is 0.72-0.78 and the internal consistency for the total scale is 0.85.[24]

Clinicians can follow up with a child screening positive on this scale after being exposed to a traumatic or stressful event.

Assessment of Specific Disorders

Modified Checklist for Autism in Toddlers, Revised (M-CHAT-R):

The Modified Checklist for Autism in Toddlers, revised (Robins, Fein, & Barton, 2009) is a modified version of Checklist for Autism in Toddlers available freely. It is a screening tool to assess risk for autism spectrum disorder (ASD) in children between 18-30 months of age group. The M-CHAT-R can be administered and scored by clinicians based on the caregiver's report. It has a high false positive rate but fair sensitivity. The time for administration is less than two minutes.

This scale consists of 20-items that are scored on a two-point scale: Yes or No. For all items the response "No" indicates ASD risk except item 2, 5, and 12; "Yes" indicates ASD risk for items 2, 5, and 12. Depending on the total score, risk of ASD is calculated.

Low-risk: If the total Score is 0-2 and the child is less than 2 years, it is advised to screen again after the second birthday.

Medium-risk: If the total Score is between 3 to 7, clinician can administer during follow-up tests to get additional information for at-risk responses.

If the M-CHAT-R/F score on follow up is 2 or higher: child is referred for diagnostic evaluation and early intervention. If the score on follow-up is 0-1: rescreening is advised during future visits.

High-risk: If the total Score is 8-20, clinician can refer immediately for diagnostic evaluation and evaluation for early intervention.[25]

Clinicians can use this checklist to assess the behaviour of children with possible autism.

Childhood Autism Rating Scale (CARS):

CARS was first developed for clinicians to evaluate autism spectrum disorder in children who are 2 years and above referred for diagnosis and evaluation. The administration time is about 5 minutes. The CARS consists of 15 items, rated on a 7-point scale with responses for that age group: within normal limits, very mildly abnormal, mildly abnormal, mildly-to-moderately abnormal, moderately abnormal, moderately to-severely abnormal, and severely abnormal. The total score is then calculated by addition of all item ratings.

Reliability: Test–retest correlation was 0.88 across a 1-year interval. Cronbach's alpha was 0.94 for the total score. Validity:The validity of this scale correlated between the range of 0.8-0.84. [26][27]

A clinician can use this scale to assess the presence and severity of symptoms of autism spectrum disorders and plan for further interventions to achieve psycho-social benefits for the child. The clinician can also work on the parental stress, social stigma associated with the child's behaviour, and parent-child relationship once the diagnosis is made.

Autism Diagnostic Interview -Revised:

The Autism Diagnostic Interview-Revised (ADI-R) is a modified version of the Autism Diagnostic Interview (ADI). It is a standardised and semi-structured, clinician-based interview for caregivers of children with autism. It is applied in children and adults with a mental age group of at least 2 years who are suspected of having autism. The administration of this scale requires a considerable period of time. Based on the responses of the caregivers during the interview, the clinician evaluates a rating score for each question. The interview has the following five sections: opening questions, communication questions, social development and play questions, repetitive and restricted behaviour questions, and questions about general behaviour problems.

Most items are coded as follows:

- No definite behaviour of the type specified (0),
- The behaviour of the type specified probably present but defining criteria not met (1),
- Definite abnormal behaviour of the type mentioned in the definition and coding (2),
- with a code of 3 used occasionally to indicate extreme severity.

Cut-off scores:

- Social interaction: 10
- Communication and language: if verbal=8, if non-verbal=7
- Restricted and repetitive behaviours: 3

Reliability and validity: The ADI-R is a reliable and valid instrument with good interrater reliability with kappa's ranging from 0.62 to 0.89. Interrater reliability for items in the area of restricted and repetitive behaviours and interests is adequate, with a mean kappa of 0.70. [28][29] Using the scale, parents can report on a child's current behaviour as well as reflect on their early developmental history. Following the interview with parents, the clinician can use the information for diagnosis of behaviour.

Autism Diagnostic Observation Schedule-2:

This was first published in 2012. It is a semi-structured, standardised scale applied by clinicians based during sessions on several aspects of behaviours. It is widely used in research for its standardisation. It is applicable in the age group above 12 months of age through adulthood.

Application and interpretation of this tool require extensive training. Five modules are available depending on the individual's age and level of language.

The time for administration is 40-60 minutes. The total score is measured by considering the items on the Social and Communication domain excluding the items on stereotyped or repetitive behaviours or interests.

Reliability and validity: Both ADOS and ADOS-2 have good (Lord et al., 1999, 2012a, b) interrater and test–retest reliability, as well as high validity, hence can be used to distinguish those with ASD from other clinical groups (e.g., Mazefsky and Oswald, 2006).[30][31]

Social Communication Questionnaire:

It is a screening tool to screen individuals for symptoms of autism symptomatology. It is completed by the caregiver of the child administered by professionals.

Scoring: Age group: individuals with a mental age of at least 2 years.

Two versions: Lifetime and Current. Each version of the scale is a 40-item parent-report measure with a yes/no format, the time of administration is about 10-15 minutes.

It is a brief, 40-item scale which requires a “yes”/ “no” response, and each scored item receives a value of 1 point for abnormal behaviour and 0 points for the absence of abnormal behaviour.

The cut-off suggests that a full evaluation (for example, using the ADI-R and Autism Diagnostic Observation Schedule – “ADOS”) is warranted. [32]

Clinicians and researchers can use this scale as a screener for entry into research studies on autism spectrum disorders.

Conners Rating Scale:

It is used for attention deficit hyperactivity disorder (ADHD) for 6–18-year-olds. It takes about 10-20 minutes and has three versions-child, parent, teacher, and long and short versions. It is also a useful measure for problematic behaviours, and ADHD symptoms in particular, in children. For scoring, the interviewer will assign the raw score according to age group within each scale. Then these scores are converted to standardised scores, known as T-scores. Percentile scores can be calculated using T-score. Percentile scores can help understand how severe are ADHD symptoms.

- T-scores above 60: children may have an emotional, behavioural, or academic problem, such as ADHD.
- T-scores from 61 to 70: child's emotional, behavioural, or academic problems are slightly atypical, or moderately severe.

- T-scores above 70: the emotional, behavioural, or academic problems are very atypical, or more severe.[33-35]

Vanderbilt ADHD Diagnostic Parent Rating Scale (VADPRS) & Vanderbilt ADHD Diagnostic Teacher Rating Scale (VADTRS):

The VADPRS and VADTRS assess disruptive problems, based on DSM-IV criteria for 6- to 12-year-olds. All of the 18 ADHD criteria are present in these scales. The VADPRS is a 47-item parent rating scale and VADTRS is a 35-item teacher rating scale. It takes about 10 minutes to complete. The VADTRS scales correlates very significantly with ADHD diagnosis.[36][37]

Hamilton Anxiety Rating Scale:

The 14-item scale is administered by clinicians to measure the severity of anxiety in children, adolescents and adults. It will take 10-15 minutes to finish the scale. Each item on this scale measures both psychic anxiety and psychological distress and physical complaints related to anxiety.

Scoring: Each item is scored on a scale of 0 (not present) to 4 (severe), with a total score range of 0–56, where <17 indicates mild severity, 18-24 mild to moderate severity and 25-30 moderate and severe.[38]

A clinician can use this scale to analyse the severity of anxiety in adults, adolescents as well as children. The advantage is that the scale is freely available in the public domain. It can also measure the efficacy of the treatment during the follow up.

Screen for Child Anxiety-Related Disorder (SCARED):

It is 41 items, self-rated screening scale to screen for general anxiety disorder, separation anxiety disorder, panic disorder, social phobia, and school phobia in children between 6-18 years of age. The time for administration is 10-15 minutes. Items that are rated on 3-point scale show responses: not true or hardly ever true, somewhat true or sometimes true, and very true or often true. The SCARED has five subscales: panic-somatic, separation anxiety, general anxiety, social phobia, and school phobia. In addition, the total anxiety score is calculated by adding the scores of all items.

Reliability and validity: Cronbach's alphas ranged from 0.74 to 0.89 for the subscales and it was 0.90 for the total score. The SCARED has been validated in both clinical and community samples in different countries. The SCARED is sensitive to treatment effects. [39][40]

Spence Children Anxiety Scale (SCAS):

It was developed to assess anxiety symptoms consistent with DSM- IV classification in children between 7-19 years of age. It takes about 5-10 minutes to complete the test. It has three versions: self-report, parent report and pre-schooler version.

Items: 38 of the 45 items measures specific anxiety symptoms, one open-ended question, and six are positive filler items. All items are scored on a 4-point Likert rating scale with responses: never, sometimes, often, and always.

Scales are Panic/Agoraphobia, Separation Anxiety, Social Phobia, Physical Injury Fears, Obsessive-compulsive Disorder, and Generalised Anxiety Disorder/Overanxious Disorder

Reliability and validity: Most Cronbach's alphas were in the 0.70 – 0.80 range, but for Fear of Physical Injury 0.60 or lower and for the Total Score 0.90 or higher. The SCAS correlated 0.71 and 0.89 with other anxiety measures.[41][42]

Clinicians can use this scale to measure the severity of anxiety symptoms in children on various domains.

Revised Children's Anxiety and Depression Scale:

This scale is a self-report form, basically devised to assess anxiety and depression symptoms in children of 6-18 years of age. The time of administration is 10 minutes.

Items: It comprises 47 items which are rated on a 4-point scale with responses: never, sometimes, often, and always. The items are scored on six scales which are labelled according to DSM-IV disorders: Social Phobia, Panic Disorder, Major Depression, Separation Anxiety, Generalised Anxiety, and Obsessive Compulsive.

Reliability and validity: Test–retest correlations across a 1-week interval ranged from 0.65 to 0.80. Cronbach's alphas ranged from 0.71 to 0.85. All scales of the RCADS correlated positively with self-report of anxiety.[43][44]

The clinician can use this scale to inform the diagnosis, track clinical change and further delineate between anxiety and depression disorders. It can be used for both clinical and research purposes.

Yales-Brown OCD Scale for children:

The CY-BOCS is adapted version of Yale-Brown Obsessive Compulsive Scale (Y-BOCS; Goodman et al., 1989a, b) for adults. It is a clinician-rated scale, devised for the assessment of OCD in children between the age group of 4-18 years. The time for administration is about 5 minutes. The CY-BOCS has five subscales: instructions, obsessions checklists, severity items for obsessions, compulsions checklist, and severity items for compulsions. It comprises 10 severity items, five for obsessions and five for compulsions. The frequency, interference, distress, resistance, and control are assessed in the severity items.

The items are rated on a 5-point scale:

For the frequency, interference, and distress items: none, mild, moderate, severe, and extreme; For the resistance items: always resists, and completely yields;

For the control items: complete control, much control, moderate control, little control, and no control.

Reliability and validity: Cronbach's alphas were 0.87 for the total score in the first group of children diagnosed with OCD, 0.80 and 0.82 for the Obsessions and Compulsions subscales and 0.90 for the total score in the second group. Correlations of the subscales and the total score with clinician-reported impairment, obsessions and compulsions, and with parent-reported obsessions and compulsions were high and significant. [45]

Clinicians can use this scale to rate the severity of obsessive and compulsive symptoms in children.

Children's Depression Inventory (CDI):

This scale measures depressive symptoms in children between 7-17 years of age. The time for administration is about 15 minutes. The items are scored on the following five subscales: Negative Mood, Anhedonia, Ineffectiveness, Interpersonal Problems, and Negative Self-Esteem. The scores are calculated for both subscale scores and a total score.

Reliability and validity: Cronbach's alphas ranged from 0.59 to 0.68 (the subscales) and 0.86 (the Total score) in the normative sample. The sensitivity of 80% and a specificity of 84% in distinguishing children with depression from children without depression.[46]

Mental health professionals use this scale to measure the cognitive, affective and behavioural signs of depression in children and adolescents. It can also be used to measure the severity of depressive symptoms and treatment response on follow up.

Beck's Depression Inventory (BDI):

Aron T. Beck devised Beck's Depression Inventory (BDI) to measure the severity of depression.

Items: It contains 21 questions, each of them is scored on a scale of 0 to 3. Higher the total scores, more the severity of depressive symptoms. The standardised cut-off scores are

- 0–13: minimal depression
- 14–19: mild depression
- 20–28: moderate depression
- 29–63: severe depression

Reliability and validity: The test have a high test–retest reliability (Pearson r =0.93) and a high internal consistency (α=.91).[47][48]

Clinicians use this scale to assess the intensity of depression in patients who meet the clinical diagnostic criteria for depression.

Depression Self rating scale:

It is an 18 item, self-rated scale that can be used to assess depressive symptoms in the age group 8-14 years. The time for administration is about 5 minutes. The DSRS is rated on a 3-point scale with responses: mostly, sometimes, and never.

Reliability and Validity: Test–retest reliability was 0.80. The split-half reliability coefficient was 0.86 in a group of special school children. The cut-off value of 15 has a sensitivity of 67% and a specificity of 77%.[49][50]

Mood and Feelings Questionnaire:

The Mood and Feelings Questionnaire (MFQ) is available in two forms: self-report and a parent report. Both are also available as short forms (SMFQ). The MFQ has 32 items and the SMFQ has 13 items which are rated on a 3-point scale with responses: not true, sometimes true, and not true. The items are scored on a total score which is the simple sum of all item ratings.

Reliability and validity: Cronbach's alpha for both the parent and self-report MFQ was 0.90, and, for the SMFQ was 0.87 and 0.85. Correlations of the parent and self-report MFQ and SMFQ ranges from 0.19 to 0.67. The correlations among self-reports ranges from 0.58 to 0.67.[51][52]

Using this scale, the clinician gets a fair idea of how much the individual has felt or acted depressed during the past two weeks. Thus, it can also be used to measure the effectiveness of the treatment. The advantage of this scale is that it can be self-administered by the patient thus helps in keeping track of one's own feelings.

Kutcher Adolescent Depression Scale:

It is a 16 item, self-rated scale used for the assessment of depressive symptoms in children between the age group of 12-17 years. The time for administration is 5-10 minutes. The items are scored on a 4-point scale: hardly ever, much of the time, most of the time, and all of the time. The total score of the KADS is formed from the simple sum of the item's scores. The KADS was sensitive to change, with a cut-off score of 6 on the 6-item version has a sensitivity of 92% and a specificity of 71%.[53]

The Utrecht Gender Dysphoria Scale:

The Utrecht Gender Dysphoria Scale (UGDS) consists of 12 items which are rated on a 5-point Likert to measure the depth of gender dysphoria. The responses on 5-point Likert includes: 1= agree completely, 2 = agree somewhat, 3 = neutral, 4 = disagree somewhat, and 5 = disagree completely). There are two versions: UGDS-M (for males) and UGDS-F (for females). Cronbach's alpha is 0.92 (UGDS-M) and 0.78 (UGDS-F). Higher scores indicate more gender dysphoria (the range is 12 – 60).[54]

Clinicians can use this scale on follow up of children diagnosed as gender dysphoria and to track the change after puberty suppression, hormone therapy and gender affirming surgeries.

Self-Administered Psychiatric Scale for Children and Adolescent Test:

SAFA is an Italian psychometric test. It gives initial but sufficient assessment of broader psychiatric conditions by means of various scales which are organised according to a homogeneous criterion. The administration takes 30-60 minutes and has 6 scales with subscales.[55]

Binge eating scale

This scale was developed by J. Gormally et.al. It is used for measuring the presence of binge eating behaviour which are indicative of eating disorders. Each question has 3–4 responses. The score ranges from 0–46.

Body dysmorphic disorder modification of children YBOCS:

It is a 12-item clinician-rated semi-structured scale. It measures the severity of body dysmorphic symptoms in youth. It was derived from the Yale-Brown Obsessive Compulsive Scale.

For each item the clinician has to circle the number which identifies best with the response of the patient in the past week. Each of these items are rated on a 0-4 scale, 0 = no symptoms and 4=extreme symptoms. The total score is then calculated using the sum of ratings. The maximum score obtainable is 48. The scale has good internal consistency having Cronbach's alpha of 0.87 and adequate convergent and divergent validity.

Assessment from a disability perspective (mandated by the Rights of Persons with Disability Act 2016)

Vineland Social Maturity Scale (VSMS):

This scale is included in gazetted notified guidelines for disability calculation for 0–15 year old. VSMS (Indian adaptation) evaluates Social Age (SA) and Social Quotient (SQ). The correlation is high (0.80) with intelligence. The Indian adaptation of original version (Doll, 1953) was done by A.J. Malin in 1965. And it was further modified by Bharat Raj in 1992. Detailed instruction for scoring is available easily.[56]

NIMHANS New Tool for Assessment of SLD:

NIMHANS, Bangalore is developing a paper-pencil, a curriculum-based assessment that tests both academic skills as well as cognitive ability. The study was conducted from the funds provided by the Indian Council of Social Science Research (ICSSR) at New Delhi. The tool is based on the theoretical framework that specific cognitive abilities that are necessary as a base for learning (e.g., attention, Concentration, Working memory, Simultaneous Processing Abilities, Processing speed) and generic academic skills. It is available for two age groups – Level I for 5–7-year-old & Level II for 8-12 years old. The limitation of this tool is that it has limited age range and it can only be used for ages 5 to 12 years. It is Available in English, Kannada, and Hindi.[57]

INCLEN Diagnostic Tool for Autism Spectrum Disorder (INDT-ASD):

This tool has been developed by the INCLEN group in India for the assessment of Indian children with autism spectrum disorder. INDT-ASD is a diagnostic tool developed which is based on the DSM-IV guidelines. The tool is divided into 2 sections: 1) social interaction, communication, and restricted interests, and 2) scoring and diagnostic classifications which includes autism, Asperger's disorder, Rett's disorder, childhood disintegrative disorder, pervasive developmental disorder - not otherwise specified, Intellectual Developmental Disorder (IDD), and an Indeterminate category (which indicates that either the criteria are not met for any of the given disorders or it has too many unsure responses). The Duration for the administration of the test is 30 to 45 minutes. The response is marked as Y (Yes), N (No), or U (Unsure). The internal consistency is 0.96. This tool has high diagnostic accuracy, criterion validity, content validity, internal consistency. The convergent validity and 4-factor construct validity is high to moderate for the diagnosis of ASD.[58]

Indigenous Indian Scales for assessment

Indian Scale for assessment of Autism (ISAA):

It is an assessment tool for diagnose autism as well as the level of severity. The scores are usually based on clinical observation, evaluation of behaviour by clinician, interaction with the subject and information gathered from parents or caretakers. Assessment using ISAA usually takes around 20-30 minutes. The scale has 40 items which is rated on a 5-point Likert scale ranging from never (1) to always (5). The items are divided into six categories as given below:

1. Social Relationship and Reciprocity
2. Emotional Responsiveness
3. Speech - Language and Communication

4. Behaviour Patterns
5. Sensory Aspects
6. Cognitive Component

Table 2. Scores of ISAA for diagnosis of Autism

ISAA scores	**Diagnosis of Autism**
<70	Normal
70-106	Mild
107-153	Moderate
>153	Severe

Along with the scoring, it can also be quantified further by allocating percentages which will indicate the frequency and intensity of behavioural characteristics that are observed. The minimum score is 40 and the maximum score is 200.

Table 3. Percentage of disability as per the scores of ISAA

Score	**Percentage**
70	40
71-88	50
89-105	60
106-123	70
124-140	80
141-158	90
Above 158	100

The validity of test items were correlating with total scores significantly at 0.001 level, except item A40 (savant ability) which was at 0.5 level. The Cronbach alpha reflects internal consistency reliability and it was 0.93. Inter-rater reliability for this scale varies from 0.62 to 0.81 in different categories and this finding is equivalent to the one found in the standard tool like CARS. Test-Retest Reliability ranges from 0.60 to 0.85 in various categories and it was 0.83 ($p<0.0001$) for the total score.[59]

Dyslexia Assessment of the language of India (DALI):

DALI is one of the first tool developed for dyslexia in regional Indian languages. It was developed by the National Brain Research Centre and was supported by the Department of Science and Technology. It is a thorough screening and assessment battery, developed in four languages like English, Hindi, Kannada and Marathi for children between 5-7 years (classes 1 and 2) and 8-10 years (classes 3, 4 and 5) respectively. It is developed and validated for identification of children with dyslexia. This screening tool can be administered by school teachers.[60]

DISCUSSION:

Each of the above-described scales can be used for clinical purposes either for diagnosis or screening respectively. Some of the scales in this article can also be used for research purposes. The details provided by each scale hold its importance while tracking the progression of clinical features and measuring the effectiveness of the treatment. As we know that scales alone cannot be used to conclude a diagnosis or make a perfect treatment plan, clinicians can use them to augment and support the information they receive after their clinical assessment.

A Bird's Eye view of how to use the scales to approach a child with difficulties:

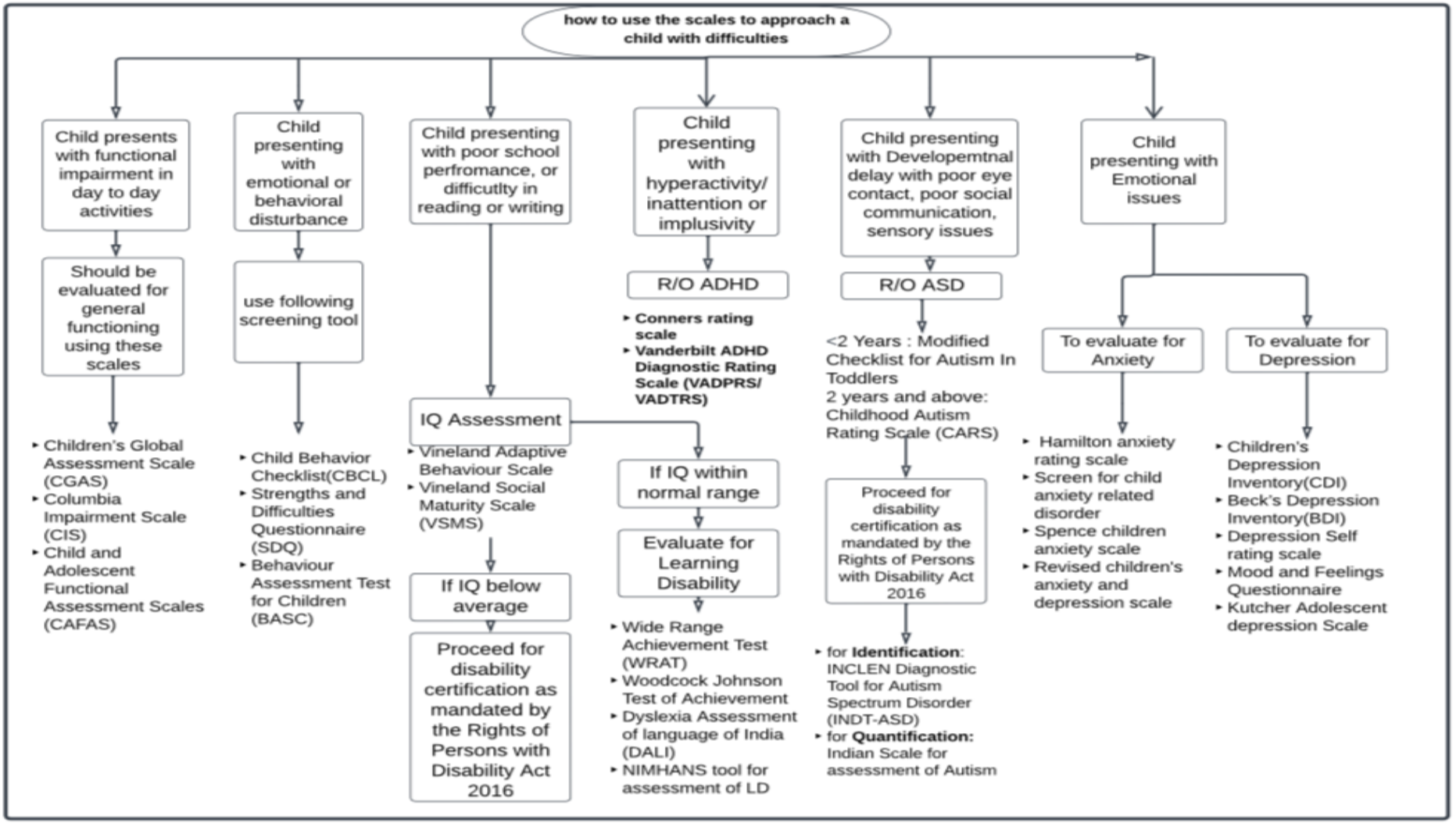

Table 4. Description of the common scales

Name of the tool	Number of items	Administration time (Min)	Psychometric properties	Indian vernacular translation available	Cut-offs	Scale URL (Including URLs to vernacular translations, whatever is available)	Copyrighted/ public domain	Licensing fee
Children's Global Assessment Scale (CGAS)	1	1	Reliability: 0.69 to 0.95 Validity: 0.76 to 0.92	No	60 or lower	(PDF) A children 's Global assessment Scale (CGAS)	Freely available	NA
Columbia Impairment Scale (CIS) (2 versions: Parent CIS, CIS-Youth version)	13	5	(CIS-P)Reliability: 0.89 Validity: 0.81. (CIS-Y) Reliability: 0.63 Validity: 0.51.	No	15 or greater	https://www.hrcec.org/images/PDF/CIS-Y.pdf https://www.hrcec.org/images/PDF/CIS-P.pdf	Freely available	NA
Child and Adolescent Functional Assessment Scales (CAFAS)	8	10	Reliability: 0.92 to 0.96 Cronbach's alphas: 0.63 to 0.78	No	Details provided in training manual		https://www2.fasoutcomes.com	Details on official website

Child Behaviour Checklist (CBCL)	113	15-20	Reliability: 0.60 to 0.96 Cronbach's alphas: 0.71 to 0.97	YES. Available in Hindi, Gujarati, Kannada, Malayalam, Manipuri, Marathi Punjabi.	Details provided in training manual		http://www.aseba.org. https://aseba.org/translations/	Details on official website
Strengths and Difficulties Questionnaire (SDQ)	25	5	Reliability: 0.21 to 0.82. Cronbach's alphas: 0.41 to 0.88.	Yes. Available in Hindi, Gujarati, Kannada, Malayalam, Tamil, and Punjabi.	<15: Normal, 16-19: Borderline, 20-40: abnormal. Indian cut-off NA	http://www.sdqinfo.com https://www.sdqinfo.org/py/sdqinfo/b3.py?language=Gujarati. https://www.sdqinfo.org/py/sdqinfo/b3.py?language=Hindi. https://www.sdqinfo.org/py/sdqinfo/b3.py?language=Kannada. https://www.sdqinfo.org/py/sdqinfo/b3.py?language=Malayalam. https://www.sdqinfo.org/py/sdqinfo/b3.py?language=Punjabi. https://www.sdqinfo.org/py/sdqinfo/b3.py?language=Tamil		NA

Behaviour Assessment Test for Children (BASC)	100- 185	10-30	Reliability: 0.76 to 0.84 Cronbach's alphas: 0.80 to 0.86	No	Details provided in training manual		https://pearsonclinical.in/	
Vineland Adaptive Behaviour Scale	333-502	20-90					https://www.pearsonassessments.com/store/usassessments/en/Store/Professional-Assessments/Behavior/Adaptive/Vineland-Adaptive-Behavior-Scales-%7C-Third-Edition/p/100001622.html	
Modified overt aggression scale	4		The scale is both reliable and valid.	No	Scores range:0 to 40. Higher scores mean more aggression	https://depts.washington.edu/dbpeds/Screening%20Tools/Modified-Overt-Aggression-Scale-MOAS.pdf		

Children's aggression scale-Teacher version (CAS-T)	33	10-15	Internal consistency coefficients: 0.72 to 0.94 Test retest reliability:0.84 to 0.99.	No			https://www.parinc.com/Products/Pkey/38	Details on official website
Eyberg Child Behaviour Inventory	36	10	sensitivity-0.96, specificity - 0.87, a positive predictive power of 0.88.	No	clinical cut-off scores: 131–133.		https://doi.org/10.1080/15374417809532835.	
Behavioural and Emotional rating Scale	Teacher form - 52 and Parent form - 58	10-15	Reliability coefficients were at or above 0.80.	No			https://www.parinc.com/Products/Pkey/18	$42
Childhood Trauma Questionnaire	70	10-15	Interrater reliability of the scale is 0.9-1.0.	No	scores fall into four categories: none to low, low to moderate, moderate to severe, severe to	https://www.henryford.com/-/media/files/henry-ford/hcp/research/hdrc/hdrc-questionnaires/ctq-childhood-trauma-questionnaire-20181130-v01-20.pdf?rev=fc73aee19e0e4012b1c9455af547		

					extreme trauma.	4055&hash=B6875080173CF13D298E9D6A3A9BC2CB		
Paediatric Emotional Distress Scale	21		Test- retest reliability: 0.55-0.61. Internal consistency: 0.72-0.85. Inter-rater reliability: 0.47-0.65		A cut-off score of 28 or higher: a greater likelihood of childhood trauma.	https://img1.wsimg.com/blobby/go/0945c099-6201-4d5f-8d3e-ce9d69261f44/downloads/Pediatric%20Emotional%20Distress%20Scale.pdf?ver=1623875808245	no copyright	freely available
Modified Checklist for Autism In Toddlers, Revised	20	2	Cronbach's alpha is 0.85(total score) and 0.83 (6 item scale).	NA	Low risk: 0-2 Medium risk: 3-7	www.mchatscreen.com	copyrighted instrument, and use of the M-CHAT-R/F must follow the guideline.	The M-CHAT-R/F is available for free download
Childhood Autism Rating Scale (CARS)	15	5 - 10	Test–retest reliability was 0.88. Cronbach's alpha was 0.94 (total score). Validity range between 0.80-	NA	Score 30 to 36.5: mild to moderate autism, 37 to 60 indicate severe		https://www.wpspublish.com/cars-2-childhood-autism-rating-scale-second-edition.html	ranges from $46 to $261

			0.84.		autism			
Indian Scale for assessment of Autism	40	20-30	The alpha coefficient:0.93 Inter-rater reliability: 0.62 to 0.81. Test-Retest Reliability: 0.60 to 0.85	NA	a score of < 70: non autistic, score of 70 and above: autistic.	https://thenationaltrust.gov.in/upload/uploadfiles/files/ISAA%20TEST%20MANNUAL(2).pdf		
Autism diagnostic interview - revised	93	60- 90	Interrater reliability: 0.62 to 0.89.	NA	Social interaction : 10. Communication and language: 8 (if verbal) or 7 (if non-verbal) Restricted and repetitive behaviours		https://www.wpspublish.com/adi-r-autism-diagnostic-interviewrevised.html	$112 to $352

					: 3			
Autism Diagnostic Observation Schedule-2	Module 1 to 4	40-60	The scale has high interrater and test–retest reliability, as well as high validity	NA	cut-off for autism diagnosis: score of 7 or higher.		https://www.wpspublish.com/ados-2-autism-diagnostic-observation-schedule-second-edition	$750 to $2500
Social Communication Questionnaire	40	5-10	The sensitivity and specificity are 93% and 58% for children aged 2-6 years.	NA	score 15 or higher		https://www.wpspublish.com/scq-social-communication-questionnaire.html	$193
Conners Rating scale	Long:59–87 Short:27–28	10-20	Test–retest correlations ranged from 0.47 to 0.89. Cronbach's alphas ranged from 0.73 to 0.94.		Based on T-score. scoring manual available on official website		https://www.pearsonassessments.com/store/usassessments/en/Store/Professional-Assessments/Behavior/Comprehensive/Conners-3rd-Edition/p/100000523.html	$90 to $265

Vanderbilt ADHD Diagnostic Parent Rating Scale (VADPRS) and Vanderbilt ADHD Diagnostic Teacher Rating Scale (VADTRS)	VADPRS- 47. VADTRS- 35.	10	Cronbach's alpha was over .90 for all of the subscales. The VADRS: sensitivity .80, specificity .75			https://www.childrenshospital.vanderbilt.org/uploads/documents/DIAGNOSTIC_PARENT_RATING_SCALE(1).pdf. https://www.brightfutures.org/mentalhealth/pdf/professionals/bridges/adhd.pdf		
Hamilton anxiety rating scale	14	10-15	showing statistically significant relationships with independent self-report measures of generalized anxiety and other anxiety variables.		Severity score <17 : mild; 18-24: mild to moderate; 25-30: moderate to severe	https://dcf.psychiatry.ufl.edu/files/2011/05/HAMILTON-ANXIETY.pdf		
Screen for child anxiety related disorder	41	10-15	Cronbach's alphas ranged from 0.74 to 0.89 for the subscales and		A total score of ≥ 25 may indicate the	https://www.ohsu.edu/sites/default/files/2019-06/SCARED-form-Parent-and-Child-version.pdf		freely accessible

			it was 0.90 for the total score		presence of an Anxiety Disorder. Scores higher than 30 are more specific.			
Spence children anxiety scale	45	5-10	Most Cronbach's alphas were in the 0.70–0.80 range. The SCAS correlated 0.71 and 0.89 with other anxiety measures.		Cut-off for screening for clinical anxiety is >22 points	https://novopsych.com.au/wp-content/uploads/2020/05/scas-child-assessment.pdf		freely accessible

Revised children's anxiety and depression scale	47	10	Test–retest reliability ranged from 0.65 to 0.80. Cronbach's alphas ranged from 0.71 to 0.85.		t score of 65-69 - clarify the need for referral, thorough assessment. T-score 70 and above a referral to higher centres is needed.	https://www.childfirst.ucla.edu/wp-content/uploads/sites/163/2018/03/RCADSUsersGuide20150701.pdf		
Yales Brown OCD Scale for children	5 sections and 10 severity items	5	Cronbach's alphas 0.87		The total CY-BOCS score is the sum of items 1-10; 1-5: obsession 6-10: compulsion.	https://www.mcpap.com/pdf/CYBOCS.pdf		Freely accessible

Children's Depression Inventory(CDI)	Parent: 17 ; Teacher: 12; Youth:27	15	Cronbach's alphas 0.59 to 0.68 (subscales) and 0.86 (Total score). Sensitivity 80%, specificity 84%		a total depression score ranges from 0 to 54. A higher CDI score means a higher depressive state.		https://www.apa.org/obesity-guideline/depression-inventory.pdf	Proprietary: 250$/kit
Beck's Depression Inventory(BDI)	21	10	The test–retest reliability (Pearson r =0.93), high internal consistency (α=.91).		0–13: minimal 14–19: mild 20–28: mo 29–63: severe depression	https://www.ismanet.org/doctoryourspirit/pdfs/Beck-Depression-Inventory-BDI.pdf		Proprietary: 115$/kit
Depression Self rating scale	18	5	Test–retest correlation was 0.80. sensitivity 67% and specificity 77%		recommended cut-off score is 50	https://wia.unl.edu/documents/2017/zung-self-rating-depression-scale.pdf		freely accessible

Centre for Epidemiologic studies-Depression scale	20	5	It has good sensitivity and specificity and high internal consistency		cut-off scores 16 or greater	https://www.brandeis.edu/roybal/docs/CESD-R_Website_PDF.pdf		freely accessible
Mood and Feelings Questionnaire	32		Cronbach's alphas were 0.90 for both the parent and self-report MFQ, and 0.87 and 0.85, respectively for the SMFQ		suggested cut-off score ≥29	https://devepi.duhs.duke.edu/files/2018/03/MFQ-Child-Self-Report-Short.pdf. https://devepi.duhs.duke.edu/files/2018/03/MFQ-Child-Self-Report-Long.pdf		
Kutcher Adolescent depression Scale	11	5	The Cronbach's α coefficient 0.84, split-half reliability coefficient 0.77(P<0.01) test-retest Pearson's r 0.77(P<0.01)		Total scores at or above 6 suggest 'possible depression'	http://www.shared-care.ca/files/Kutcher_depression_scale_KADS11.pdf		
The Utrecht Gender Dysphoria Scale	12		Cronbach's alpha was .92 for UGDS-M, and .78 for UGDS-F.		Higher score range 12 – 60.	https://static1.squarespace.com/static/5d8c2136980d9708b9ba5cd3/t/619dc8743965e53f6e18f980/1637730429		

						911/Utrecth+Gender+Dysphoria+Scale.docx		
Self-Administered Psychiatric Scale for Children and Adolescent Test	6 with subscales	30-60			>69: symptoms are pathological			

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Chapter 15

Rating scales in geriatric psychiatry

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Take Home Message

- While choosing a rating scale, the scale's purpose, whether for research or clinical requirements, whether for screening or quantifying symptoms, whether it is to be used in the community or the hospital, the participants/respondents, the time available, whether the scale is interviewer-rated or self-rated, and the psychometrics of the instrument, must be considered; remember "horses for courses".
- A culturally and linguistically adapted and validated tool always provides reliable and valid results.
- The findings of rating scales should always be correlated with the clinical assessment by the treating psychiatrist.

INTRODUCTION

Rating scales are measurement tools that help quantify and place the attributes of a disorder in an individual. (1) They are often used in clinical and research settings for screening, intensity (severity) measurement, diagnosis, treatment selection, prognostication, and treatment effectiveness. They also help to provide better and individualised mental health care for those in need. (2) Rating scales can either be observer-rated or self-rated, each of which has pros and cons. (3) Many scales are available for use in geriatric psychiatry. Choosing the correct one can be a challenge. Rating scales specifically designed for use in the elderly should be preferred rather than

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those developed for the younger adult population. The elderly often have varied issues, such as changes in cognition, functionality, behaviour, mood, quality of life, and caregiver burden. The scales used in the younger population may not be sensitive enough to identify them. (4) In the research domain, rating scales that are specific to elderly mental health have a clear advantage over other rating scales as they provide accurate results, which become the skeletal framework of good research work which further enhances the evidence base. (5) This article briefly introduces the rating scales used in geriatric psychiatry. We have classified them based on the conditions they are used for – dementia, delirium, and depression. Furthermore, we have highlighted those that are validated in India.

Table 1: Summary and a brief description of the rating scales used in geriatric psychiatry

Condition	Purpose	Name of the scale	Number of items	Significant score	Rating	Time taken
Dementia	Screening for cognitive impairment	Hindi Mental-State Examination (HMSE)	21	≤ 23	Interviewer	10 minutes
		Vellore Screening Instrument for Dementia (VSID)	Patient version-10 Informant version10	Patient version ≤ 7 Informant version ≤ 9	Interviewer	15 minutes
		Rowlands Universal Dementia Assessment Scale (RUDAS)	6	≤ 22	Interviewer	15 minutes
		Montreal Cognitive Assessment (MoCA) test	8	≤ 26	Interviewer	15 minutes
		Addenbrooke's Cognitive Examination – III (ACE-III)	21	Variable (see article)	Interviewer	20 minutes
	Quantifying cognitive impairment & diagnosis	Alzheimer's Disease Assessment Scale – Cognitive Subscale (ADAS-Cog)	11	≥ 14 (higher scores indicative of more impairment)	Interviewer	30 minutes
		ICMR Research Neurocognitive Toolbox (ICMR NCTB)	10 tests	Each Test is to be interpreted individually	Interviewer	Between 90 – 120 minutes
	Functional impairment	Everyday Abilities Scale for India (EASI)	12	-	Interviewer	10 minutes
		Instrumental Activities of Daily Living for the Elderly (IADL-E)	11	> 16	Interviewer	15 minutes
	Behavioural and	Neuropsychiatric Inventory (NPI)	12	-	Interviewer	15 minutes

	Psychological Symptoms in Dementia	Cohen-Mansfield Agitation Inventory (CMAI)	29	-	Interviewer	20 minutes
		Cornell Scale for Depression in Dementia	19	≥ 8	Interviewer	20 minutes
	Caregiver burden	Zarit Burden Interview (ZBI)	22	≥ 21	Self	15 – 20 minutes
Delirium	Screening	Confusion Assessment Method (CAM)	9	-	Clinician	5 – 10 minutes
		4-A's Test (4-AT)	4	4	Clinician	3 – 5 minutes
Depression	Screening & quantifying	Geriatric Depression Scale (GDS)	30-item 15-item	30-item ≥ 10 15-item ≥6	Self	10 minutes

DEMENTIA (MAJOR NEUROCOGNITIVE DISORDER)

Language, culture, socioeconomic status, and educational attainment diversity are significant challenges in using rating scales in India. These factors are no more critical than in the assessment of neurocognitive disorders. The testing of neurocognitive disorders depends on the factors mentioned above, as they influence the results as much, if not more, than the impairments in the cognitive domains. Many instruments developed in the West must be fit for purpose in our setting and need further adaptation and validation. Some scales are used for screening purposes, while others are used to quantify the severity.

Scales used for screening cognitive impairment

Hindi Mental State Examination (HMSE)

The HMSE (6) was adapted from the Mini-Mental State Examination (7) for use in a rural illiterate elderly community in India, considering the education and language bias in screening for cognitive impairment. It has 21 items with a total score of 30 and may take about ten minutes to complete. A score of 23 or less has been considered to suggest potential cognitive impairment. It has been widely used in research studies to screen for cognitive impairment in India. (8,9)

Vellore Screening Instrument for Dementia (VSID)

The VSID is a screening tool that has been culturally adapted for use in populations with low education status. (10) This screening tool has reasonable specificity of 86.1% and a sensitivity of 94.4% while using the DSM IV criteria for diagnosis of dementia when used in a hospital setup but performed poorly when used for screening the community with higher false positive rates. However, when used with other screening instruments, the predictive value of this scale improved significantly. It has a patient version and an informant version. Each version has ten questions, and the screening threshold is six or seven for the patient version and eight or nine for the informant version.

10/66 Brief Schedule Algorithm

The 10/66 brief assessment schedule and algorithm have been derived from the standard 10/66 schedule. (11) It is a brief helpful tool, mainly in epidemiological studies, to determine the prevalence of dementia in the community. The time taken to administer by a trained professional is 10-15 minutes with the participant and 5-10 minutes with an informant. The sensitivity was 94%, and specificity was 80%, 97% and 93% in people with dementia and higher and lower educational status, respectively.

Rowland Universal Dementia Assessment Scale (RUDAS)

The Rowland Universal Dementia Assessment Scale (RUDAS) was developed to be used in a multicultural setting in Australia. (12) It is a six-item screening tool, claimed to be culturally and educationally fair, and a score of 22 or less suggests cognitive impairment. The RUDAS was translated into Malayalam and compared with the Mini-Mental State Examination in Kerala. The RUDAS was more specific in identifying dementia and had no educational bias. (13)

Montreal Cognitive Assessment (MoCA) Test

The Montreal Cognitive Assessment (MoCA) test is one of the most widely used screening tools in clinical practice and for research. (14) It is available in many Indian languages. It is culturally adapted and validated in 30 languages. (15) The time taken to administer is approximately 10-15 minutes and should be administered by a trained healthcare professional and is scored out of 30 points. It assesses short-term memory, visuospatial abilities, executive functions, attention, concentration, working memory, language, and orientation to time and place. The cut-off scores are set at 26 to identify cognitive impairment. The Test has a sensitivity of 90 per cent for mild cognitive impairment and 100 per cent for mild severity of Alzheimer's disease, and a specificity of 87 per cent. Also, versions for the blind and hearing impaired are available.

Addenbrook's Cognitive Examination III (ACE-III)

The ACE-III is a commonly used tool to screen for dementia. (16) The original version of ACE was developed in the United Kingdom and has since been modified. (17) It assesses five cognitive domains – attention, memory, fluency, language, and visuospatial abilities. The ACE-III was translated and validated in seven Indian languages – Hindi, Telugu, Urdu, Kannada, Malayalam, Tamil, and Indian English. (18) The sensitivity and specificity for diagnosing dementia ranged between 90 – 100 per cent across the seven languages, using various cut-offs to adjust for education (please refer to the original publication for various cut-off values).

Informant Questionnaire on Cognitive Decline in the Elderly (IQCODE)

The IQCODE is a 26-item tool used to screen for dementia when the person being assessed cannot be tested directly for cognitive impairment. It relies on the information provided by a reliable informant. (19) A shorter 16-item version is used widely. (20) The Longitudinal Aging Study in India – Diagnostic Assessment of Dementia used the short version of IQCODE and found it useful, despite some items not being very helpful in our socio-cultural setting. (21)

Consortium to Establish a Registry for Alzheimer's Disease (CERAD) Word list

The CERAD word list memory task has been used in research to assess learning and memory of verbal information. (22) The examiner reads a 10-word list over three trials, presenting the words in a different order each time. This tool is especially useful in low-literacy settings as it only involves verbal learning.

Scales used for quantifying the severity of cognitive impairment and diagnosis

Alzheimer's Dementia Assessment Scale - Cognitive subscale (ADAS-Cog)

The ADAS-Cog rates the severity of dementia and can be used for the diagnosis of dementia. (23) The cognitive subscale has 11 items, two of which are memory tasks - with 22 points. The remaining nine items of the cognitive subscale have a maximum score of 48. The ADAS-cog takes about 30-35 minutes to administer and focuses on language, memory, praxis, and orientation. It can be used for diagnosis as well as severity assessment. The cognitive subscale is validated in many languages. We culturally validated for use in Tamil, with the option of substituting certain items for illiterate participants. (24) The tool is being validated in Malayalam and Kannada.

Indian Council of Medical Research Neurocognitive Toolbox (ICMR NCTB)

The ICMR NCTB was developed to help the diagnosis of dementia in linguistically diverse settings such as India. (25) It incorporates tests of cognition (Trail making A and B; verbal learning test; modified Taylor complex figure test; picture naming test) and items on behavioural and functional abilities (Geriatric Depression Scale; Instrumental activities of daily living – elderly; Neuropsychiatric inventory; Informant questionnaire on cognitive decline in elderly – IQCODE; Rand short-form health survey – RAND SF-36). It is validated in Hindi, Kannada, Telugu, Malayalam, and Bengali. The sensitivity and specificity for the diagnosis of dementia ranged from 70 – 100 per cent across all the languages.

NIMHANS Neuropsychological Battery for the Elderly (NNB-E)

The NNB-E assesses a comprehensive list of cognitive domains, including memory, attention, language, executive functions, visuospatial constructions, and parietal focal signs, using validated tests in Indian elders. (26) It may take about 60 minutes to administer. It is sensitive to identify persons with dementia from normal controls in an Indian setting.

Computerised Assessment of Information Processing (COGNITO)

COGNITO tests memory, attention, language, and visuospatial processing and assesses the performance's quantitative and qualitative aspects. (27) The tests are administered on a touchscreen, enabling the literate and illiterate populations to be tested. The Srinivasapura Ageing, Neuro Senescence and Cognition (SANSCOG) study used COGNITO to measure the cognitive domains for a community-based cohort of rural participants in Karnataka, India, to study the normative data for different ages and literacy levels. (28)

Scales used for functional impairment in dementia

The loss of functional ability is essential to establish a diagnosis of dementia. In the early stages of dementia, impairments in instrumental activities may be noted, and this may progress to impairments in more basic activities of daily living, such as personal care.

Everyday Abilities Scale for India (EASI)

The EASI was developed to address the challenge of identifying dementia in the rural illiterate elderly population. (29) The scale has 12 items, and someone who knows the subject very well must respond yes or no, to the items. It is reliable and valid and can be scored and administered by partially high school completed persons, making it a valuable tool in screening for dementia in rural illiterate communities in India.

Instrumental Activities of Daily Living Scale for the Elderly (IADL – E)

The IADL–E was developed and validated in India. (30) The scale has eleven items, each rated for its applicability to the given subject and a severity rating ranging from zero to two. The rater also chooses whether the impairment for a particular item is due to cognitive or physical impairment. In addition to itemising and rating the severity of the items, the scale helps derive composite cognitive (CDI) and physical (PDI) disability indices. The sensitivity and specificity scores were 91 and 99 per cent, respectively, for a CDI cut-off score of 16.

Scales used for Behavioural and Psychological Symptoms in Dementia

Neuropsychiatric Inventory (NPI)

The NPI measures a variety of psychopathology that may occur in persons with dementia. (31) It takes about 10-15 minutes to administer and assess twelve domains – delusions, hallucinations, dysphoria, anxiety, agitation/aggression, euphoria, disinhibition, irritability, apathy, aberrant motor behaviour, eating and sleeping. The severity and frequency are scored independently.

Cohen-Mansfield Agitation Inventory (CMAI)

The CMAI measures the severity of agitated behaviour in persons with dementia. (32) It is often used to measure the impact of interventions to manage agitation in care home settings. The clinician asks the caregiver to mention if the 29 described behaviours were present in the preceding two weeks and, if present, to rate the frequency on a seven-point scale. It analyses agitation by providing subtype measures of physical aggression, physical non-aggression, and verbal agitation.

Cornell Scale for Depression in Dementia

The Cornell scale for depression was explicitly designed for use in persons with cognitive impairment. (33) It is administered by a clinician first to a caregiver and then to the patient. It has 19 items and takes about 15-20 minutes to administer. The items are rated as "absent", "mild or intermittent", and "severe". A score of eight or more is significant.

Other scales used in dementia

Clinical Dementia Rating Scale (CDR)

The CDR is a global rating used by a clinician fully aware of the patient's clinical details. (34) The CDR has six domains, including memory, orientation, judgement and problem-solving, community affairs, home and hobbies, and personal care, which are assessed on a scale of 0-3 with a 0.5 score if the situation is questionable. (35) The CDR is available in 14 languages and globally has the best evidence base for staging dementia. (36)

Zarit Burden Interview (ZBI)

The ZBI measures the caregiver burden in dementia. (37) The original version had 29 items reduced to 22 subsequently. The caregiver responds to each item on a five-point scale ranging from 0, indicating "never", to 4, meaning "nearly always", and a score of 21 and above suggests caregiver burden. It is used widely in many languages.

DELIRIUM

Confusion Assessment Method (CAM)

The CAM instrument was developed to aid clinicians in identifying delirium in high-risk settings such as general hospitals. (38) The instrument has nine criteria, of which acute onset, fluctuating course, inattention, and either disorganised thinking or altered level of consciousness, must be present for identifying delirium. It may take about five to ten minutes to complete. An associated tool to measure the severity of delirium is CAM-S. (39)

4-A's Test (4-AT)

The 4-AT is a simple and quick screening test to identify delirium in general hospitals. (40) As the name suggests, the scale has four items – alertness, four items from the abbreviated mental Test (age, date of birth, name of the hospital/building, and year), a test of attention (saying the months of a year backwards), and evidence of acute change or fluctuating course. A score of four or more suggests delirium.

DEPRESSION

Geriatric Depression Scale (GDS)

The GDS is a self-report screening tool, using "yes" or "no" responses for depression, specifically developed for use in the elderly. The original 30-item version takes about 10-15 minutes to complete, and a score of ten or more can indicate the presence of depression. (41) A shorter 15-item version is equally valuable, and a cut-off score of 6 or 7 suggests depression. (42) Even briefer, ten and four-item versions of GDS are available and help screen depression in primary care services. (43) The 30 and 15-item versions are most used in clinical and research settings. A validated and reliable Hindi version is available for use in rural India. (44)

Other depression rating scales

Many scales are available to screen and measure depression in the general adult population. They are often used in the elderly, even though they are not adequately validated for use in the elderly. These scales may be covered in greater detail in the other sections. Here, we briefly overview two common scales in geriatric literature. The Hamilton Rating Scale for Depression (HAM-D) is a 21-item interviewer-rated scale, and a score of 18-20 suggests depression. (45) It may take about 20-30 minutes to complete. The Montgomery-Asberg Depression Rating Scale (MADRS) is also interviewer-rated and measures the core symptoms of depression, excluding somatic features. (46) It can be a useful measure in the elderly, even though it is not sufficiently validated for use in this population.

CONCLUSIONS

This article summarises the rating scales used commonly in geriatric psychiatry. It may be evident to the readers that no ideal scale can be used off the shelf. The users must consider the scale's purpose, whether for research or clinical requirements, whether for screening or quantifying symptoms, whether it is to be used in the community or the hospital, the participants/respondents, the time available, whether the scale is interviewer-rated or self-rated, and the psychometrics of the instrument, before choosing a particular scale. These factors will inform the applicability of the scale and the interpretation of the results. It is best to use validated scales in the local geriatric population. It is important to remember that rating scales cannot be considered substitutes for clinical interviews and assessments but as adjuncts. However, rating scales help clinicians and researchers usher in objectivity to their assessments, formalise the approach to diagnosis and treatment, provide a severity measure, and inform a response to treatment. All practising

psychiatrists and students working with the elderly must know the available rating scales, limitations, and utility.

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Chapter 16

RATING SCALES FOR WOMEN'S MENTAL HEALTH

Pratibha Vinod [1], Nabagata Das [2], Sundarnag Ganjekar [3*]

Take Home Message

- Rating scales specifically focusing on women's mental health around the life stages and sexual functioning can be readily used in research and clinical practice.
- A large number of scales are available for premenstrual dysphoric disorder, postpartum depression, and female sexual functioning.
- Very few scales on women's mental health are available in vernacular languages
- Most of the scales on women's mental health needs to undergone cultural adaptation and validation for the Indian population.

INTRODUCTION:

Rating scales and their importance in psychiatry have been well emphasized. [1] However, whether physicians and researchers require a different rating scale for women's mental health is debatable. It is commonly known that men and women have different patterns of mental health illnesses throughout their lives. [2] Major depressive episodes are more common and persistent in women than in men. The gender gap in depression diagnosis develops at the age of 12 and intensifies during adolescence. [3] Women are also twice as probable as males to experience anxiety disorders. [4] Women are more prone than males to acquire internalizing diseases (such as depression and anxiety), whereas men are prone to be diagnosed with externalizing disorders (such as substance abuse disorders). [5] Across the world it has been observed that females attempt suicide more, however, a higher number of males complete suicide. [6,7]

For severe mental illnesses (SMI), there have been no striking gender differences in the prevalence. However, females have been seen to have a later age of onset and better outcomes in schizophrenia, and more frequent episodes, with seasonal patterns and rapid cycling episodes in bipolar disorder. [8]

Women are that they are at increased risk for developing psychiatric illnesses during specific periods such as menarche, pregnancy, postpartum, and menopause. Pre-Menstrual Dysphoric Disorder (PMDD), antenatal/postpartum depression, postpartum psychosis, and perimenopausal disorders are unique to the female population.[9] Another aspect in which there is a significant

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difference between men and women is sexual functioning. The influence of lifecycle and related hormonal and brain changes, and psychosocial factors in women's sexual functioning warrants separate evaluation scales. Each stage in a woman's life cycle has its host of vulnerabilities. The interplay between individual, biological, and psychosocial factors predisposes women to develop mental health issues during these vulnerable periods.

Rating Scales for Women's Mental Health: Life cycle approach

Puberty and Menarche

Premenstrual Dysphoric Disorder

The menstrual cycle in women comes with a set of changes that could occur in the psychological domain in the form of somatic symptoms or behavioral changes. Frank described premenstrual syndrome for the first time in 1931. [10] Premenstrual syndrome with more severe symptoms was classified as Late Luteal Phase Dysphoric Disorder (LLPDD) by the DSM-III-R. Later, it was classified as Premenstrual Dysphoric Disorder (PMDD) and included in the Depressive Disorder Not Otherwise Specified in the DSM-IV-TR. Moreover, PMS is mentioned as the 'associated feature' of PMDD in the Appendix of the DSM-IV. [11] The DSM-V went on to have the diagnosis of PMDD under depressive disorders. PMDD requires at least one psychological symptom, such as affective lability, irritability, sad mood, or anxiety, as well as at least four psychological, somatic, or behavioral manifestations. The prevalence of PMDD ranges between 2-4% based on symptom evaluation, and the diagnosis is based on prospective ratings in two consecutive cycles. Both retrospective and prospective rating scales are available to evaluate PMDD. [12]

Retrospective rating scales:

Some of the scales described here are of historical relevance. Though used before the nomenclature of PMDD, these scales helped the clinician to rate the distress associated with menstrual cycles.

Menstrual Distress Questionnaire [13]

Moos created the Menstrual Distress Questionnaire (MDQ) and included a list of 47 symptoms with eight predominant factors which were explored. Pain, focus, water retention, behavioral change, autonomic responses, negative affect, arousal, and control were among them. The severity of symptoms is graded from non-existent to moderately incapacitating. Women assess their premenstrual, menstrual, and intermenstrual experiences, and symptom ratings are generated for each phase. The MDQ comes in two distinct forms. Form C (Cycle) allows a woman to record her experience throughout each of the three stages of her most recent menstrual cycle (4 days before menstrual flow, during menstrual flow, and the rest of the cycle) and is useful for screening. Form T (Today) allows a woman to elaborate on her day-to-day activities. MDQ reports constructed using Form T are more precise and thorough than those based on Form C. Form T is required to detect cyclical changes.

The MDQ was criticized as a tool for measuring premenstrual distress since it covered such a wide range of overlapping symptoms. The MDQ's internal reliability was not put to the test. The test-retest reliability of MDQ was performed on 15 cases only. The content validity needs to be clarified, with user acceptability compromising the face validity as the rating system is complex. [14]

The modified MDQ was developed with a 4-point scale to reduce the complexity of the MDQ. It has a 35-items, which focus on the premenstrual phase with no comparison with other stages of the menstrual cycle. [15] The internal reliability of the modified MDQ is unclear regarding content validity; it is underpinned by the original MDQ and hence questionable. [14]

Premenstrual Assessment Form (PAF) [16]

One of the earliest premenstrual assessment forms was a lengthy questionnaire with 95 questions. These 95 items are rated from 1 not applicable to 6 maximum change.

The PAF questionnaire makes room for subcategories of premenstrual changes such as bipolar continua, unipolar summary scales, and typological categories. It includes an array of behavioral, psychological, and somatic changes. Symptoms for the last three menstrual cycles are assessed. The length of the PAF precluded its regular use and made it difficult to administer. Shortened versions of this scale have been developed and show high internal consistency and reliability. [17]

The PAF was improved over previous assessment methods, which tended to cluster varying dysphoric moods such as depression, anxiety, and irritability. The respondent was also able to describe and give a duration for her premenstrual period. The assessment tool also enhanced specificity by assisting in the differentiation between non-premenstrual states and other chronic psychiatric diseases. The form also proved an improvement over the MDQ in terms of validity and reliability. [14]

Premenstrual Symptom Screening Tool (PSST) [18]

The first Premenstrual Symptom Screening Tool "translated" DSM-IV category fields into a quantitative rating scale framework with severity grading. It is a four-point rating scale that is short and practical as a screening tool. Following the screening, the psychiatrist must rule out other psychiatric illnesses. Prospective charting may be employed in the event of any doubt. This tool has been translated into the Gujarati language using forward and backward translation methods. The study has used both the English and Gujarati versions of PSST among medical and nursing/arts/commerce students respectively. The study does not discuss the validation of the Gujarati version of PSST. [19]

Some less widely used retrospective assessment scales and forms are the Premenstrual Experience Assessment (PEA) [20] and the Premenstrual Tension Rating Scale (PMTRS). [21]

Prospective rating tools:

Retrospective rating scales often lead to an overestimation of symptoms. [14] The recall bias cannot be overlooked. Variability of symptoms such as affective lability cannot be assessed either [22] and hence tools to prospectively assess the symptoms of PMDD are significant in this context.

Daily Rating Form (DRF) [23]

The DRF measures the symptoms throughout the cycle with twenty items and a severity scale ranging from 1 (not at all) to 6 (extreme). The focus lies on the five days of the pre-and post-menstrual periods. There is flexibility to the rater and a provision to compare patterns over the periods in the cycle. The DRF has proved the notion of premenstrual changes. The scale has not undergone internal reliability testing. However, content validity has been performed.

Calendar of Premenstrual Experiences (COPE) [24]

Ten physical and 12 behavioral questions make up the 22 items in the COPE questionnaire. The items on the scale were created using the daily symptom reports provided by women who sought treatment for premenstrual syndrome. It ranges from 0 (no symptoms) to 3 (severe or painful symptoms) on a four-point scale. A follicular phase value of under forty and a luteal phase score above 42 are required for the diagnosis of premenstrual syndrome. Test-retest reliability was high when the COPE was employed during the same phase of two consecutive menstrual cycles. In the context of construct validity, COPE has been linked to the Beck Depression Inventory (BDI) and the Profile of Mood State (POMS) assessments. COPE is beneficial for use in both research and therapeutic settings since it may distinguish between people suffering from different diseases.

Other rating scales are the Menstrual Distress Questionnaire- Today (MDQ-T) [25] and the End of the Day Questionnaire [26] however, these have yet to be well cited in the literature.

Daily Record of Severity of Problem (DRSP) [27]

The DRSP form evolved to assist physicians in assessing and diagnosing PMDD using DSM IV criteria. It has 24 elements that are assessed on a 6-point severity scale. Individual DRSP items and summary scores have been proven to have strong test-retest reliability and to be responsive to changes noticed across therapy. Internal consistency is high for summary scores.

Carolina Premenstrual Assessment Scoring System (C-PASS) [28]

The C-PASS is a standardized rating system that is used in conjunction with the DRSP to diagnose PMDD according to the DSM-5 (it is available as a worksheet, Excel macro, and SAS macro). The researchers could interpret PMDD across samples, people, and cycles with the use of this rating system.

Details regarding scales used for premenstrual syndrome are shown in Table 1

Table 1: Details on the scales used for premenstrual syndrome.

Name of the tool	Number of items	Administration time	Psychometric properties	Indian vernacular translation available	Cut-offs	Scale URL	Copyrighted/ public domain	Licensing fee
Menstrual Distress Questionnaire	47	? (Manual online needs to be purchased)	Questionable internal reliability. Test-Retest reliability is moderate Content and criterion validity is questionable due to the non-homogenous sample at the time of formulation. Factor structure: Factor analysis of this scale has been criticized by studies for orthogonal rotation used by authors.	Information not available	No guidance for the interpretation of scores	The manual is available: Moos, R. H. (1977). *Menstrual distress questionnaire manual*. Stanford Univ., Department of Psychiatry and Behavioral Sciences. https://journals.lww.com/psychosomaticmedicine/Abstract/1968/11000/The_Development_of_a_Menstrual_Distress.6.aspx	Information not available	Information not available
Premenstrual Assessment Form	95	Lengthy? Exact time?	Good internal consistency was found at the time of formulation with alpha scores above 0.7, good content, construct, and criterion validity.	Information not available	Guidance for score interpretation provided	shortened 10-item version is available https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1600-0447.1982.tb00820	Information not available	Information not available

			Poor user acceptability is cumbersome. Factor analysis: was not originally factor analyzed			.x?sid=nlm%3Apubmed		
Premenstrual Symptom Screening Tool	14	Information not available		Gujarati c/o Raval et al	Information not available	Researchers can mail to asranis@mcmaster.ca https://link.springer.com/article/10.1007/s00737-003-0018-4 Gujarati: https://journals.lww.com/indianjpsychiatry/pages/default.aspx	Information not available	Information not available
Daily Rating Form	20	Information not available	Reliability has not been established at the time of the conception of scale. Content and criterion validity at the time of conception had poor evidence. A low number of the original sample for factor analysis	Information not available	Information not available	https://www.sciencedirect.com/science/article/abs/pii/0165032786900352?via%3Dihub	Information not available	Information not available

Calendar of Premenstrual Experiences	22	Information not available	Validity has been well addressed however initially no tests of internal consistency provided evidence. Test-retest reliability is of little use in the prospective rating scale.	Information not available	Follicular score of <40 and luteal score of >42	https://obgyn.onlinelibrary.wiley.com/doi/abs/10.1016/0020-7292%2891%2990644-K	Information not available	Information not available
Daily Record of Severity of Problem	24	Information not available	Internal consistency of Summary Scores was found to be high. Summary Scores had moderate to high correlations with other measures of severity of illness. In addition, items and Summary Scores are sensitive to change.	Information not available	If the total score is>50, record two cycles of symptoms. If more than three items have an average score of more than 3 (mild) during the luteal phase, add the scores of five-day intervals during the luteal and follicular phases. A luteal phase	https://link.springer.com/article/10.1007/s00737-005-0103-y https://psychscenehub.com/wp-content/uploads/2020/10/Daily-Record-of-Severity-of-Problems-PMDD.pdf	Information not available	Information not available

					score that is 30 percent greater than the follicular phase score indicates a diagnosis of premenstrual syndrome.			
Carolina Premenstrual Assessment Scoring System	Information not available	Information not available	The C-PASS is a standardized scoring system for making DSM-5 PMDD diagnoses using 2 or more menstrual cycles of daily symptom ratings using the Daily Record of Severity of Problems (DRSP)	Information not available	Information not available	https://ajp.psychiatryonline.org/doi/10.1176/appi.ajp.2016.15121510?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%20%200pubmed Worksheet available in the supplementary material of the article	Information not available	Information not available
Cyclicity Diagnoser	11	Information not available	Validated against a visual analog scale and known to have good inter-rater reliability.	Information not available	Information is not available	https://www.tandfonline.com/doi/abs/10.1080/j.1600-0412.1999.781011.x	Information not available	Information not available

Premenstrual Tension Syndrome Self-Rating Scale	36	Information not available	Deemed to be valid & reliable (little information) modified into visual analog formats	Information not available	Information not available	https://europepmc.org/article/med/21802738	Information not available	Information not available
Prospective Record of the Impact and Severity of Menstrual Symptomatology	35	Information not available				https://www.ncbi.nlm.nih.gov/books/NBK279045/ Scale provided in a figure in the article		
Daily Symptom Report	6 over 17				80	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3017419/		

Pregnancy and Postpartum

Depression

Depression during pregnancy, as well as postpartum, has received a great deal of attention; the prevalence ranges from 7.4% in the first trimester to 12.8% in the second trimester to 12% in the third trimester. A meta-analysis recently found a postpartum depression prevalence of 17% in healthy mothers. [29]

Edinburgh Postpartum Depression Scale [30]

Many scales have been developed for detecting depression, with one of the earliest inventories in 1961 by Beck et al. [31] The apparent limitations of the preexisting scales for depression were that these scales focused on somatic symptoms of depression which could have been due to the physiological changes that arise in the puerperium.

John Cox and his team developed the Edinburgh Postpartum Depression Scale (EPDS) in 1987 after pilot interviews with mothers with young babies. Pre-existing depression scales were examined, and items suited for the postpartum period were chosen based on extensive interviews with mothers with newborns. The language of the items and the acceptance of mothers were evaluated. The validation research indicated good validity and split-half reliability when developing the scale for usage, as well as sensitivity to changes in intensity throughout the follow-up. It was acceptable to the women to whom it was administered and was completed quickly, within five minutes. The study was conducted within the comfort of women's homes in the community setting, eliminating the chance of a selection bias. It was also noted that the sensitivity and specificity may improve when the mother takes the test alone without family members. [30]

The scale was eventually translated into 60 languages, including Indian languages, and has been used for screening in clinics. It is prudent to first validate the scale in the language of the population because of the nuances in semantics, metaphors, and concepts when a different language is used for screening.

Additionally, it's important to keep in mind that the EPDS is not a diagnostic instrument. A high score indicates merely the presence of the symptoms and doesn't confirm the presence of a disorder. [32]

Validity of the scale:

Using the scientific diagnostic criteria available at the time, a cut-off of 12/13 (range 0-30) provided a sensitivity of 86% and a specificity of 78% for "Major" and "Minor" depression. The positive predictive value was 73%.

In some studies that evaluated the scale's validity as a screening tool, a lower cut-off of 9 or 10 was also useful in some cases; however, using 12/13 increased the accuracy. [33]

Reliability:

The split-half reliability in the pilot study was found to be 0.88, and the standardized coefficient was 0.87. False negatives were obtained when the family members were present, and it was noted that women might exaggerate or minimize their symptoms in the presence of family. The brevity and simplicity of scoring increase its acceptability. [30]

Anxiety Disorders:

Perinatal anxiety is a less studied entity. The prevalence is largely underestimated and sometimes attributed to being pregnant or postpartum.

Obsessive-compulsive disorder:

It has been reported that the prevalence of symptoms of obsessive-compulsive disorder in the postpartum period may be as high as 4-9% compared to a background lifetime risk of 2%. [34,35] Some of the obsessions encountered in the perinatal period are specific to the baby's health and well-being. These symptoms can disrupt the bonding process between the mother and the infant. Aggressive obsessions and the fear of harming the baby by accident or intention are also noted. [36]

Perinatal Obsessive-Compulsive Scale (POCS) [37]

The POCS is a self-report questionnaire. Women are asked to indicate whether certain unwanted thoughts or actions exist or not. The prenatal version has seven pregnancy and infant-related thoughts and nine behaviors. There are 14 behaviors and 19 thoughts in the postpartum version. Items on the list include worries about being judged, contamination of the baby, inadvertently hurting the baby, the baby being born sick, etc. The constant washing and cleaning of the baby's surroundings, the monitoring of the newborn, the repeated seeking of reassurance, etc. are some of the postpartum behaviors that are included in the scale.

The POCS checks for severity and interference caused by the thoughts and behaviors. It is assessed much like the YBOCS with ten questions on the severity scale with scores between 0 to 4 to indicate severity. Twelve questions assess severity with a score for each question between 0 and 4, with total scores ranging between 0 and 48.

It was discovered during a pilot study for development and validation that the POCS recorded a greater number of clinically relevant symptoms than the Y-BOCS. On the POCS checklist, pregnant OCD sufferers reported around 25% more symptoms, and postpartum mothers reported about 8% more symptoms. On the POCS severity and interference scales, women with OCD performed better than they did on the YBOCS severity scale. This is because most women gave themselves higher ratings on the sub-scales for distress. [37]

Reliability

In the pilot study sample [37], the POCS severity scores showed a Cronbach-alpha of 0.95, 0.94 for the group of pregnant women, and 0.95 for the postpartum group. The interference scores were found to have an overall coefficient of 0.92, a pregnant women's coefficient of 0.93, and a postpartum group's coefficient of 0.92. Test-retest reliability studies are still underway.

Factor structure

Factor analysis in the pilot study showed only one factor. The single-component accounts for 68% of the variance in the POCS severity scale and 57% of the variance in the POCS interference scale.

Validity

The scale exhibited excellent psychometric characteristics in the pilot study (representative items, high consistency, good concurrent validity, and determinative capability), demonstrating good

construct validity. More detailed validation research is being conducted. The pilot study sample was not representative of the entire population, and further research is needed to determine the scale's use. Although there is minimal evidence of the POCS scale's use, it appears to be potential as a tool for detecting obsessions throughout pregnancy and postpartum.

Edinburgh Postnatal Depression Scale (EPDS)- Anxiety subscale or the EDS-3A [38,39]

There is evidence to conclude that the EPDS scale, although initially developed to screen for depression, contains a subscale for anxiety. Factor analysis in various studies shows that three items in the EPDS load on a single factor and are more indicative of the affective and cognitive symptoms of anxiety. [38] These items are item no. 3: "I had blamed myself unnecessarily when things went wrong"; item no. 4: "I have been anxious or worried for no reason," and item 5 "I have felt scared or panicky for no very good reason."

According to one study, [40] the three-item EDS-3A scale may outperform the Hospital Anxiety and Depression Scale (HADS-A) and the Pregnancy-Related Anxiety Questionnaire-Revised (PRAQ-R).

Cambridge Worry Scale [41]

It comprises 16 items, including pregnancy-specific concerns such as something being wrong with the baby, potential miscarriage, and broad concerns such as finances and relationships. Responses might range from not a worry to major worry. This scale's factor analyses revealed four elements relating to social and medical concerns following childbirth, financial problems, the health of the mother and infant, and relationships. Over several studies, these factors have shown stability. [42–44] There is evidence that several items on this scale have good psychometric value during pregnancy. [45]

Wijma Delivery Expectancy/Experience Questionnaire (W-DEQ- Version A and Version B) [46]

The W-DEQ is a self-rated tool used to assess childbirth fear. The instrument is available in two variants, A and B, to measure fear of childbirth while pregnant and after delivery individually. Both versions of W-DEQ have 33 questionnaires, with responses ranging between "not at all" and "extremely." This scale is specific to the domains of "negative feelings toward childbirth" and the "fear of labor and delivery." It has been found that this scale has strong psychometric properties to assess one aspect of anxiety during pregnancy, which included the fear of labor and delivery and the lack of positive anticipation. [47] The Hindi version of W-DEQ version B has been validated in India. [48]

Pregnancy-Related Anxiety Questionnaire-Revised (PRAQ-R) and PRAQ-R2 [49]

The PRAQ-R is composed of ten item scale measuring anxiety related to current pregnancy. Each item can have five answers ranging from "never" to "very often." The scale examines three factors which are pregnancy-specific anxiety domains. These domains are the "fear of giving birth," "fear of bearing a physically or a mentally handicapped child," and "concern about one's appearance." The PRAQ-R2 was designed to measure pregnancy-specific anxiety in both nulliparous and parous mothers. Three components were substituted with the more generalized 'I am anxious about the

delivery' to maintain a ten-item scale while ensuring that it's applicable for all women who are pregnant regardless of parity (PRAQ-R2).

Perinatal Anxiety Screening Scale (PASS) [50]

The PASS is a 31-item self-report test that examines anxiety symptoms in child-bearing women in the previous month. Each question is assessed on a Likert 0-3 scale; the final score is the sum of the individual ratings, with higher scores illustrating greater anxiety. Scores can vary from 0 to 93. The clinical anxiety cutoff is 26. PASS research on the degree of prenatal anxiety classified symptoms as minimal anxiety (0-20), mild-moderate anxiety (21-41), and severe anxiety (42-93). [53] At the 26 thresholds, the PASS demonstrated acceptable test-retest reliability (rho = 0.74), sensitivity of 70%, and specificity of 30%. Principal component analyses (PCA) offered a four-factor structure covering symptoms of (1) acute anxiety and adjustment, comprising 8 items. (2) general worry along with specific worries has 10 items, (3) perfectionism, control, and trauma have 8 items, and (4) social anxiety has 5 items. The best-fitting four-factor structure accounts for 59.37% of the total variance. The Hindi version of PASS has been used among Indian pregnant women. [51]

The systematic evaluation of anxiety scales used during pregnancy has brought out the fact that there is a dearth of the research on psychometric features of anxiety scales. The anxiety scales used in the general population with good psychometric properties might not be suited for pregnant women as most of these scales emphasize somatic concerns, which might be a part of the physiological changes in pregnancy. It has been stated that presuming the measuring features of anxiety scales designed for the general population retaining in pregnancy is wrong due to an overemphasis on physical symptoms and a lack of established cut-off scores and standards for pregnant populations. Also, there have been studies to report that pregnancy-specific anxiety might exist and be phenomenologically different [52] Details regarding scales used for maternal mental health during the perinatal period are shown in Table 2.

Table 2: Details on the scales used for maternal mental health during the perinatal period.

Name of the tool	Number of items	Administration time	Psychometric properties	Indian vernacular translation available	Cut-offs	Scale URL	Copyrighted/ public domain	Licensing fee
Edinburgh Postnatal Depression Scale	10	Few minutes	a cut-off of 12/13 (range 0-30) provided a sensitivity of 86% and a specificity of 78% for major and minor depression. The positive predictive value was 73%.	Patel et al 2002	9/10 in some studies and 12/13 provides superior accuracy	https://www.fresno.ucsf.edu/pediatrics/downloads/edinburghscale.pdf Indian: https://ajp.psychiatryonline.org/doi/10.1176/appi.ajp.159.1.43?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%20%200pubmed	Available in the public domain	NIL
Perinatal Obsessive Compulsive Scale	No information available	No information available	In the pilot investigation, the scale had good psychometric qualities (representative items, high consistency, good concurrent	No information available	No information available	https://europepmc.org/article/med/21824744	No information available	No information available

			validity, and determinative capability), which together demonstrated good construct validity. More extensive validation studies are underway.					
Edinburgh Postnatal Depression Scale (EPDS) – Anxiety subscale	3 items from EPDS.	Few minutes	3 items from EPDS. These items are item no. 3: "I had blamed myself unnecessarily when things went wrong"; item no. 4: "I have been anxious or worried for no reason," and item 5 " I have felt scared or panicky for no very good reason."	Patel et al 2002		https://www.fresno.ucsf.edu/pediatrics/downloads/edinburghscale.pdf Indian: https://ajp.psychiatryonline.org/doi/10.1176/appi.ajp.159.1.43?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%20%200pubmed	EPDS available in the public domain	NIL

Cambridge Worry Scale	16	Information not available	Satisfactory internal consistency, high correlation in test-retest validity, four factors upon factor analysis	Information not available	Information not available	https://journals.sagepub.com/doi/10.1177/1359105303008600?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%20%200pubmed	Information not available	Information not available
Wijma Delivery Expectancy/Experience Questionnaire	33 (two versions version A and version B) both with 33 items	Information not available	In the original study, the internal consistency was excellent ($\alpha = 0.93$). The authors also provided good evidence of the face and construct validity. Later studies found four factors in factor analysis	Information not available	Information not available	https://www.tandfonline.com/doi/abs/10.3109/01674829809048501	Information not available	Information not available

Pregnancy-Related Anxiety Questionnaire-Revised	Information not available	Information not available	a predictor of birth-related and childhood outcomes, independent of general anxiety measures	Information not available	Information not available	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4728175/	Information not available	Information not available
Perinatal Anxiety Screening Scale (PASS)	31 items	Self-report	test-retest reliability (rho = 0.74), sensitivity of 70%, and specificity of 30%	Hindi version	The clinical anxiety cutoff is 26	https://drsarahallen.com/wp-content/uploads/2015/10/PerinatalAnxietyScreeningScale2.pdf	Available in the public domain	NIL

Mother-Infant Interaction

It has been noted that mothers with new onset or exacerbation of mental illness during pregnancy or postpartum face difficulties bonding with their babies. Though numerous scales assess parenting, very few are used exclusively among mothers with mental illness. Here we describe commonly used scales to assess bonding in mothers with mental illnesses during the postpartum period.

Postpartum Bonding Questionnaire (PBQ) [53]

A self-reporting survey called the PBQ is used to gauge mother-infant bonding from the woman's perspective. Each of the 25 statements on the scale is followed by one of six options, from "always" to "never." Positive responses range from 0 (always) to 5 (never), whereas negative responses range from 5 (always) to 0 (never). Mothers are prompted to score each statement based on their present symptoms and at their worst. The scores of 25 items are summated under four factors, with a high score indicating pathology. The factors are

1. General factor (Positive/negative affective response to baby); consists of 12 items, the cut-off point is 11, and describes a general factor.
2. Anger and rejection; consist of 7 items, and the cut-off point is 16.
3. Confidence and anxiety; consist of 4 items, and the cut-off point is 9.
4. Aggression to the baby; consists of 2 items; the cut-off point is 2.

The authors' initial validation research found that the general factor had a sensitivity of 0.82 for all mother-infant relationship disorders. The newborn rejection had a sensitivity of 0.88, whereas intense rage had a sensitivity of just 0.67. The infant-focused anxiety performance was unsatisfactory. Although the aggressiveness towards the infant (incipient abuse) only picked a few women, it was useful in detecting individuals at the greatest risk of child abuse. Revision of the thresholds can increase sensitivity, particularly in the case of anger and rejection, where a cut-off point of 12 = normal and 13 = high better detects mothers with threatened rejection. These revised cut-off values, however, would need to be validated in a different data set. [56] This screening tool can detect mothers at risk of impaired bonding. The PBQ is a regularly used bonding scale in scientific research. [54] The PBQ has been translated and validated in Tamil language (PBQ-T). The PBQ-T consists of 19 items, and component analysis revealed five factors (General Bonding (F1A), Frustration (F1B), Anxiety (F2), Feeling Trapped (F3A), and Aggression/Rejection Dimensions (F3B)) loading into three subscales. Subscale 1 (cut-off 2/3), subscale 2 (cut-off 2/3), and subscale 3 (cut-off 0/1) helped identify moderate disorders of bonding as well as infant-focused anxiety and anger/rejection. To detect "any disorder of bonding" (cut-off 5/6), the total score is best employed.[55]

Bethlem Mother-Infant Interaction Scale (BMIS) [56]

The BMIS is a scale developed to rate maternal behavior toward their infant. BMIS assesses the appropriateness of the mothers' caregiving behavior by the direct observation of a trained nurse. Seven elements of mother-infant adjustment are evaluated by the scale: eye contact, physical touch, voice contact, maternal mood, routine in general, risk to the baby, and the baby's participation in interaction. A score of 0 indicates suitable or sufficient care, while a maximum score of 4 indicates a severely disturbed and chaotic contact pattern. Scores on synchronous and

sensitive mood toward the infant, physical touch, vocal contact, and visual contact are viewed as indicators of the mother's involvement in the conversation with the child. Subscale general routine ratings encompass scores on the mother's overall ability to handle a daily routine as well as her proficiency in caring for the baby's physical needs. On the subscale of physical danger to the newborn, the perception of any potential hazards to the baby from the mother, whether intentional or not, is scored. The contribution of an infant to the quality of interaction is rated on a distinct subscale, as are the other subscales. The total BMIS score is the sum of the scores for the first four subscales plus the ratings for general routine and danger to the infant. The total BMIS score from 0 to 5 is considered the normal range. The BMIS is a tool suited to high-resource settings where MBUs have trained nurses and a high nurse-to-patient ratio. Scoring the items in BMIS requires training, expertise, and time. This scale has been standardized with good interrater reliability and validated against a standard measure of mother-infant interaction by Ainsworth et al. (1971).

NIMHANS Maternal Behavior Scale (NIMBUS) [57]

The NIMBUS was developed to assess mother-infant interaction by observation of mothers with severe mental illness. The NIMBUS is split into five domains: care for the baby's requirements, affectionate behavior, significant incident, general assessment of safety, and the mother's response to isolation from the baby, as well as an additional item concerning infant isolation from the mother during inpatient care. Each domain was developed based on a literature review and details on maternal behavior gathered by a retrospective clinical review of 100 mother-infant dyad admissions to the MBU. Internal consistency and inter-rater reliability have been established among mothers with postpartum psychosis. External validity has been assessed with BMIS.

Details regarding scales for maternal bonding and maternal behavior during postpartum are shown in Table 3

Table 3: Details on the scales used for maternal bonding and maternal behavior during postpartum.

Name of the tool	Number of items	Administration time	Psychometric properties	Indian vernacular translation available	Cut-offs	Scale URL	Copyrighted/public domain	Licensing fee
Postpartum Bonding Questionnaire	23	NA	Self-rated screening tool which is self or clinician-administered. Four factors have been identified. Better used in mothers with postpartum depression rather than postpartum psychosis. The reliability of PBQ in women with postpartum psychosis has also not yet been established.	Tamil	26	Tamil: https://www.sciencedirect.com/science/article/abs/pii/S1876201818310839 https://link.springer.com/article/10.1007/s00737-006-0132-1	in original scale	NIL
Bethlem Mother-Infant Interaction Scale	Bethlem Mother-Infant Interaction Scale	7	Objectively rated scale. Over a week	Reliable measure to observe mother-infant interactions however not			https://www.cambridge.org/core/journals/the-british-journal-of-psychiatry/artic	

				a reliable measure to predict risk to the infant. Less information about predictive validity. An aid in legal reporting for the fitness of mothers.			le/abs/development-of-a-clinical-rating-scale-to-assess-motherinfant-interaction-in-a-psychiatric-mother-and-baby-unit/C464322C76E5EA2604D7D0029FC7CADF	
NIMHANS Maternal Behaviour Scale	16	NA	A scale with adequate internal consistency, inter-rater reliability, and external validity. Not validated in a large sample	NA	NA	https://www.sciencedirect.com/science/article/abs/pii/S1876201819308731	Can request authors to share the scale	NIL

Perimenopause and Menopause

The Stages of Reproductive Aging Workshop (STRAW) defines menopause as the duration between the initial significant changes in the duration of the menstrual cycle till one year after the last menstrual cycle, usually lasting for 4-5 years. [58] This transition brings about a multitude of biological and psychosocial changes. Endocrinal changes, like changes in sex hormones and psychosocial factors such as more exit life events, distress related to role changes, physical changes related to reproductive aging, and other health conditions. [59] In an Indian study, nearly half of perimenopausal women had a psychiatric illness, with the commonest mental illness being depression (31%), followed by anxiety. [60]

Perimenopausal depression:

There has been an ongoing debate about whether perimenopausal depression is a separate entity. Even though symptom-wise, there is overlap between perimenopausal depression and a depressive episode of any age group, the unique features that set it apart are irritability more than sadness, increased fatigue, an "on-off" phenomenon when it comes to mood changes, physical symptoms more than cognitive symptoms. [61] Considering this unique symptom profile, Kulkarni et al. developed a new assessment tool for perimenopausal depression called Meno-D.

Meno-D [62]

Meno-D' is a self-reported or clinician-rated questionnaire used to assess the intensity of perimenopausal depression symptoms. It lists 12 symptoms associated with perimenopausal depression, including anxiety, physical symptoms, irritability, self-worth, vitality, focus, loneliness, sleep, weight, libido, memory, and suspicion. On a scale of 0 to 4, each of these symptoms is given a score. The overall score varies between 0 and 48. The validity and reliability research included 93 perimenopausal women. The confirmatory factor study revealed excellent internal consistency and good reliability and validity in the five factors: self, somatic, cognitive, sleep, and libido. These five Meno-D factors have good internal consistency, with composite reliability ratings over the 0.70 cutoff mark.

Menopause Rating Scale (MRS) [63]

The MRS was established in the early 1990s in response to a shortage of standardized scales to assess the severity of aging symptoms and their influence on health-related quality of life (HRQoL). The initial version of the MRS was filled out by a physician, but a self-rated scale was later developed. The MRS is made up of 11 items that encompass both psychological and physical symptoms. The level of the complaints felt by the woman completing the scale determines whether each item scores 0 (no complaints) or up to 4 scoring points (severe symptoms). A large multinational survey using MRS in 9 countries (Germany, Spain, France, Sweden, USA, Mexico, Argentina, Brazil, and Indonesia) has found good reliability and validity across the countries. [63]

Female Sexual Functioning

Female sexual dysfunction (FSD) is a prevalent debilitating condition leading to low quality of life. Almost 40% of women suffer from sexual dysfunction, yet much less seek therapy. [67] Vaginal lubrication, soreness, discomfort during intercourse, diminished sensation of excitement,

and difficulties attaining orgasm are the most typical symptoms of FSD. We discuss a few objective instruments used to assess FSD.

Female sexual functioning index (FSFI) [64]

It is a 19-item self-reported measure organized into six domains; arousal, sexual desire, lubrication, orgasm, satisfaction, and pain. The cut-off score is 26. The scale has good discriminant validity and can be used as a screening and diagnostic tool.

However, assessment is limited to the last four weeks, and the classification of different sexual disorders cannot be solely based on this scale.

Arizona sexual experience scale (ASEX) [65]

It is a short five-item questionnaire to be self-administered or by the clinician with a Likert scale scoring that ranges from 1 to 6. It evaluates factors like drive, arousal, penile erection/vaginal lubrication, capacity for orgasm, and orgasmic satisfaction. Any sexual disorder most frequently affects these areas. The scale has high levels of validity, sensitivity, and reliability. This scale comes in two variations for both men and women.

Female sexual distress scale – revised [66]

It is a well-validated self-administered scale with 12 items that address sexual distress in women for the past 4 weeks. The maximum score is 48, with each item scored from zero to four.

Sexual function questionnaire (SFQ) [67]

The SFQ is a screening tool for female sexual dysfunction with 31 items that have been created and validated. It evaluates seven areas, including pleasure, orgasm, pain, partner relationship, and physical arousal-sensation and lubrication. Female sexual arousal disorder (FSAD) and hypoactive sexual desire disorder have both been validated using the 28-item scale (SFQ28) that was recently created through SFQ's refinement (HSDD). It is reliable and internally consistent. Except for pain, the SFQ28 has demonstrated adequate internal consistency, test-retest reliability, recognized group validity, and good convergent validity with the FSDS and sexual quality of life - female (SQOL-F). A cutoff score of 14 on the SFQ, which has been validated among Indian women, denotes the existence of sexual dysfunction.[68]

Female sexual well-being (FSWB) scale [69]

It is a self-rated, reliable, and validated instrument for assessing the sexual health of women of all ages. Interpersonal, cognitive-emotional, physical arousal and orgasm satisfaction are the various aspects. Early psychometric validation studies revealed excellent internal consistency, test-retest reliability over two weeks, and construct validity.

Sexual quotient-female version [70]

The sexual quotient - female version is a 10-item rating scale that assesses sexual function, desire, foreplay, sexual arousal, harmony with a partner, and comfort during sexual intercourse. Sexual pleasure and orgasm. Scores vary from 0 to 100. A score of less than 62 indicates inadequate sexual functioning.

Table 4: Details on the scales used for female sexual functioning

Name of the tool	Number of items	Administration time	Psychometric properties	Indian vernacular translation available	Cut-offs	Scale URL	Copyrighted /public domain	Licensing fee
Female Sexual Functioning Index	19	Not available	Good discriminant validity	Urdu version	26	https://cdn-links.lww.com/permalink/aog/a/aog_124_2_2014_06_02_reed_14-218_sdc1.pdf	public	none
Arizona Sexual Experience Scale	5	Not available	good convergent and discriminant validity along with internal consistency, test-retest reliability	Hindi version	Not available	https://www.mirecc.va.gov/visn22/Arizona_Sexual_Experiences_Scale.pdf	public	none
Female Sexual Distress Scale-Revised	12	Not available	Good reliability and discriminative validity	Not available	Not available	https://capstonemedicalwellnesscenter.com/wp-content/uploads/2022/01/Female-Sexual-Distress-Scale-Questionnaire.pdf	public	none
Sexual Function Questionnaire	31	Not available	reliable and internally consistent	Validated in Indian population-but a vernacular version does not exist	14	https://cdn-links.lww.com/permalink/aog/a/aog_124_2_2014_06_02_reed_14-218_sdc1.pdf	public	none

Female Sexual Wellbeing Scale	17	Not available	good internal consistency, test-retest reliability over and construct validity	Not available	Not available	Not available	copyrighted	Not available
Sexual Quotient – female version	10	Not available	validated	Not available	Less than 62 indicates inadequate sexual functioning	https://www.researchgate.net/figure/Female-Sexual-Quotient-Questionnaire-FSQ_fig1_321431952	public	none

Conclusions

There are numerous scales to assess women's mental health during menstruation, pregnancy, postpartum, perimenopausal period, and sexual functioning. Most of these scales have undergone psychometric evaluation. However, while choosing the scale the clinician and researchers should consider whether the scale is appropriate for the age, education level, and cultural group. The clinical and research utility of the scale needs to be considered before choosing the scale. There is a need for cultural adaptation, translation to vernacular language, and validation of scales developed in English for women's mental health. The cut-off values for case identification using the adopted screening tools also need to be validated in the Indian population.

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Chapter 17

SCALES IN SUBSTANCE USE DISORDERS AND BEHAVIORAL ADDICTIONS

Venkata Lakshmi Narasimha [1*], Santanu Nath [2], Shalini Kumari [3]

Take Home Message:

- In addiction psychiatry, tools used for assessment help both the healthcare worker and the person suffering from substance use disorders.
- These tools include screening instruments, diagnostic tools, and rating scales for evaluating the severity of various dimensions of addiction like dependence, craving, tolerance, withdrawal symptoms etc.
- Beyond their clinical role, these tools find utility in research endeavours and facilitating referral services.
- Through their systematic and standardised approach, rating scales enhance diagnostic precision and treatment planning and advance our understanding of addiction-related issues.

INTRODUCTION:

Structured and efficient assessment helps in research, treatment planning, and referral services.[1] This is especially important in the domain of mental health since unlike other disciplines of medicine, psychological illness relies exclusively on clinical assessments for a proper diagnosis and holistic management.[2] Structured tools/scales form an important part of this assessment plan. They also find an important place in mental health research that finds relevance with various stakeholders. There are various types of structured scales/tools available in mental health (including addiction psychiatry). They can be used either for screening, diagnosis or for assessing clinical severity of various clinical constructs. They have their own clinical utility. While screening tools not only help in identifying presence of disorders, but also save resources in preventing unnecessary assessments when the screening test is negative. They also provide an opportunity for brief feedback and guide interventions. Assessment using a structured tool helps in quantification and improves objectivity.[3]

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Standardized rating scales should meet certain laid-down criteria for better clinical utility. They should have:

1. Objectivity: Results obtained from a tool should not depend upon who administers the tool. It should provide similar results as far as possible, even when administered by a different person. This is also known as inter-rater reliability.
2. Reliability: Repeating the tool administration should give the same result for the same clinical construct.
3. Validity: The extent to which the tool measures what it is intended to measure.

In research, the use of scales helps in both retrospective and prospective research. Further, the use of validated assessment tools improves the internal validity of research which translates into its enhanced generalizability to a wider population of interest. In mental health, structured tools are either clinician/interviewer rated or subjective/ self-rated, or both. Often a tool, which is generated in one socio-cultural context, may not find applicability in population from different geographical and cultural areas. These differences call for validation of tools to the local population when planned for their use in such contexts. [4] Addiction psychiatry is a subspeciality of psychiatry that deals with the assessment and management of psychoactive substance use disorders. There are multiple structured tools worldwide, which find good use in screening, diagnosis, and severity assessment in this subspeciality. A discussion on these tools is worthwhile that might provide readers with knowledge of their clinical utility and applicability. In this review, we have primarily focused on alcohol, tobacco, and opioids as they contribute to a major share of the clinical population. Further, we also highlighted important tools for behavioral addictions, other substances, special population, and some of the dimensions of addiction like motivation.

Scales for assessment of alcohol use disorders

Alcohol is one of the most common substances used in India. 14.6 % (age group of 10-75 years) of the population uses alcohol and 5.2% of the population have harmful or dependent patterns of use and need help for alcohol-related problems.[5] The treatment gap for alcohol use disorders in India is 86%. Therefore, screening and subsequent interventions for alcohol use disorders have a strong public health importance (**Error! Reference source not found.**).

Scales for screening:

Alcohol Use Disorders Identification Test (AUDIT):

AUDIT is a simple method of screening for excessive alcohol use and to assist in brief intervention, developed by the World Health Organization.[6] The scale contains 10 items to screen alcohol use. It identifies hazardous drinking, harmful patterns of drinking, or alcohol dependence. It has two versions: a clinician-rated and a self-report version. Questions 1-3 are related to the quantity of alcohol, 4-6 to signs and symptoms associated with dependence, and 7-10 to the behaviors and symptoms associated with harmful use. Each item of AUDIT is rated on a scale of 0-4 except for items 9 and 10 in which the response is either rated as 0, 2, or 4. The maximum total score is 40 and it requires 5 minutes to complete the questionnaire. If the score on AUDIT is more than 8 it is suggestive of harmful or hazardous use of alcohol. A score between 8-15 suggests a medium level of alcohol problems and more than 16 indicates a high level of alcohol problems. If the score is

more than 20 then it indicates further evaluation for alcohol dependence. AUDIT has been validated in India.[7–9]

Cut-down, Annoyed, Guilt, Eye-opener (CAGE) Questionnaire:

It is a screening tool that was developed by Dr. John Ewing for screening alcoholism.[10] A score of 2 or more is clinically significant. For identification of problem drinking, it has a sensitivity of 93% and a specificity of 76%, and for identification of alcoholism, the sensitivity is 91% and a specificity of 77%.[11] AUDIT has the advantage of identifying heavy drinkers (men- 4 drinks on any day or >14 drinks a week, 3 drinks on any day or > 7 drinks a week) over the CAGE Questionnaire which is a poor screening tool for heavy drinkers.[12] When compared to CAGE, AUDIT screens for alcohol-related problems in the past year so has the advantage of identifying active drinkers while the time duration for CAGE questionnaire is addressed as "ever experienced" alcohol problems which can be in the distant past. Compared to Michigan Alcoholism Screening

Test (MAST) and CAGE, AUDIT has an advantage of early identification of harmful and hazardous use of alcohol.

Table 3: Screening Tools for alcohol use disorders

Name of the tool	No. of items	Administration time	Psychometric properties	Indian Vernacular translation available	Cut-offs	Scale URL	Copyrighted /public domain	Licensing fee
National Institute of Alcoholism (NIAAA-2Q).[13]	2 items	< 1 minute	-	No	>1	https: //www.niaaa.nih.gov / sites/default/files/publications /NIAAA_AlcoholScreening_ Youth_Guide.pdf	Copyrighted	Nil
Alcohol Use Disorders Identification Test (AUDIT).[6]	10 items	2 minutes	Internal consistency (Cronbach's alpha=0.81)	Yes Hindi Bengali Marathi Gujarati	Hazardous: 0-7 Harmful: 8-15 Dependence: >20	http://whqlibdoc.who.int/hq/2001/WHO_MSD_MSB_01.6a.pdf	Copyrighted	Nil
Cut-down, Annoyed, Guilt, Eye-opener (CAGE).[10]	4 items	< 1 minute	Sensitivity 0.71, specificity 0.90	No	2 or more	www.patient.co.uk/doctor/cage-questionnaire	Public domain	Nil

Michigan Alcoholism Screening Test.[14]	25 items	8 minutes	High internal consistency and high reliability (r=.86)	No	0-3-No apparent alcoholism problem 4- Early or middle alcoholism >5-Aggravatedalcoholism	http://adai.uw.edu/instruments/pdf/Michigan_Alcoholism_Screening_Test_156.pdf	Not copyrighted	Nil

Alcohol withdrawal comprises a constellation of signs and symptoms.[15] Various scales are developed for the assessment and quantification of the severity of withdrawal. These scales for withdrawal can help in the triage of patients as high scores in these scales predict the development of severe withdrawal symptoms such as seizure or delirium. With proper assessment and early identification, further complications can be prevented. The most widely used scale for alcohol withdrawal is the Clinical Institute Withdrawal Assessment-Alcohol (CIWA), a shorter version Clinical Institute Withdrawal Assessment of Alcohol Scale, Revised (CIWA-Ar) and Short Alcohol Withdrawal Scale (SAWS).

Clinical Institute Withdrawal Assessment for Alcohol Scale Revised (CIWA-Ar):

CIWA-Ar is a scale developed by Sullivan et al.[16] and is a 10-item scale that is used for quantification of the severity of withdrawal symptoms of alcohol. Each of the 10 items in the scale is rated on a Likert scale of 0 to 7 except for the item "orientation and clouding of sensorium" which is rated on a scale of 0-4. This scale is also used to monitor the response to treatment by using it at hourly intervals to assess withdrawal. It is most widely used for symptom-triggered regimens, and it takes approximately 10 minutes to administer. A possible range of score is 0-67. This scale is not a diagnostic tool and is not useful for differentiating between delirium tremens and delirium due to medical illness. In the Indian context, Bakhla et. al, studied the underlying factor structure of alcohol withdrawal syndrome using CIWA-Ar, which revealed multidimensionality of alcohol withdrawal, and three factors- delirious, autonomic, and nonspecific factors were found.[17] CIWA-Ar has been used in many Indian studies on alcohol withdrawal.[18–20]

Table 4: Scales for the assessment of alcohol withdrawal

Name of the tool	No. of items	Administration time	Psychometric properties	Indian Vernacular translation available	Cut-offs	Scale URL	Copyrighted/ public domain	Licensing fee
Clinical Institute Withdrawal Assessment for Alcohol Scale Revised (CIWA-Ar).[16]	10 items	2 minutes	Well-documented reliability, reproducibility, and validity	No	Range of score 0-67 Mild: Less than or equal to 10 Moderate: Less than or equal to 15 Severe: More than 15	http://adai.uw.edu/instruments/pdf/Clinical_Institute_Withdrawal_Assessment_for_Alcohol_Revised_67.pdf	Copyrighted	Nil
Short Alcohol Withdrawal Scale (SAWS).[21]	10 items	2 minutes	High internal consistency (alpha=0.87) and good construct and concurrent validity	No	>12-assisted withdrawal needed	https://alcoholtreatmentguidelines.com.au/pdf/guidelines-for-the-treatment-of-alcohol-problems.pdf#page=377	Copyrighted	Nil

Scales for Severity of Dependence

Severity of alcohol dependence questionnaire (SADQ):

It is a 20-item scale to assess the severity of dependence.[22] It consists of 5 subscales and each subscale is rated on a Likert scale of 0-3. The score range varies from 0-60. It assesses physical and affective symptoms of withdrawal, craving, and withdrawal relief drinking, alcohol consumption, and reinstatement of alcohol after a period of abstinence. One difference between AUDIT and SADQ is that the latter taps into exclusive dependence syndrome and focuses less on complications. AUDIT as it includes the harms; it's more correlated with medically ill populations, but not SADQ. Hospital-based studies Indian studies used SADQ for the assessment of the severity of dependence.[23]

Table 5: Scales for assessment of the severity of dependence

Name of the tool	**No. of items**	**Administration time**	**Psychometric properties**	**Indian Vernacular translation available**	**Cut-offs**	**Scale URL**	**Copyrighted/ public domain**	**Licensing fee**
Severity of alcohol dependence questionnaire (SADQ).[22]	20-items	2-5 minutes	A high degree of test-retest reliability (0.85), good construct, and concurrent validity	-	Score range 0-60 Mild dependence- < 15 Moderate- 15-30 Severe- > 30	http://pubs.niaaa.nih.gov/publications/sadq.pdf	Not copyrighted	Nil
Short alcohol dependence data questionnaire.[24]	15-items	<5 minutes	Good test-retest, reliability, and construct validity	No	Score 1 – 9 low dependence--scores 10 – 19 medium dependence-- 20 or more high dependences.	http://adai.uw.edu/instruments/pdf/Short_Alcohol_Dependence_Data_Questionnaire_224.pdf	Public domain	Nil

Scales for assessment of craving

Penn Alcohol Craving Scale (PACS):

It is a five-item self-report scale that measures alcohol craving and predicts the risk of relapse. There are five questions, and each question's response is rated on a Likert scale of 0 to 6. The questions measure the intensity, frequency, and duration of craving, the ability to resist drinking, and an overall rating of craving for alcohol over the last week.[25] There is no established cutoff score. However, scoring more than 10 during treatment is associated with an increased risk of relapse. The scale has good internal consistency, (Cronbach's $\alpha = 0.92$), high predictive validity, and good discriminant validity.[26] Kharb et al. (2018) used PACS and concluded that measurement of craving with the PACS can be a useful tool to predict subsequent drinking and identify individuals at risk for relapse .[27] Rampure et al. (2019) while assessing factors contributing to alcohol relapse in a rural population used PACS to predict relapse rate.[28]

Alcohol Craving Questionnaire-NOW:

The Alcohol Craving Questionnaire was developed by Singleton, Tiffany & Henningfield (1994) Alcohol Craving Questionnaire ACQ-NOW.[29] It is 47 items self-administered questionnaire. It consists of 4 subscales that can measure 4 dimensions of alcohol craving: emotionality, purposefulness, compulsivity, and expectancy. It is rated on a 7-point Likert scale ranging from "*Strongly disagree*" to "*Strongly agree*". A shorter version, ACQ-SF-R is also available that is reliable and sensitive to change. The scale has high levels of internal consistency, convergent and divergent validity.

Obsessive Compulsive Drinking Scale (OCDS):

This is a 14-item self-rated instrument used to quantify and monitor obsessive thoughts about alcohol use and compulsive behavior towards drinking.[30] The three aspects regarding thoughts related to alcohol use can be measured: 1. Resistance/control impairment, 2. Obsession, 3. Interference. The scale also has an adolescent version given by Deas et al. (2001) called the OCDS-A which can differentiate between problem drinkers and experimental drinkers in this age group.

Table 6: Scales used for assessment of craving

Name of the tool	Number of items	Administration time	Psychometric properties	Indian Vernacular translation available	Cut-offs	Scale URL	Copyrighted/public domain	Licensing fee
Penn Alcohol Craving Scale (PACS).[25]	5-items	1-2 minutes	Good internal consistency, (Cronbach's α = 0.92), high predictive validity, good discriminant validity	No	No established cutoff score. However, a score of more than 10 during treatment is associated with an increased risk of relapse	http://adai.uw.edu/instruments/pdf/Penn_Alcohol_Craving_Scale_171.pdf	Copyrighted	Nil
Alcohol Craving Questionnaire (ACQ-NOW).[29]	47-items	5 to 10 minutes	Good reliability, with reliability values ranging from α = 0.77 to 0.86	No	-	http://adai.uw.edu/instruments/pdf/Alcohol_Craving_Questionnaire_19.pdf	Public domain	Nil
Obsessive-compulsive drinking scale.[30]	14-items	5 minutes	Good test-retest reliability and high levels of internal consistency (Cronbach's alpha of 0.86)	No	-	http://pubs.niaaa.nih.gov/publications/scale1.doc	Copyrighted	Nil

Scales for assessment of tobacco use disorders:

Tobacco use is a global problem due to the overall morbidity and mortality associated with it. In India, 42.4% of men, 14.2% of women, and 28.6% of all Indian adults use tobacco in various forms as per the Global Adult Tobacco Survery-2 (GATS-2) 2016-2017. While 10.7% use tobacco in its smoked form, 21.4% of adults use smokeless tobacco.[31] Management of Tobacco Use Disorders (TUD) starts with a detailed assessment of the extent of use, dependence, and withdrawal signs/ symptoms that provides us with a quantitative basis on which to rest our management plan. The scales used to assess these clinical constructs are easy to use and thus can find their best use by any mental health professional, general physicians, community health workers, and even caregivers of persons with TUD.

Tobacco Dependence:

Dependence is defined as a cluster of physiological, behavioral, and cognitive phenomena in which the use of a substance or a class of substances takes on a much higher priority for a given individual than other behaviors that once had greater value.[32] Tobacco, like other psychoactive substances, can cause dependence, and this can be assessed clinically as well by using a few tools. The most used tool/ scale to assess the severity of tobacco dependence is the Fagerstrom Test for Nicotine Dependence. This has two different versions depending upon the type of tobacco used viz smoked (eg. cigarette, cigar, bidi, etc) or smokeless (Khaini, Gutka, etc)**.**

Fagerstrom Tolerance Questionnaire (FTQ):

FTQ was one of the earliest scales developed to assess tobacco dependence. The modified FTQ is a self-rated scale, used in adolescents (14-20 years) and has 7 items that use a 5-point Likert scale except for one item that asks for smoking in the first two hours of waking up in the morning. A score of 0-2 indicates no dependence, while a score of 3-5 and 6-9 indicates moderate and substantial dependence respectively.[33] The psychometric properties of modified FTQ were based on its application on 110 teens drawn from a vocational training school. It has a high internal consistency (Cronbach's alpha 0.75), and high test-retest reliability (r=0.71) when reapplied in a 2-month interval.[34] This tool also demonstrated an association with saliva cotinine levels in adolescents (r=0.40).[35]

Fagerstrom Test for Nicotine Dependence (FTND):

The Fagerstrom Test for Nicotine Dependence (FTND) for smoked tobacco products is an easily administered tool to gauge the severity of dependence on smoked tobacco. It was originally developed by Heatherton et al. (1991) based upon the application of FTQ, and assessment of tobacco-related biochemical parameters on 254 cigarette smokers. FTND thus developed by removing the cigarette nicotine content rating item and cigarette inhalation item from FTQ which were found to be unrelated to the biochemical parameters. The resultant scale (FTND) had an association with the biochemical parameters of heavy smoking. This has 6 items on various aspects of smoked tobacco use, viz the quantity of cigarette consumption, compulsion to use, and dependence, and can be easily answered by a patient himself/ herself. The score ranges from 0-10 and based upon the responses obtained one can rate the severity of dependence. Anyone having a score of 1-2 has 'low dependence', 3-4 has 'low to moderate dependence', 5-7 has 'moderate

dependence' while any score above 8 is classified as 'severe dependence.[36] The scale is widely used and has been validated for use in the Indian population [37]. It also provides a guide to nicotine replacement therapy dosage based on the severity of dependence.[38]

Nicotine Dependence Syndrome Scale (NDSS):

NDSS is a 19-item scale given by Shiffman et al in 2004.[39] It measures 5 domains of smoked tobacco use, viz, drive (cravings, withdrawal, compulsion), priority (for smoking), tolerance, stereotypy), and regularity of smoking behavior. The responses are rated on a Likert scale of 1 (not at all true) to 5 (extremely true). This scale shows good psychometric properties. It has a Cronbach's alpha of 0.86 suggesting good internal reliability.[39]

Wisconsin Inventory of Smoking Dependence Motives (WISDM)

The WISDM is yet another scale to assess multidimensional motivational drives for tobacco use. In its original version, there were 68 items loaded in 13 subscales while a later brief version has 37 items in 11 subscales.[40] The brief version is equally valid and reliable as the full version. Both versions have a Cronbach's alpha of more than 0.70.[41]

Cigarette Dependence Scale (CDS):

CDS is a self-administered 12-item scale that assesses some dimensions of tobacco dependence based on ICD-10 and DSM-IV-TR. It however does not measure tolerance. It has a high internal consistency (Cronbach's alpha > 0.84), high test-retest reliability (18-day interval, r > .77), and can be reliably used to identify the target population for smoking cessation and monitor the progress of treatment over time. A shorter 5-item version of CDS (CDS-5) is also available.[42]

Fagerstrom Test for Nicotine Dependence-Smokeless Tobacco (FTND-ST):

There is also a smokeless tobacco (SMT) version of FTND that has 6 items like the smoked version scale. Developed by Ebbert et al. (2006), this is a modification of FTND (mentioned above) to make it more appropriate to be used for those using smokeless tobacco (ST).[43] It is subjectively rated by SMT users, and a cumulative score provides a severity of dependence on SMT. While a score of more than 5 indicates significant dependence, any score less than 4 indicates low to moderate dependence.[43] The psychometric properties of this scale have been assessed based on its application on 42 ST users and is similar to the FTND for smoked tobacco users.

Table 7: Scales used for tobacco use disorders

Name of the tool	Number of items	Administration time	Psychometric properties	Indian vernacular translation available	Cut-offs	Scale URL	Copyrighted /public domain	Licensing fee
Fagerstrom Tolerance Questionnaire (FTQ).[33]	7-item self-rated tool for adolescents (14-20 years) 5-point Likert scoring.	Less than 5 minutes	It has a high internal consistency (Cronbach's alpha 0.75), and high test-retest reliability (r=0.71) when reapplied in a 2-month interval.[34] This tool also demonstrated an association with saliva cotinine levels in adolescents (r=0.40). [35]	-	A score of 0-2: no dependence, 3-5 indicates moderate dependence and 6-9 indicates substantial dependence.	https://cancercontrol.cancer.gov/sites/default/files/2020-06/mftq_questionnaire.pdf	Free to use	No
Fagerstrom Test for Nicotine Dependence (FTND).[36]	6-item self-rated scale.	Less than 5 minutes	The Cronbach's α coefficient ranged from 0.55 to 0.74, indicating moderate internal consistency. It	Yes (Hindi)	Total Score ranges from 0-10. A Score of 1-2, 3-4, 5-7, and >8 indicate low, low to moderate, moderate, and	https://www.aarc.org/wp-content/uploads/2014/08/Fagerstrom_test.pdf	Free to use	No

			has good test-retest reliability.		severe dependence respectively.			
Fagerstrom Test for Nicotine Dependence - Smokeless tobacco (FTND-ST).[43]	6-item self-rated scale.	Less than 5 minutes	Similar to FTND	Yes (Hindi)	A score>5 indicates significant dependence while < 4 indicates low to moderate dependence	https://ctimaine.org/wp-content/uploads/2019/11/Fagerstrom-Scale-for-Nicotine-Dependence-Smokeless-Tobacco.pdf	Free to use	No
Nicotine Dependence Syndrome Scale (NDSS).[39]	The 19-item scale measured 5 domains of smoked tobacco use: Drive, Priority, Tolerance, Stereotypy, and Regularity of	5-10 minutes	This scale shows good psychometric properties. It has a Cronbach's alpha of 0.86 suggesting good internal reliability	-		Not available. Advised to contact authors of the scale or authors of articles that used this scale.	Copyrighted	No

	smoking behavior.							
Wisconsin Inventory of Smoking Dependence Motives (WISDM).[40]	Original version: 68 items in 13 subscales. Brief version: 37 items in 11 subscales.	15-20 minutes	The scale has a Cronbach's alpha of 0.96 suggesting high internal consistency. It has a good correlation with smoking heaviness	Validated for use in the Indian population.	It gives total scores and subscale scores. There are no cut-offs.	https://ctri.wiscweb.wisc.edu/wp-content/uploads/sites/240/2017/06/Brief_WISDM_Questionnaire_and_Scoring-1.pdf	Copyrighted	No
Cigarette Dependence Scale (CDS).[42]	Original version: 12 items Brief version: 5 items	5-10 minutes	It has a high internal consistency (Cronbach's alpha > 0.84), high test-retest reliability (18-day interval, r > .77), and can be reliably used to identify the target population for smoking cessation	Validated for use in the Indian population.	-	https://cancercontrol.cancer.gov/sites/default/files/2020-06/cds12_questionnaire.pdf	To contact the author at email: (Jean-Francois.Etter@imsp.unige.ch)	To contact the author at email: (Jean-Francois.Etter@imsp.unige.ch)

Scales to assess tobacco craving:

Tobacco Craving Questionnaire (TCQ):

TCQ is a multidimensional tool to assess the craving for tobacco. It has 47 items that reliably assess tobacco craving in four dimensions: emotionality, expectancy, compulsivity, and purposefulness. Later, a 12-item brief version of TCQ (TCQ-Short Form) was also constructed for its easy applicability in clinical and research purposes. For testing the psychometric properties of TCQ-Short form, the scale was applied to 196 smokers after overnight tobacco deprivation and on a separate day of smoking when felt necessary by the smoker. This short form was found to be as reliable and valid as the original scale in measuring tobacco craving.[44]

Questionnaire of Smoking Urges (QSU):

This is a 32-item questionnaire that has been constructed based upon 4 clinically relevant constructs of craving: Desire to smoke, anticipation of positive outcomes from smoking, anticipation of relief from withdrawal symptoms or negative mood, and intention and planning to smoke.[45] A brief version of QSU having 10 items (QSU-brief) has been later developed that demonstrated a high internal consistency reliability and content validity and is based upon two distinct and intercorrelated factors (a) Intention and desire to smoke and anticipation of pleasure from smoking and (b) anticipation of relief from negative affect and withdrawal symptoms and an overwhelming desire to smoke.[46] This 10-item QSU brief has each item to be rated on a 7-point Likert scale by the patient himself and thus can be easily administered.

Table 8: Scales for tobacco craving

Name of the tool	Number of items	Administration time	Psychometric properties	Indian vernacular translation available	Cut-offs	Scale URL	Copyrighted/ public domain	Licensing fee
Tobacco Craving Questionnaire (TCQ).[44]	47 items. A A 12-item brief version of TCQ (TCQ-Short Form) is also available.	5-10 minutes	47-item TCQ has good internal consistency and validity.	Validated in Indian population.	-	-	Not known	Not known
Questionnaire of Smoking Urges (QSU).[45]	32-item. A 10-item brief version is also available.	5-10 minutes	The internal consistency for Factor 1 was estimated to 0.95 and for Factor 2 to 0.93, thus, acknowledging the QSU 32-items as a highly reliable scale	Validated in Indian population.	-	The authors of this tool can be contacted. Vide citation of the scale.	The authors of this tool can be contacted. Vide citation of the scale.	The authors of this tool can be contacted. Vide citation of the scale.

Scales for assessment of opioid use disorders:

Opioid Use Disorders (OUD) are a similar type of relapsing-remitting disorder to other types of SUD, that uses the brain hedonistic neurocircuitry for tolerance, withdrawal, and dependence. The public health burden of OUD is immense. Globally, while 0.5 million deaths are attributed to drug use, more than 70% of these are attributed to OUD, with more than 30% being attributable to opioid overdose.[47] The figure in India is not less worrying. The 'National Survey on Extent and Pattern of Substance Use in India 2019' by the Government of India reported that 2.1% (2.26 crores) of Indians use opioids that include opium, heroin (most used), and various form of pharmaceutical opioids.[48]

Assessment of OUD forms the primary step in formulating a management plan for those suffering from OUD. The tools which are used to gauge the extent of different clinical constructs of OUD are mentioned below.

Scales to assess opioid withdrawal

Clinical Opiate Withdrawal Scale (COWS):

COWS is a widely used clinician-rated tool to assess the severity and type of opioid withdrawal.[49] It has 11 items and can be reliably completed in 2 minutes. The total score obtained from the 11 items ranges from 0-47, and different score ranges can guide clinicians to assess the withdrawal severity and thus the level of physical dependence on opioids (scores from 5-12 are considered mild, 13-24 are considered moderate, scores from 25-36 are considered moderately severe and scores more than 36 are considered severe withdrawal). Such gradation of withdrawal severity can guide clinicians in planning treatment with buprenorphine in terms of dose and duration of treatment. COWS can also be administered over time to track the persistence or attenuation of withdrawal symptoms over time with treatment. Based upon its application on 46 subjects in opioid withdrawal, the COWS score has been found to have a significant correlation with other validated tools like the Clinical Institute Narcotic Assessment (CINA) scale and a Visual Analogue Scale (VAS) ($p<0.001$).[50] It also showed excellent internal consistency (Cronbach's alpha = 0.78). The scale is widely used worldwide and is also validated to be used in India.

Subjective Opiate Withdrawal Scale (SOWS):

This is a 16-item subjective rating scale rated on a 0–4-point Likert scale and is widely used globally as well as in India to assess opioid withdrawal severity from a patient's perspective. As with COWS, SOWS gives a composite score (0-64) to assess withdrawal severity and score ranges which grades the severity (a score of 1-10 indicates mild withdrawal, while a score of 11-20 and 21-64 indicates moderate and severe withdrawal respectively). It takes less than 10 minutes to complete and is thus easy to apply. It has excellent internal consistency and reliability. SOWS can also be used over time to track the change in withdrawal severity, thus providing clinicians with an easy estimate to plan management.[51]

Objective Opiate Withdrawal Scale (OOWS):

The Objective Opioid Withdrawal Scale contains 13 items with physical signs which are rated present or absent based upon clinician observation and assessment. It takes less than 5 minutes to apply and provides a score range from 0-13 based upon the severity of opioid withdrawal symptoms. As with COWS and SOWS, OOWS can also be administered before treatment initiation and while monitoring the progress of treatment over time. OOWS has high interrater reliability (individual items and whole scale) and good test-retest reliability within subjects .[51]This scale is validated to be used in the Indian population too.

Table 9: Scales for assessment of opioid withdrawal

Name of the tool	Number of items	Administration time	Psychometric properties	Indian vernacular translation available	Cut-offs	Scale URL	Copyrighted/ public domain	Licensing fee
Clinical Opiate Withdrawal Scale (COWS).[49]	11 items	2 minutes	COWS score has been found to have a significant correlation with other validated tools. It also has an excellent internal consistency (Cronbach's alpha = 0.78)	Validated in Indian population. Objective clinician-rated scale	Score range: 0-47 5-12: mild 13-24: Moderate 25-36 moderately severe >36 severe withdrawal	https://nida.nih.gov/sites/default/files/ClinicalOpiateWithdrawalScale.pdf	Public domain	Nil
Subjective Opiate Withdrawal Scale (SOWS).[51]	16 items	10 minutes	It has excellent internal consistency and reliability.	Validated in Indian population.	Score range: 0-64 Scores 1-10: mild withdrawal; 11-20: moderate; 21-64: severe withdrawal	https://www.asam.org/docs/default-source/education-docs/sows_8-28-2017.pdf	Public domain	Nil

Objective Opiate Withdrawal Scale (OOWS).[51]	3 items	5 minutes	OOWS has high interrater reliability (individual items and whole scale) and good test-retest reliability within subjects.	Validated in Indian population.	Score range: 0-13. No cut-offs. A higher score indicates more severe opioid withdrawal	https://www.smartcjs.org.uk/wp-content/uploads/2015/07/OOWS.pdf	Public domain	Nil

Scales to assess opioid craving

Opioid Craving Visual Analogue Scale (OC-VAS):

As with other forms of the Visual Analogue Scale, OC-VAS is a single-item tool to assess opioid craving severity on a straight line of 100 mm length. The score thus ranges from 0-100 mm, with a higher mark pointing towards a high degree of opioid craving. The psychometric properties of this VAS were supported by both the COWS and SOWS when applied to a sample of 487 patients with moderate to severe OUD inducted and dose-stabilized on sublingual buprenorphine. The test-retest reliability was established by weekly intraclass correlations >0.70. At the screening and end of the study, the strong positive correlations between OC-VAS and SOWS Total/Item 16 score and the significant OC-VAS differences among COWS severity groups supported construct validity and known groups (discriminating ability) validity, respectively. This supports its reliable use in predicting future opioid use by assessing the severity of opioid craving. [52]

Other tools to measure opioid craving and tools to assess neonatal withdrawal symptoms were discussed in the supplementary material.

Scales used for substance use among women and pregnancy:

Substance use during pregnancy is a major public health concern.[53] While alcohol and tobacco are the major substances used during pregnancy, the use of other substances is not uncommon. Substance use not only increases fetal complications but also affects pregnancy outcomes. Help-seeking might be less due to greater stigma.[54] Therefore, screening for substance use during pregnancy is important. Further, women using substances have a higher risk of family conflict and intimate partner violence.

Table 10: Scales for substance use and associated factors in women and pregnancy

Name of the tool	Number of items	Administration time	Psychometric properties	Indian Vernacular translation available	Cut-offs	Scale URL	Copyrighted/public domain	Licensing fee
TWEAK.[55]	5-items	<2 minutes	Sensitivity 68% and specificity 93%	-	3 or more	http://adai.uw.edu/instruments/pdf/TWEAK_252.pdf	Not copyrighted	Nil
T-ACE.[56]	4-items	5 minutes	Sensitivity=69% Specificity=89%	-	2 or more	http://pubs.niaaa.nih.gov/publications/arh28-2/78-79.htm	Copyrighted	Nil
Prenatal substance abuse screen	5-items	< 1 minute	Adequate internal consistency and is highly sensitive with good specificity	-	A positive response to any of the 4 items indicates a potential issue	https://oasas.ny.gov/system/files/documents/2019/09/4Ps.pdf	Copyrighted	Nil
STaT.[57]	3-items	< 1 minute	Not known	-	-	The authors of this tool can be contacted. Vide citation of the scale.	Copyrighted	The authors of this tool can be contacted. Vide citation of the scale.

Conflict tactics scale-2.[58]	78 items	10 minutes	Not known	-	-	Contact area: www.wpspublish.com/cts-conflict-tactics-scales	Copyrighted	The authors of this tool can be contacted. Vide citation of the scale.
Indian Family Violence and Control Scale (IFVCS).[59]	63 items				Not known	The authors of this tool can be contacted. Vide citation of the scale.	No information available	
TWEAK- Tolerance, worry about drinking, eye-opener, amnesia, cut-down, MAST- Michigan, Alcohol Screening Test, T-ACE- Tolerance Annoyed, Cut Down, Eye opener, STaT- Slapped, Threatened and punched Things.								

Scales for Benzodiazepine (BZD) use disorder

Patients with benzodiazepine dependence can have a variety of presentations, they include therapeutic dose dependence, prescribed high dose dependence, and recreational dependence.[60] Although guidelines suggest a prescription of BZD for less than 4 weeks, a proportion of patients use it beyond the dose and duration. Apart from this, recreational users are other profiles of patients. Therefore, screening and diagnosis of the severity of dependence is important (

). It is important to understand that BZD withdrawal can range from mild withdrawal symptoms to life-threatening delirium and seizures. CIWA-B is a scale to assess benzodiazepine withdrawal symptoms and is helpful in clinical management.

Table 11: Scales for the benzodiazepine use disorder

Name of the tool	No of items	Administration time	Psychometric properties	Indian Vernacular translation available	Cut-offs	Scale URL	Copyrighted /public domain	Licensing fee
Severity of Dependence scale.[61]	5-items	2-3 minutes	High test-retest correlations & good internal consistency.	No	4	http://adai.uw.edu/instruments/pdf/Severity_of_Dependence_Scale_397.pdf	Copyrighted by South London and Maudsley NHS Trust	Nil
Benzodiazepine Dependence Questionnaire (BDEPQ).[62]	30 items	-	High internal consistency (Cronbach's alpha-0.92) & high-test retest reliability	No	23	https://ndarc.med.unsw.edu.au/sites/default/files/ndarc/resources/T.R%20033.pdf	Copyright 19994 by Andrew Baillie	Nil
Benzodiazepine dependence self-report questionnaire (Bendep-SRQ).[63]	20 items	-	Scalability, reliability, and validity of scale are good	No	-	The authors of this tool can be contacted. Vide citation of the scale.	Authors of can be contacted. Vide citation of scale.	Authors can be contacted. Vide citation of scale.
Clinical Institute withdrawal assessment - Benzodiazepine (CIWA-B).[64]	22 items	-	Not known	No	1–20 = mild withdrawal, 21–40 =moderate withdrawal, 41–60 = severe withdrawal, 61–80 = very severe withdrawal	http://www.health.qld.gov.au/atod/documents/24904.pdf	Copyright	Nil

Scales used for assessment of behavioral addictions:

In the recent DSM-5 and ICD-11, there have been major changes in behavioral addictions. ICD-11 recognizes gaming disorder and gambling disorder under behavioral addictions. Assessment of behavioral addiction comprises clinical, diagnostic, and research-related assessment. Various assessment tools have been developed and modified over a period. Some of the scales have been validated in different languages. Some of the scales suffer false positivity rates, not being standardized to different age groups, gender, and ethnicity. Many of the self-reported scales have been criticized for social desirability bias and short-term recall bias.

Gambling disorder

Table 12: Scales used in gambling disorder

Name of the tool	Number of items	Administration time	Psychometric properties	Indian Vernacular translation	Cut-offs	Scale URL	Copyrighted /public domain	Licensing fee
Structured Clinical Interview for Pathological Gambling. [65]	11 items	15 minutes	Excellent inter-rater (kappa=1) & test-retest reliability, high sensitivity & specificity based on longitudinal assessment.	No	>5	The authors of this tool can be contacted. Vide citation of the scale.	Copyrighted	Authors can be contacted. Vide citation of the scale.
South Oaks Gambling Screen, adults .[66]	20 items	20 minutes	Cronbach's alpha = 0.97; Test-retest reliability (r= 0.7)	No	>5 suggestive of a problem gambler	http://www.stopgamblingnow.com /sogs_print.htm	Copyrighted	Free
Gambling Symptom Assessment Scale (G-SAS).[67]	12 items	< 5 minutes	Good internal consistency, Cronbach's α = 0.89	No	Score range 0 to 48: extreme = 41–48, severe = 31–40,	https://www.outcometracker.org/library/G-SAS.pdf	Copyright information is unavailable.	Free

					moderate = 21–30, mild= 8–20.			
Yale-Brown Obsessive Compulsive Scale adapted for Pathological Gambling (PG-YBOCS).[68]	10 items	-	High validity and reliability, Cronbach's a (a = .970)	No	Not known	The authors of this tool can be contacted: eholland@montefiore.org	Copyrighted	The authors of this tool can be contacted: eholland@montefiore.org

Internet Gaming Disorder (IGD)

Although there are similarities between gaming disorder with gambling, distinctions exist.[69] Therefore, after the inclusion of IGD in DSM-5 for further research, several scales were developed and tested. Some of the most used and validated scales are mentioned in **Error! Reference source not found.**.

Table 13: Scales for internet gaming disorder

Name of the tool	Number of items	Administration time	Psychometric properties	Indian Vernacular translation available	Cut-offs	Scale URL	Copyrighted/ public domain	Licensing fee
Gaming Addiction Scale (GAS-7).[70]	7-items	5 minutes	High reliability (Cronbach's alpha 0.81-0.84) and good concurrent validity, satisfactory	No	-	-	By Pfizer but available in the public domain	Nil
Internet Gaming Disorder Scale-9 Short form.[71]	9-items	5 minutes	Population cross validity – Cronbach alpha 0.81-0.87	No	Range -9-45 points. Higher scores indicative of a higher degree of Internet Gaming Disorder	The authors of this tool can be contacted. Vide citation of the scale	Copyrighted	The authors of this tool can be contacted. Vide citation of the scale
Internet Gaming Disorder tool (IGD-10).[72]	10-items	5-10 minutes	Cronbach's alpha of 0.68	No	Scored as 0/1 with total score 0-9; Cut-off – 5/9	The authors of this tool can be contacted. Vide citation of the scale	Copyrighted	The authors of this tool can be contacted. Vide citation of the scale
Lemmens Internet Gaming Disorder-9.[73]	9-Items	5-10 minutes	Cronbach's alpha 0.68-0.95	No	5	The authors of this tool can be contacted. Vide citation of the scale	Copyrighted	The authors of this tool can be contacted. Vide citation of the scale

Gaming Disorder and Hazardous Gaming Scale (GDHGS)	6-items	3 minutes	Cronbach's alpha 0.914	Developed in India	9 for the first four items and minimum scores for individual items	The authors of this tool can be contacted. Vide citation of the scale	Copyrighted	The authors of this tool can be contacted. Vide citation of the scale

Scales for assessment of Internet addiction and its associated problems:

Table 14: Scales for assessment of internet gaming disorder problematic internet use

Name of the tool	**Number of items**	**Administration time**	**Psychometric properties**	**Indian Vernacular translation available**	**Cut-offs**	**Scale URL**	**Copyrighted/public domain**	**Licensing fee**
Internet addiction diagnostic questionnaire	20 items	10-15 minutes	Test-retest reliability is between 0.73 and 0.88; Internal consistency (α) 0.63 – 0.95	No	Normal Internet Use-20-39 Frequent Internet Use-40-69 Significant Internet Use-70-100	To contact the author, vide citation of the scale.	Copyrighted	To contact the author, vide citation of the scale.
Compulsive Internet use scale.[74]	14 items 9-item form for adolescents and exists	-	High internal consistency (Cronbach'	No	Cut–off scores are 18, 21 and 37	To contact the author at email: meerkerk@ivo.nl	Copyrighted	To contact the author at email: meerkerk@ivo.nl

	in a 17-item form as well		s alpha 0.90) and good concurrent validity					
Chen internet addiction scale.[75]	26 items	3 minutes	Cronbach's alpha – 0.96	No	Total score-26 to 104, Cut off-64	https://www.seniainternational.org/wp-content/uploads/2017/02/Chen-Internet-Addiction-Scale.pdf	Copyrighted	Free
Generalized Problematic Internet Use Scale – 2 (GPIUS-2).[76]	15 items	-	Good internal consistency (Cronbach's alpha 0.91) and adequate construct validity	No	-	The authors of this tool can be contacted. Vide citation of the scale.	Copyrighted	The authors of this tool can be contacted. Vide citation of the scale.
Problematic Internet Use Questionnaire (PIUQ).[77]	18 items Short version-9 item	-	Test-retest reliability: r = .90, p < .0001 Cronbach's alpha – 0.87	No	15	The authors of this tool can be contacted. Vide citation of the scale.	Copyrighted	The authors of this tool can be contacted. Vide citation of the scale.
Internet-related problem	20 items	-	Cronbach's alpha = 0.88	No	20 items with a 10-point Likert scale	The authors of this tool can be contacted. Vide citation of the scale.	Copyrighted	The authors of this tool can be contacted. Vide citation of the scale.

scale (IRPS).[78]			Significant correlation with time spent online (r = 76)		No cut-off score seems to be available			
Online Cognition Scale (OCS).[79]	36 items	-	Test-retest reliability (r = .90) Internal Consistency alpha = 0.94	No	36 items on a 7-point Likert scale No cut-off score is available	http://bit.ly/NDSEC_OCS	Public domain	Nil

Scales for other substance use disorders

Scales for cannabis use disorders

According to the National Drug Use Survey, 2.8 percent of India's population use cannabis, out of which 0.66 percent are problem users and 0.25 percent are dependent users[80]. Cannabis can cause a variety of physical and psychological effects both acutely and in the long term.[81] An association between cannabis use and schizophrenia has been found that shows cannabis use increases the risk of schizophrenia.[82] Considering the harmful consequences associated with cannabis it is important to identify at-risk users so that the negative consequences could be prevented. This necessitates effective screening instruments so that early identification of these at-risk individuals with effective early intervention could help prevent cannabis related problems.

Cannabis Use Disorders Identification Test (CUDIT) is a ten-item scale that can identify individuals with problematic or harmful use of cannabis in the previous 6 months.[83] CUDIT was developed by modifying the items of the AUDIT.

Cannabis Use Disorders Identification Test-Revised (CUDIT-R) is an 8-item scale used for screening for problematic or harmful use of cannabis within the past 6 months.[84] First 7 questions are rated on a scale of 0-4 and the last item is rated as 0, 2, or 4. The score range is 0-32. It measures the frequency of cannabis use and the 4 domains assessed are consumption of cannabis, consequences due to cannabis use, cannabis use disorder symptoms, and psychological problems. A score of more than 8 is the cut-off score for the hazardous use of cannabis.

Table 15: Scales used for cannabis use disorder

Name of the tool	Number of items	Administration time	Psychometric properties	Indian Vernacular translation available	Cut-offs	Scale URL	Copyrighted/ public domain	Licensing fee
Cannabis Use Disorders Identification Test (CUDIT).[83]	10 items	2 minutes	Adequate reliability, with Cronbach's α of 0.84	No	Cut-off 8	https://adai.uw.edu/instruments/pdf/Cannabis_Use_Disorders_Identification_Test_59.pdf	Public domain	Nil
CUDIT-R.[84]	8 items	2 minutes	High internal consistency (α = .91%	No	> 8-Hazardous use >12-Cannabis Use Disorder	https://adai.uw.edu/instruments/pdf/Cannabis%20Use%20Disorders%20Identification%20Test%20Revised%2059.pdf	Public domain	Nil
Cannabis Abuse Screening Test (CAST).[85]	6 items	5 minutes	High internal consistency (Cronbach's alpha = 0.81)	No	Total scores ranging from 0 to 24 Cut off- ≥3.	To contact authors, vide citation of the scale	Not known	To contact authors, vide citation of the scale

Marijuana Screening Inventory.[86]	31 items	10 minutes	Sensitivity (0.83) and specificity (0.89)	No	Range 0-31 Cut off- 3-5 moderate risk >6 high risk	To contact the author at email: dalexander@uh.edu	Copyrighted	To contact the author at email: dalexander@uh.edu
Cannabis Use Problems Identification Test (CUPIT).[87]	16 items	5 minutes	Satisfactory temporal and internal consistency and construct, discriminative, diagnostic, and predictive validity.	No	Score range 0-84 12 cut-off for screening	https://grcounseling.com/wp-content/uploads/2016/08/cupit-marijuana.pdf	Copyrighted	Nil
Cannabis Problem Questionnaire.[88]	22 items	-	Test-retest correlations of between 0.92 and 1.00, are internally consistent.	-	-	https://drugsinmind.net/13.cannabis/_index.files/cannabis-problems-questionnaire.pdf	Copyrighted	Not known
Marijuana Problem Scale	19 items	-		-	To contact authors, vide citation of the scale	https://secretaddiction.org/wp-content/uploads/2021/07/Marijuana-Problem-Scale-The-CAARE-Program.pdf	Copyrighted	To contact authors, vide citation of the scale

Marijuana Smoking History Questionnaire	21 items	-	Reliability 0.9, sensitivity, 0.83; specificity 0.89	-	>6 high risk	To contact the author at email: mbonnmil@stanford.edu	Copyright information unavailable	To contact the author at email: mbonnmil@stanford.edu

Scales for stimulant use disorder

Although the latest surveys suggest a lesser overall prevalence of stimulant use in India, its use is disproportionately high in a few parts of India. Some commonly used scales for the assessment of amphetamines and cocaine are highlighted in

Name of the tool	**No of items**	**Administration Time**	**Psychometric properties**	**Indian Vernacular translation available**	**Cut-offs**	**Scale URL**	**Copyrighted /Public domain**	**Licensing fee**
Amphetamine Cessation Symptom Assessment.[89]	16 items	-	Satisfactory reliability, Cronbach's alpha 0.7	No	Score Range: 0-64 Higher score represents severe withdrawal symptoms	To contact the author at email: catherine.mcgregor@health.wa.gov.au	Information not available	To contact the author at email: catherine.mcgregor@health.wa.gov.au
Amphetamine withdrawal questionnaire.[90]	10 items	-	Cronbach's alpha of 0.77, and Spearman rank order correlation	No	Total Score range 0-40 A higher score represents	Not available. Advised to contact authors of the scale or authors of	Copyrighted	Not known

			coefficient for test–retest reliability: is 0.79.		severe withdrawal symptoms	articles that used this scale.		
Cocaine Selective Severity Assessment.[91]	18-items	<10 minutes	Acceptable levels of reliability & high internal consistency	No	Not known Maximum possible total score 112	http://adai.uw.edu/instruments/pdf/Cocaine_Selective_Severity_Assessment_73.pdf	Public domain	Nil
Cocaine Craving Questionnaire-Now.[92]	45 items	15 minutes	Excellent test-retest reliability & concurrent validity	No	-	To contact the author at email: stiffany@buffalo.edu	Copyright	To contact the author at email: stiffany@buffalo.edu

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Table 16: Scales for assessment of stimulant use disorder

Name of the tool	No of items	Administration Time	Psychometric properties	Indian Vernacular translation available	Cut-offs	Scale URL	Copyrighted /Public domain	Licensing fee
Amphetamine Cessation Symptom Assessment.[89]	16 items	-	Satisfactory reliability, Cronbach's alpha 0.7	No	Score Range: 0-64 Higher score represents severe withdrawal symptoms	To contact the author at email: catherine.mcgregor@health.wa.gov.au	Information not available	To contact the author at email: catherine.mcgregor@health.wa.gov.au
Amphetamine withdrawal questionnaire.[90]	10 items	-	Cronbach's alpha of 0.77, and Spearman rank order correlation coefficient for test–retest reliability: is 0.79.	No	Total Score range 0-40 A higher score represents severe withdrawal symptoms	Not available. Advised to contact authors of the scale or authors of articles that used this scale.	Copyrighted	Not known

Cocaine Selective Severity Assessment.[91]	18-items	<10 minutes	Acceptable levels of reliability & high internal consistency	No	Not known Maximum possible total score 112	http://adai.uw.edu/instruments/pdf/Cocaine_Selective_Severity_Assessment_73.pdf	Public domain	Nil
Cocaine Craving Questionnaire-Now.[92]	45 items	15 minutes	Excellent test-retest reliability & concurrent validity	No	-	To contact the author at email: stiffany@buffalo.edu	Copyright	To contact the author at email: stiffany@buffalo.edu

Scales for assessment of functioning

Substance use affects multiple domains of functioning. Various tools have been validated to measure consequences related to SUDs. Among them, the following are some of the commonly used tools.

Table 17: Scales for assessment of functioning among people with substance use disorders

Name of the tool	Number of items	Administration time	Psychometric properties	Indian Vernacular translation available	Cut-offs	Scale URL	Copyrighted /public domain	Licensing fee
Addiction Severity Index (ASI)-(McLellan et al).[93]	200 items in 7 subscales	50 minutes to 1 hour, Follow-up interview 15-20 minutes	High content validity of Hindi T-ASI (0.97) Cronbach's α = 0.72.	Yes	Complex scoring. Provides two scores.	https:// adai.uw.edu/instruments /pdf/Addiction_ Severity_Index_ Baseline_Followup_4.pdf	Public domain	Nil
WHO Quality of Life (WHO-QOL) Assessment.[94]	100 items WHOQOL-BREF 26 items	30-90 minutes	Cronbach's alpha 0.71-0.86 and high test-retest reliability	Yes Hindi, Kannada, Tamil	Produces a multi-dimensional profile of scores across six domains	https://www.who.int/tools/whoqol/whoqol-bref	Public domain	Nil
WHODAS 2.0.[95]	36 Items full version and 12 items short version	Self-administration - 5 minutes Interview10-20 minutes	Good reliability and item-response characteristics, Cronbach's alpha -0.98	Yes Hindi, Bengali, Tamil, Kannada, Malayalam	Score range 0 to 100 0 = No disability; 100 = full disability	https://novopsych.com.au/wp-content/uploads/2022/03/whodas-proxy-blank-form.pdf	Copyrighted	Nil
Inventory of drug use consequences (InDUC).[96]	50 items	-	Good to excellent test-retest reliability	No	-	The authors of this tool can be contacted. Vide citation of the scale.	Copyright information unavailable	
Global Assessment of Functioning (GAF)	100 points	20 minutes	Acceptable internal consistency	-	Score range 1-100.	https://ehhapp.org/uploads/Global-Assessment-	Copyrighted	Nil

			(Cronbach's alpha 0.98), satisfactory test-retest, and inter-rater reliability.		1- severely impaired, 100- extremely high functioning	of-Functioning-Scale.pdf		
Personal and Social Performance Scale (PSPS).[97]	100 items	5 minutes	Satisfactory internal consistency alpha = 0.76 and excellent inter-rater reliability.	No	Score 0-100 71–100- absence of disability or only mild difficulties 31–70 varying degrees of disability 1–30 Requires intensive support or supervision	The authors of this tool can be contacted Vide citation of the scale	Copyrighted	The authors of this tool can be contacted Vide citation of the scale

Motivation:

Motivation is an important domain of addiction treatment. Prochaska and Diclemente proposed a transtheoretical model of change which includes pre-contemplation, contemplation, preparation, action, maintenance, and relapse (stages of motivation). Motivational interviewing and motivational enhancement therapy use change in motivation as a principal component of therapy. Multiple scales are used to assess motivation before and after intervention, and during the process of intervention, some of which are listed below in

Name of the tool	No. of items	Administration time	Psychometric properties	Indian Vernacular translation available	Cut-offs	Scale URL	Copyrighted /public domain	Licensing fee
University of Rhode Island Change Assessment scale (URICA).[98]	32 items	5-10 minutes	Internal reliability 0.70.	No	No cut-off norms established	http://adai.uw.edu/instruments/pdf/University_of_Rhode_Island_Change_Assessment_258.pdf (ADAI)	Not copyrighted	Nil
Readiness to change questionnaire.[99]	12 items	1 minute	Satisfactory internal consistency and test-retest reliability	No	No cut-off norms established	http://www.ndarc.med.unsw.edu.au/sites/ndarc.cms.med.unsw.edu.au/files/ndarc/resources/TR.019.pdf	Copyrighted	Nil
Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES).[100]	19 items	3 minutes	Cronbach's alpha-Ambivalence-0.6-0.88, Recognition 0.85-.95, taking steps-0.83-0.93	No	Yields three factorially-derived scale scores. 3 scales are scored separately. Problem Recognition (7 items), Ambivalence (4 items), Taking Steps (8 items). No cut-off norms were established.	http://casaa.unm.edu/inst/socratesv8.pdf	Public domain	Nil

Table 18: Scales to assess motivation

Name of the tool	No. of items	Administration time	Psychometric properties	Indian Vernacular translation available	Cut-offs	Scale URL	Copyrighted /public domain	Licensing fee
University of Rhode Island Change Assessment scale (URICA).[98]	32 items	5-10 minutes	Internal reliability 0.70.	No	No cut-off norms established	http://adai.uw.edu/instruments/pdf/University_of_Rhode_Island_Change_Assessment_258.pdf (ADAI)	Not copyrighted	Nil
Readiness to change questionnaire.[99]	12 items	1 minute	Satisfactory internal consistency and test-retest reliability	No	No cut-off norms established	http://www.ndarc.med.unsw.edu.au/sites/ndarc.cms.med.unsw.edu.au/files/ndarc/resources/TR.019.pdf	Copyrighted	Nil
Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES).[100]	19 items	3 minutes	Cronbach's alpha-Ambivalence-0.6-0.88, Recognition 0.85-.95, taking steps-0.83-0.93	No	Yields three factorially-derived scale scores. 3 scales are scored separately. Problem Recognition (7 items), Ambivalence (4 items), Taking Steps (8 items). No cut-off norms were established.	http://casaa.unm.edu/inst/socratesv8.pdf	Public domain	Nil

Other scales:

In this section, we have mentioned scales that are common for all drugs and adolescent substance use. There is a wider variety of scales that are mentioned in the supplementary material. ASSIST is one of the commonly used tools in epidemiological surveys. The CRAFFT is a widely used screening tool for the adolescent population.

Table 19: Scales to assess adolescent substance use and scales that are not specific for any substance

Name of the tool	No. of items	Administration time	Psychometric properties	Indian Vernacular translation available	Cut-offs	Scale URL	Copyrighted/ public domain	Licensing fee
ASSIST.[101]	8 items	5 to 10 minutes	Good to excellent	Yes, Hindi	Low-risk score-0-10 for alcohol and 0-3 for other substances Moderate risk 11-26 for alcohol, 4-26 for other substances, high risk >27 for both alcohol and other substances	https://www.who.int/publications/i/item/9789241599938-2	Not copyrighted	Nil
Desire for drug questionnaire	13 items	-	Good reliability (Cronbach's alpha-0.84) and concurrent validity	No	-	The authors of this tool can be contacted: franken@fsw.eur.nl	Copyright information is not available.	The authors of this tool can be contacted: franken@fsw.eur.nl

(DDQ).[102]								
Obsessive Compulsive Drug Use Scale (OCDUS).[102]	12 items	5 to 10 minutes	Good internal consistency (0.84) and concurrent validity	No	-	The authors of this tool can be contacted. Vide citation of the scale.	Copyright information is not available.	The authors of this tool can be contacted. Vide citation of the scale.
CRAFFT (car, relax, alone, forget, friends, trouble).[103]	3 pre-screening questions, then 6-Yes/No questions	3 minutes	Good internal consistency.	Yes	2	The CRAFFT 2.1 Manual	Copyrighted	Free

Limitations:

In this review, we covered several tools with some salient points for each tool with the best of our expertise to sensitize the reader to a wider number of tools. Considering the number of tools covered it is next to impossible to cover up-to-date advances in terms of local validation, and language translation for each tool. Hence, we request the reader to refer to the appropriate references cited for further reading and usage.

Conclusion:

Assessment using a structured and validated tool helps both clinically and in scientific research. There are several scales validated for substance use disorders and behavioral addictions like those for other mental health conditions. However, only a proportionate number of tools are validated in the Indian context which can be reliably used in research and clinical practice. While the tools like AUDIT, ASSIST, and FTND have been tested and used in diverse populations, tools related to behavioral addictions are still emerging. This goes without saying that no tool can replace a well-planned clinical interview and assessment. But whenever possible, appropriate usage of such tools can enhance diagnostic precision, thus reciprocating better clinical care.

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Chapter 18

RATING SCALES FOR ASSESSMENT OF SEXUAL DYSFUNCTIONS

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Take Home Message:

- In India, sexual disorders and sexual responses are areas which are in need of extensive exploration for further studies to understand the various components of sexual dysfunction.
- Better results can be achieved through the creation of Indian-specific rating scales and their subsequent use in the assessment of sexual disorders among the country's population.

INTRODUCTION:

Sexual dysfunction may be the outcome of any breakdown in the complex bio-psychosocial process that comprises sexual functioning. Sexual dysfunction is widespread among the general population. Estimates indicate that 31% of men and 43% of women suffer from various sexual dysfunctions. The most prevalent sexual dysfunction among men is premature ejaculation. Some results indicated that hypoactive sexual desire disorder is more common than orgasmic and arousal disorders among women.[1] Sathyanarayana Rao T. S. et al. (2015) did an epidemiological study in South India and discovered that 21.15% of male subjects had one or more sexual problems. It was discovered that the prevalence of erectile dysfunction was 15.77%, male hypoactive sexual desire disorder (HSDD) was 2.56%, and premature ejaculation was 8.76%. 14% of female patients were diagnosed with female sexual problems. Female arousal dysfunction was shown to be prevalent in 6.65% of female subjects, female HSDD in 8.87% of female subjects, anorgasmia in 5.67% of female subjects, dyspareunia in 2.34% of female subjects and sexual aversion disorder in 0.37% of female subjects.[2]

Compared to other countries, sexual dysfunctions in India are the most underdiagnosed and under-evaluated in India. Choosing a rating scale is one of the most difficult tasks for aspiring research workers. This chapter focuses on the various rating scales available for assessing sexual

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dysfunction. In recent years, the number of scales assessing sexual dysfunction has grown. We focused on providing appropriate scales for assessing sexual dysfunction based on gender differences for easy understanding and application. This chapter also includes scales for sexual satisfaction, pornography use-related disorders, and several other clinically relevant domains of sexual dysfunction that might need assessment in a clinical setting, though they are not classified under the DSM-5 categories. The rating scales described here are only a subset of a much larger pool.

DSM 5 [3] classifies sexual disorders based on gender as follows:

Table 1: DSM 5 classification of sexual dysfunctions

Male	Female
Hypoactive sexual desire disorder	Sexual desire arousal disorder
Erectile disorder	Orgasmic disorder
Premature (early) ejaculation	Genito-pelvic pain /penetration disorders
Delayed ejaculation	Substance/medication-induced sexual dysfunction
Substance/medication-induced sexual dysfunction	
DHAT syndrome	

HYPOACTIVE SEXUAL DESIRE DISORDER (HSDD):

DSM 5 defines the above as “persistent/ reluctantly deficient/ absent sexual fantasies and desire for sexual activity that causes interpersonal difficulty or marked distress”.[3]

Decreased Sexual Desire Screener (DSDS):

It is a quick, validated, clinician-rated instrument consisting of four yes/no items. This instrument is used to identify generalized or acquired HSDD in adult females. If the subject replies "yes" to questions 1-4, she may qualify for a diagnosis of HSDD. However, she does not qualify if she answers "no" to any of questions 1-4. This instrument's sensitivity is 83.6% and its specificity is 87.8%. [4]

Hurlbert Index of Sexual Desire (HISD):

In 1992, Apt and Hurlbert developed HISD. It has 25 questions about sexual desire. Responses on the scoring system range from 0 (all the time) to 4 (never). Thirteen of the scale's items are scored in reverse. [5]

Sexual Desire Inventory-2 (SDI-2):

Spector, Carey, and Steinberg developed SDI-2 in 1996. This 14-item self-report measures sexual desire in the last month. This scale assesses sexual desire in a dyadic context. It has 14 items with distinct scoring for the dyadic items (1–8) and solitary items (9–11). It has good internal consistency ($r = 0.86$) and good reliability ($r = 0.96$). [6]

ERECTILE DISORDERS:
DSM 5 defines the above as a recurrent inability to achieve and maintain an adequate erection, and/or a noticeable decrease in erectile rigidity during partnered sexual activity. [3]

Erection Hardness Scale (EHS):
EHS is a self-reported, one-item tool that measures the hardness of an erection on a 5-point scale. This is a useful tool for figuring out how well a treatment works in clinical trials for making new drugs.[7]

International Index of Erectile Function Erectile Function Domain (IIEF-EF):
It is a shorter version of the International Index of Erectile Function (IIEF), consisting of only the initial five questions. This diagnostic instrument establishes both the presence and severity of erectile dysfunction (ED). Currently, all clinical trials for the development of novel ED treatments utilize the IIEF-EF domain. This scale's assessment is based on patients' recollections of the last four weeks of sexual activity. The highest score for the IIEF-EF domain is 30, and the severity of ED is categorized as severe (scores 1–10), moderate (scores 11–17), mild (scores 18–25), and without ED or normal function (scores 26–30).[8,9]

Psychological and Interpersonal Relationship Scales (PAIRS):
This is a self-reporting tool that is meant to measure the psychological and interpersonal aspects of ED and its treatment. It consists of 23 measures that assess sexual self-confidence, spontaneity, and time concerns. On the scale, internal consistency, test-retest reliability, and divergent and convergent validity all rank highly.[10] This scale is also available in a validated 15-item abbreviated form (SF-PAIRS). [11]

Self-Esteem And Relationship (SEAR):
The SEAR Questionnaire is a 14-item, self-reported tool with a 5-point Likert scale that looks at erections in the last 4 weeks. Two dimensions are graded: sexual relationships (8 items) and confidence (6 items). The confidence domain is broken further into self-esteem (4 items) and general relationships (2 items). Due to its outstanding psychometric qualities, the scale has good validity and reliability for measuring sexual relationships and self-esteem in ED patients.[12]

Erectile Dysfunction Inventory of Treatment Satisfaction (EDITS):
This scale assesses both the individual with ED and his spouse. It includes 11 elements for evaluating the individual and 4 for evaluating the spouse. It is a self-reported assessment of erectile function during the past four weeks. The reliability and validity of the EDITS scale are well-established, allowing it to assess satisfaction with ED treatment modalities and explore the influence of patient and spouse satisfaction on treatment continuance. [13]

EJACULATORY DISORDERS:
DSM 5 defines the above condition as persistent inability or difficulty to achieve ejaculation (orgasm) despite the presence of adequate desire, stimulation, and arousal.[3]

Premature Ejaculation Profile (PEP):
This is a brief four-item questionnaire that asks about the patient's subjective sense of control over ejaculation, Premature Ejaculation (PE) related distress, interpersonal problems, and sexual act satisfaction levels. A score is determined by averaging the four responses to each question on a 5-point Likert scale. It is a short scale that is easy to administer and evaluates the subjective aspect and clinically relevant component domains of the condition. The limitation of this tool is relying on a single question to represent a domain. The scale has good test-retest reliability and the validity of known groups. [14, 15]

Patient Outcome for Premature Ejaculation (POPE):
This is the most recent revision of the PEP. Also comprised of four items, it alters the language of the distress question while leaving the remaining three questions unchanged. [16]

Index of Premature Ejaculation (IPE): It has ten questions to find out how much control, satisfaction, and distress men with PE feel. It has three parts: control over ejaculation, sexual satisfaction, and distress about the condition. Unlike the single-item domains of the PEP scale, each of these three domains has a number of questions that help evaluate a wider part of the condition. It does well in terms of reliability between tests and internal consistency.[16]

Premature Ejaculation Diagnostic Tool (PEDT):
The DSM-IV-TR criteria for PE serve as the basis for this 5-item assessment. The PEDT works better as a screening tool than as an intervention efficacy measure. The construct is classified as having PE (8), having prospective PE (9-10), or having no PE (11). It takes very little time and effort from patients, yet yields reliable (Cronbach -0.77) and valid assessment of PE status for clinicians.[15, 17]

SUBSTANCE/MEDICATION-INDUCED SEXUAL DYSFUNCTION:

Antipsychotics and Sexual Functioning Questionnaire (ASFQ):
A clinician scores this seven-item (for men) or nine-item (for women) questionnaire to look for changes in desire, lubrication, and erection. It also talks about how orgasm, ejaculation, and menstruation problems have changed in people who have taken antipsychotic drugs in the past four to six weeks. The ASFQ can be used to measure both decline and recovery in sexual function.[18]

Psychotropic-Related Sexual Dysfunction Questionnaire (PRSexDQ):
Clinicians use this seven-point scale to figure out how well a person is functioning sexually after they start taking antipsychotic drugs. It's gender-neutral and measures how antipsychotic medicine affects sexual functioning in terms of libido, erection, lubrication in women, orgasm, ejaculation, and any other thing that might happen. This questionnaire's convergent validity and sensitivity for detecting shifts in sexual functioning are adequate.[19, 20]

SEXUAL ORIENTATION:

Lesbian, Gay, and Bisexual Identity Scale (LGBIS):
LGBIS was developed by Mohr and Kendra in 2011. It is a 27-item, seven-subscale, multidimensional construct that analyzes seven dimensions of lesbian, gay, and bisexual (LGB) identity. Excellent test-retest reliability and strong internal consistency are present.[21]

Multidimensional Scale of Sexuality (MSS):
This sexuality scale classifies different aspects of sexual orientation into several categories. It has a total of 45 items, broken down into five subscales, each of which has nine questions to answer. All of the categories have Cronbach's alpha values ranging from 0.63 to 0.87.[22]

Dual Sexual Orientation Scales (DSOS):
The DSOS uses two 100-point scales, each with ten items, to measure male and female attraction. The scales go from 0 (not attracted) to 100 (very attracted). These scales permit sexual attraction to be quantified rather than classified. Using a variety of sexual orientation characteristics, this scale differentiates between male and female attraction. The DSOS predicts the preference for partnerships, traditional sexual orientation, identity labels, and gendered or sex-typed behaviour in childhood. High levels of internal consistency and validity are present.[23]

SEXUAL ORGASM:
DSM 5 defines the above as, delayed, infrequent, or absent orgasm or markedly decreased intensity of orgasm after a normal sexual arousal phase on all or almost all occasions of sexual activity. Distress or interpersonal problems due to orgasmic dysfunction.[3]

Orgasm Rating Scale (ORS):
This multidimensional scale quantifies the psychological experience of orgasm in men and women. The 40-item ORS is a self-reported adjective-rating scale. A two-dimensional model of orgasm's psychological experience is reflected in two subscales that investigate sensory and cognitive-affective components. It discusses orgasmic experiences from solitary masturbation and partnered intercourse. The 40 descriptors take 5–10 minutes to rate. On a 0–5 scale, participants score each adjective's ability to describe their most recent orgasm. Internal consistency (Cronbach's coefficients of 0.88–0.92) and validity are high.[24]

Female Orgasm Scale (FOS):
The instrument looks at how often and how well women orgasm when they are sexually active with a partner, as well as how happy they are with the frequency and quality of their orgasms overall. The scale contains seven points. The frequency of orgasm during diverse sexual activities is measured using five items. The scale can be completed in two to five minutes. It has excellent internal consistency (Cronbach's = 0.84-0.86) and validity.[25]

SEXUAL SATISFACTION:

New Sexual Satisfaction Scale (NSSS):
The five-dimensional conceptual foundation of this measure is based on psychotherapy literature and sex counseling. Using a 5-point Likert scale, it evaluates sexual life during the preceding six

months based on 20 items. It consists of two subscales: the ego-centered subscale, which evaluates sexual satisfaction based on personal experiences and sensations, and the partner/sexual activity-centered subscale, which evaluates sexual satisfaction based on an individual's perception of the partner's sexual behaviours and reactions, as well as the diversity and/or frequency of sexual activities. Five minutes are required to finish the entire scale. The higher the score, the greater the respondents' sexual satisfaction. The scale's internal consistency has been reported to be good, with Cronbach's coefficients ranging from 0.94 to 0.96.[26, 27]

Index of Sexual Satisfaction (ISS):
This brief self-rating scale measures sexual dissatisfaction in couples. It takes five to seven minutes to complete 25 Likert-scaled items. Scores are 0–100. High values imply dissatisfaction. Cronbach's alpha is 0.92 and the validity coefficient is 0.76. [28]

SEXUAL QUALITY OF LIFE:

Sexual Life Quality Questionnaire (SLQQ):
The SLQQ was made to find out how ED affected the patient's and his partner's quality of life (QOL) and how well their treatment worked. It has 16 items, 10 of which pertain to sexual QOL, and a 6-item treatment satisfaction measure. Cronbach's alpha for the total QOL scale is 0.94.[30]

Quality of Sexual Life Questionnaire (QVS):
The QVS is a patient's subjective evaluation of how their ED affects their quality of life in a number of areas, such as their relationships, happiness, and sense of self-worth. The QVS has 27 questions. Eight of them are about sexual life, 13 are about social skills, six are about mental health, and one is a global index. The scores might be anywhere from 0 to 100 (poor quality of life to good quality of life). It has good validity and reliability, with internal consistency ratings for sexual life, skills, and psychosocial well-being items of 0.87, 0.91, and 0.78, respectively.[31]

VAGINISMUS:
The spasm-based diagnosis of vaginismus was dropped in DSM 5, and it was combined with dyspareunia, resulting in Genito-pelvic pain/penetration disorder (GPPPD).[3]

Multidimensional Vaginal Penetration Disorder Questionnaire (MVPDQ):
The MVPDQ is a 72-item self-report questionnaire containing 20 visual fear/contraction 10-point self-report items and an image of the genital/pelvic region, allowing participants to indicate where they experience pain during penetration attempts. On a four-point scale (ranging from 0 to 3), the higher the score, the greater the pain. Cronbach's alpha for the entire scale is 0.79, and test-retest scores range from 0.78 to 0.87, showing that MVPDQ subscales are stable over 2 weeks.[32]

Partner Version of Multidimensional Vaginal Penetration Disorder Questionnaire (PV-MVPDQ):
This is a 45-item self-report questionnaire. Most of the questions use a 5-point Likert scale, but the question about marital intimacy uses a 10-point Likert scale. This tool can be used to find out what the partners of women with vaginismus think about vaginal penetration and how it affects their sexual and marital relationships.[33]

Vaginal Penetration Cognition Questionnaire (VPCQ):
This 22-item self-reported questionnaire examines vaginal penetration cognitions in lifelong vaginismus or dyspareunia patients. A Likert scale evaluates each item (0 - not at all applicable to 6 - very strongly applicable). Five dimensions relate vaginal penetration cognitions. These five VPCQ subscales had strong test-retest correlations and reliability of 0.70–0.83.[34]

PORNOGRAPHY USE:

Cyber-Pornography Use Inventory (CPUI):
This self-reported 40-item scale is split into six subscales: a. compulsivity, b. sociability, c. isolation, d. interest, e. efforts, and f. guilt. Most of the questions are graded on a Likert scale that goes from never to always and from strongly disagreeing to strongly agreeing. This measure gives extra weight to the online sexual compulsivity subscale and the guilt subscale. For each factor, the scale is very reliable (> 0.80) and has some construct validity.[35]

Pornography Consumption Inventory (PCI):
The PCI consists of 15 items measured on a 5-point Likert scale (1 = never like me to 5 = very often like me). It is a tool designed to evaluate the many causes of pornographic use among hypersexual males. Four domains are evaluated: sexual curiosity, emotional avoidance, sexual pleasure, and thrill-seeking. It does not contain any information regarding pornographic viewing habits, nor does it assess the compulsive nature of the aforementioned activity. The entire scale's Cronbach's alpha (0.83) is highly confirmatory and has excellent internal consistency.[36]

Problematic Pornography Use Scale (PPUS):
The PPUS is a self-report 12-item scale that assesses four categories of online pornography use: a. excessive usage, b. control issues, c. internet pornography use for escape and/or avoidance of unpleasant feelings, and d. distress and functioning impairments. It has high internal consistency, convergent validity, and construct validity, with domain-specific Cronbach's alpha values ranging from 0.75 to 0.93.[37]

DHAT SYNDROME:
DSM 5 has removed the unique diagnostic designation previously accorded to 'Dhat syndrome' and now views it as a culturally influenced way of expressing distress.[3]

Dhat Syndrome Questionnaire (DSQ):
Dhat syndrome is a self-assessment questionnaire. It assesses personal beliefs about Dhat characteristics, Dhat passage experiencing situations, Dhat passage logic, symptoms, sequelae, and treatment-related and help-seeking beliefs. The average time to complete is 10 minutes. It is content-valid in eleven Indian languages.[38, 39]

Scale for Assessment of Female Dhat Syndrome (SAFED):
This is a variant of the DSQ test. In female patients with nonpathological vaginal discharge, it is used to assess their beliefs, accompanying symptoms, and other factors. Similar qualities to DSQ can be found in this.[40,41]

SCALES FOR ASSESSMENT OF MULTIPLE DOMAINS OF SEXUAL FUNCTIONING:

Arizona sexual experience scale:
This 5-item scale measures sexual functioning during the past week in five areas: a. sex drive; b. arousal; c. lubrication; d. orgasm; and e. satisfaction after orgasm. If the subject receives a total score of 19, a 5 on any item, or a 4 on three items, he is diagnosed with sexual dysfunction.[20, 42]

Sexual Functioning Questionnaire:
Sexual dysfunction in the previous month is evaluated using this clinician-rated scale. This instrument, consisting of 38 questions, evaluates sexual functioning in people who have had a mental illness. The validity and reliability of the scale are very good. The Cronbach's alpha for this scale is 0.852.[43, 44]

Female Sexual Functioning Index (FSFI)
This is a self-report measure of key aspects of women's sexual health. A total of 19 questions are used to evaluate desire, arousal, lubrication, orgasm, satisfaction, and pain as they pertain to sexual function. The validity and reliability of this instrument are both high.[45, 46]

PATIENT MONITORED SCALES:

Sexual Encounter Profile (SEP):
Patients maintain this record after each and every sexual encounter. Whether the penile erection lasted long enough to finish the act, whether it was powerful enough for vaginal penetration, and whether or not the experience was satisfying are all indicated. The precise effect and the onset time are both accurately measured by this scale. This method is time-consuming; hence it is typically reserved for laboratory settings rather than actual patient care.[47]

Intravaginal Ejaculation Latency Time (IELT):
This refers to the period that occurs between the start of vaginal intercourse and the onset of intravaginal ejaculation. It is a technique that uses a stopwatch and might be challenging for the majority of people. There are substantial discrepancies between prospective and retrospective measurements, with the latter being an unsatisfactory measurement method.[15, 48]

Table 2: Website URLs and description details for free to access scales

Name of the tool	No of items	Administration time	Psychometric properties	Indian vernacular translation available	Cut off	Scale URL	Copyrighted /public domain	Licensing /free	Dimension of assessment s
Decreased Sexual Desire Screener (DSDS)	4	5 min	Sensitivity-83.6% Specificity-87.8%	No	HSDD if response Yes to Q: 1 to 4 Yes to any factor in Q: 5	https://sa1s3.patientpop.com/assets/docs/169130.pdf	Available in the public domain.	Free	Sexual desire
Sexual Desire Inventory-2 (SDI-2)	14	5 min	Good internal consistency and test-retest reliability. Dyadic subscale (r=0.86) Solitary subscale (r=0.96)	No	Dyadic sexual desire score: add up items 1-8. Solitary sexual desire score: Add up items 9-11.	https://qxmd.com/calculate/calculator_727/sexual-desire-inventory-2-sdi-2	Available in the public domain.	Free	Sexual desire

International Index of Erectile Function Erectile Function Domain (IIEF-EF)	5	5 min	Self rated. Good internal consistency. Cronbach's (r=0.73)	Available in Hindi	Maximum score = 30. Severe= 1-10. Moderate = 11-17. Mild= 18-25. Normal = 26-30.	https://qxmd.com/calculate/calculator_377/international-index-of-erectile-function-iief-5	Available in the public domain.	Free	Erectile dysfunction
Erection hardness scale	1	1 min	Test-retest reliability = 0.76	No	Single item question to assess the firmness of erection	https://www.drlove.com.au/wp-content/uploads/2020/12/erection-hardness-score-new.pdf	Available in the public domain	Free	Erectile dysfunction
Premature Ejaculation Profile (PEP)	5	5 min	Good test-retest reliability.	No	5 point likert Scale. Score: means of scores of 4 items.	https://sa1s3.patientpop.com/assets/docs/83263.pdf	Available in the public domain.	Free	Premature ejaculation

Premature Ejaculation Diagnostic Tool (PEDT)	5	5 min	Self rated. Cronbach's r=0.77.	No	PE= 8. Potential PE=9-10. No PE = 11.	https://www.healthymale.org.au/files/inline-files/Premature%20Ejaculation%20Diagnostic%20Tool_Healthy%20Male%202019.pdf	Available in the public domain.	Free	Premature ejaculation
Psychotropic-Related Sexual Dysfunction Questionnaire	7	5-10 min	Clinician rated. Good internal reliability (Cronbach's r= 0.68)	No	Mild: 0-5 Moderate: 6-10 Severe: 11-15.	http://sexualidadysaludmental.com/imagenes/recursos/salsex_%20ingles.pdf	Available in the public domain.	Free	Drug induced sexual dysfunction
Lesbian, Gay, and Bisexual Identity Scale	27		Good Internal consistency and test-retest reliability. Cronbach's r=0.87	No	8 dimensions. 4 point Likert scale.	https://www.redalyc.org/pdf/172/17223141032.pdf	Available in the Public domain	Permission is needed from authors for commercial use.	Sexual interest

Orgasm Rating Scale	40	5-10 min	Self rating scale. Good internal consistency (Cronbach's r=0.88)	No	2 subscales Sensory dimension Cognitive affect dimensions. Likert scale 0-5.	https://scales.arabpsychology.com/s/orgasm-rating-scale/	Available in the public domain.	Free	Orgasm
Female Orgasm Scale	7	2-5 min	Good internal consistency (Cronbach's r=0.84)	No	Self rating scale. 2 subscales 1) frequency of orgasm 2)Orgasmic Satisfaction. Higher scores indicate greater orgasm consistency and satisfaction.	https://scales.arabpsychology.com/s/female-orgasm-scale/	Available in the public domain.	Free	Orgasm
New Sexual Satisfaction Scale	20	5 min	Good internal consistency (Cronbach's r= 0.94 to 0.96)	No	2 subscales. 5 point likert Scale. Greater the score more sexually satisfied the	https://scales.arabpsychology.com/s/the-new-sexual-satisfaction-scale-and-its-short-form/	Available in the public domain.	Free	Sexual satisfaction

					respondents are.				
Index of Sexual Satisfaction (ISS)	25	10 min	Good test-retest reliability. Cronbach's r=0.92	No	4 point likert Scale. high score indicates less satisfaction.	https://scales.arabpsychology.com/s/index-of-sexual-satisfaction-scale/	Available in the public domain.	Free	Sexual satisfaction
Pornography Consumption Inventory	15		Good internal consistency Cronbach's r= 0.83.	No	5 point Likert scale.	https://drrebeccajorgensen.com/wp-content/uploads/2014/03/PCI-15.pdf	Available in the public domain.	Permission is needed from authors for commercial use.	Pornography related disorder
Dhat Syndrome Questionnaire (DSQ):	18	15 to 20 min	Good Content validity.	Available in 10 Indian languages. Punjabi, Kannada, Bengali, Oriya, Gujarati, Marathi, Tamil and Telugu.	Self rating scale. Multiple scoring patterns (i.e., multiple choice questions, provision for answering in multiple choices, and	https://www.academia.edu/7994032/Dhat_syndrome_evaluation_questionnaire	Available in the public domain	Free for Non-Commercial use.	Dhat syndrome

					dichotomous “yes/no” answers) were considered depending on the issue under evaluation.				
Arizona sexual experience scale:(ASEX)	5	5 min	It has good convergent and discriminant validity along with internal consistency, test-retest reliability	Available in Hindi	Self/clinician rated. Total score 5-30 Score of >18 suggests sexual dysfunction.	https://www.mirecc.va.gov/visn22/Arizona_Sexual_Experiences_Scale.pdf 0	Available in the public domain	Free	Multiple domains of sexual dysfunction

CONCLUSION:

In recent years, not only has there been ongoing research on a variety of scales to evaluate sexual disorders, but also a wide range of review papers and textbook chapters have also been published.[49,50] This article contributes to the body of previous research that has been done in the field of Psychosexual Medicine. In order to facilitate better comprehension, gender-specific scales have been devised for the purpose of conducting assessments of various elements of sexual functioning. While diagnosing a patient, it is important to keep in mind that these scales are meant to be used in addition to obtaining the patient's medical history in great detail and performing a comprehensive physical examination. The use of scales in assessment not only helps us to describe the illness to the patient in a more understandable manner, but it also assists physicians in covering all of the primary domains of a condition, which is something that would otherwise be missed. They are also helpful in determining the efficacy of a particular intervention when performed in a sequential manner. In the near future, it will be necessary to make some adjustments to existing instruments and to develop scales that are more condensed, linguistically specific, and culturally sensitive.

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Chapter 19

Rating scales for quality of life and general functioning

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Take Home Message

- There are several scales to assess the QoL and General Functioning
- Indian language translations of several scales such as WHOQoL- BREF and WHOQoL100 are available
- Only a few scales have been validated properly in Indian settings. Psychometric properties of such scales are available
- Most of the QoL and General functioning scales have been already successfully used in an Indian setting for research purposes
- Most of the scales do not have prescribed cut-off
- Some of the scales focus on patient-level while others are excellent tools for research.
- Indian Mental health professionals, as a part of research, can attempt to translate, assess psychometric properties and develop normalized values for different settings.

INTRODUCTION

Since the dawn of the 21st century, medicine, and in particular, psychiatric disorder management has been shifting its focus away from symptom management to a more comprehensive strategy that takes into account all aspects of health and function.[1]

Quality of Life

The World Health Organization currently defines Quality of Life (QoL) "as an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns".[2] Mental health

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practitioners use the word "quality of life" in diverse situations and interpret it differently based on bio-psycho-social components. QoL is multi-dimensional and varies amongst observers, making its definition difficult. QoL is defined in multiple ways in the literature.[3] The first is a sum of all numerical quantifications of objectively observable life conditions (categorized into domains) that can be easily compared to the population. The second is to collectively measure a person's satisfaction in a defined period in unique and similar conditions. This approach differs from the first in that it relies on personal welfare and a person's subjective response to their circumstances rather than their quantitative ranking in a larger group. The third approach views QoL as a combination of objective life experiences and personal content with those circumstances, while others view it as a weighted combination of objective life circumstances and subjective life satisfaction.[3]

The degree of psychopathology is a good surrogate for well-being in mental health literature. Studies show that psychopathology severity affects QoL. Comorbid mental diseases lower QoL. Existing psychiatric literature has examined the relationship between several QoL dimensions and a variety of sociodemographic characteristics, such as age, gender, occupation, income, marital status, and educational level, but social constructs and their effects have produced conflicting results. In patients with common mental disorders, QoL closely correlates with severity, but they fail to explain how symptoms or sociodemographic factors affect QoL. Promoting the health and well-being of people with common mental disorders requires understanding how sociodemographic factors and mental illness symptoms affect QoL domains. It would help design home care, monitor prognosis, and achieve and maintain remission. QoL measurement is crucial in all parts of primary mental health care as mental disorders are now being diagnosed multidimensionally rather than multiaxially, as in the past.[3]

General Functioning

The best definition of functional status is “the degree to which an individual can perform socially allocated roles free of mentally (or physically) related limitations”.4 With the shifting to the Diagnostic and Statistical Manual of Mental Disorders-5 (DSM-5), mental disease concepts were radically restructured from multi-axial to multi-dimensionality. Changes include an adaptation of the disease-spectrum and due consideration of bio-psycho-social factors besides others. DSM-5 sought new ways to assess psychiatric illnesses' severity. The diagnosis was increasingly focused on the condition's symptoms and not the disability caused. Impairment in functioning was required to be quantified independently despite its importance to psychiatric disease severity. Symptom severity and impairment caused disability (the entire impact of symptoms on self-care and social and other daily activities) and discomfort. However, this was not believed to be a reliable indicator of mental health disorder severity. The measure of loss or compromised general functioning seems to be the most essential criterion for patients, carers, and society in varied clinical conditions.

Rating Scales for Quality of Life

In medical literature, QoL is related to health and well-being. A collated analysis of population-based studies using a systematic review format identified commonly used QoL assessment scales. In decreasing order of usage, World Health Organization Quality of Life Assessment (WHOQoL),

Medical Outcomes Study 36-Item Short Form (SF-36), and 12-Item Short-Form Health Survey (SF-12) were the commonly used scales.[5] However, several others have pointed out that SF-36 and WHOQoL-BREF measure different constructs. The SF-36 deals with health-related QoL, while the WHOQoL-BREF measures global QoL.[6] This loosely translates that SF-36 and WHOQoL-BREF are reliable instruments for clinical and research uses respectively.[7] It comes with a warning that clinicians and researchers should be careful in framing their research questions related to patient-reported outcomes before selecting which instrument to use.

The commonly used scale for measuring the QoL are as follows

- The World Health Organization Quality of Life (WHOQoL)
- Short Form Health Questionnaires – with 36/12/8 question versions (SF-36/ SF-12/SF-8)
- LEIPAD Questionnaire
- Control, Autonomy, Self-realization and Pleasure Scale (CASP) 19 & 16 question version
- Quality of Life Questionnaire (QLQ)
- Linear Analogue Self-Assessment (LASA)
- Spitzer's Quality of Life Index (QL Index)
- Individualized measures of quality of life
- Schedule for the Evaluation of Individual Quality of Life (SEIQoL)
- Patient-Generated Index (PGI)
- Assessment of Quality of Life (AQoL-4D),
- Euro Quality of Life Scales (EQ-5D, EQ-Visual Analogue Scale)
- CDC's Health-related quality of life Questionnaires (HRQoL–14 Healthy Days measures; HRQoL-4 Healthy Days core questions)
- Patient-Reported Outcomes Measurement Information System - Global Health Scale (PROMIS)

World Health Organization Quality of Life (WHOQoL) Questionnaire

WHOQoL is the most popular scale worldwide and in India. A qualified interviewer administered the 100-question original. Later, WHOQoL-BREF, a 26-question self-administered version, was created and validated. New Delhi and Chennai (formerly Madras) were Indian centres that validated the BREF questionnaire. [4,8]

The WHOQoL-100 consists of four broad categories of QoL (Physical, psychological, social relationships, and immediate environment perception) that capture 24 aspects of quality of life (each with four items), four general items (which measure general health and subjective overall QoL), totally making 100 questions. The WHOQoL-BREF includes one item from each of the 24 aspects of the WHOQoL-100, as well as two items for general health and overall quality of life. Each item in either scale is scored on a five-point scale. Both scales are captured in a 2-week chrono-environment. [4,8]

There are separate manuals for scoring the WHOQoL-100. [**Table-1]** The scale generates scores for – 1) the key domains; 2) scores for QoL; 3) overall QoL; 4) for general health. While WHOQoL-BREF generates only domain scores of - physical, psychological, social interactions, and environmental scores. As there is a mix of positive and negative questions, the raw scores are

transformed to produce a final score. WHOQoL-BREF scores create a profile on a person's overall perception of QoL and health using two items with individual scores and four domain scores (Physical/Psychological/ Social/environment). Higher scores indicate a higher QoL life, with the four domain scores scaled in a positive direction. Before scoring, three BREF pieces must be turned around, as they are negative questions and scored inversely.[4,8] Finally the domain-level score needs to be collected and a transformed score needs to be computed. For this, the following formula should be used.

$$\text{Transformed score} = \left[\frac{Actual\ Raw\ Score - lowest\ possible\ raw\ score}{Possible\ score\ range}\right] * 100$$

The final score obtained is continuous. It is computed by taking into account all of the domains. The BREF version scores 100, indicating the highest QoL. The WHOQoL-BREF and WHOQoL100 don't include baseline scores to indicate QoL improvement. A gender/age cut-off point would help define QoL and health satisfaction more accurately. In Brazil, a WHOQoL-BREF cut-off score of 60 exhibited great sensitivity and negative predictive value for identifying older persons with probable worse QoL and health dissatisfaction. The diverse Indian population needs comparable cut-off criteria.[9] Similar Chinese and Dutch studies have been conducted to reveal cut-off points in similar areas.[10, 11] In addition, the Dutch study assessed the domain-level score as a marker of mortality.[11]

Over the last 20 years, WHOQoL instruments have been evaluated in various situations and populations. They have strong discriminant and content validity. The WHOQoL-100's four domain scores and the WHOQoL-domain BREF's scores corresponded strongly, according to the literature (0.89). In multi-geographic cross-sectional research, the shorter instrument exhibited strong discriminant, content, internal consistency, and test-retest reliability. Relevant national organizations (see WHO website: http://www.who.int) or the WHOQoL Group at the WHO in Geneva can provide the manual, the appropriate language version of the instrument, scoring instructions, and syntax files for their calculation, approval for use, and other information about the instruments. On the website currently, the WHOQoL BREF instrument is available in South Indian languages of Kannada, Malayalam, and Tamil besides other Indian languages. There is the Hindi translation of WHOQoL100 available.

The challenges in the process of translation and validation in the Indian setting have been vividly described.[12] The validity and reliability assessment of the WHOQoL-BREF was attempted in 2002, immediately after the questionnaire was published.[13,14] These studies showed a high degree of validity and reliability. Later several studies established the validity of the same in Indian and other South Asian settings.[15-18]

The WHOQoL-100 is long, requires trained personnel, and lengthy appointments for administration. However, its versatility and adaptability across cultures, and the relevant facet information that it provides make it worthwhile. The BREF version also provides equivalent insight and has been successfully demonstrated in Indian settings, but has been globally accepted to have relatively weaker psychometric properties as compared to its lengthier version.

Development of cut-off points in various Indian settings would add value and Indian researchers may address these lacunae.

Short Form Health Questionnaires – with 36/12/8 questions

The Short Form Questionnaire series is a product of the Rand Corporation, USA. Initially used for their Health Insurance Study Experiment/Medical Outcomes Study (HIS/MOS). The SF-36 as the name indicates has 36 items that can be self-administered. The goal of the corporation was to develop a concise, generic measure of subjective health status with sound psychometrics and global application. They started with 20 questions that were later increased to 36. There is a free version provided by the Rand Corporation while a copyrighted version exists with quality metrics. The short form called SF-12 and 8 were developed but are not widely used and are governed by copyright by the same institute. [**Table-1]** Authors/clinicians using the same need to be careful about the same.[19]

The free version of SF-36 has 36 questions covering 3 critical aspects – Mental health, Physical health, and one item about perceptions of health changes over the past 12 months. They are arranged in 9 dimensions: -

1. Items on physical functioning (10 questions)
2. Items on social functioning (2 questions)
3. Items on role limitations due to physical problems (4 questions)
4. Items on role limitations due to emotional problems (3 questions)
5. Items about mental health (5 questions)
6. Items related to energy/vitality (4 questions)
7. Items related to pain (2 questions)
8. Items exploring general health perception (5 questions), and
9. One Item about health changes in the past 1 year.

These questions can be administered in the past one-week or 4-week chrono-dimension. Each of the 36 questions is scored on different scales. Some questions are given on point scales of 2 or 3 or 5 or 6. Transformation of scores and domain computations need to be performed. The free version of SF-36 has been validated in the Indian setting. The internal consistency as measured by Cronbach $\alpha \leq 0.70$ reflects that it met the requirements of internal consistency and item homogeneity. Tests of known group comparison successfully distinguished between the groups despite differences in sociodemographic and clinical characteristics. The manuscript further indicated that arrived higher order factor structure was comparable to that in other national-level studies. The two variables (mental vs physical) accounted for 68-97% of the reliable variance for each scale and 63.42% of the total variance of the SF-36 scale scores.[17] Indian language translations, including South Indian ones, have been successfully used in the past in several settings.[20-24]

The Mental Health subset scale (MCS) of SF-36 [**Table-1]** is also useful in screening for psychiatric disorders. A cut-off score of 42 for MCS had a sensitivity of 74% and a specificity of 81% in detecting patients diagnosed with depressive disorder.[25] A similar range of cut-offs has been widely described in the literature in different settings.[26,27] To the best of our knowledge, no cut-off has been described in the Indian context.

Table-1: Sample, language and cut-off of selected Indian Studies using the Quality of Life Questionnaire

Name of the tool	No of items	Administration time	Psychometric properties	Indian vernacular translation available	Cut-offs	Scale URL	Copyrighted/ public domain	Licensing fee
World Health Organization Quality of Life – Brief Version	26	10 to 15 minutes	Internal consistency (Cronbach's a=0.87; p-value<0.01) as well as good content, construct and predictive validity (p-values<0.05)	Hindi, Malayalam, Assamese, Bangla, Gujarati, Kannada, Marathi, Odia, Tamil, Urdu	Nil	https://www.who.int/tools/whoqol/whoqol-bref	Freely available	Nil
World Health Organization Quality of Life – 100	100	40 to 90 minutes	Comparative fit indices were achieved when the data from the original pilot, field trial and new centres(CFI=0.906,0.903and0.87 respectively	Hindi	NA	https://www.who.int/tools/whoqol/whoqol-100	Freely available	Nil
Short-form Health Questionnaires	36	15 to 25 minutes	Reliability (Cronbach's alpha greater than 0.85, reliability coefficient greater than 0.75 for all dimensions except social functioning)	Hindi, Tamil, Telugu, Malayalam, Kannada (With authors)	NA	https://www.rand.org/health-care/surveys_tools/mos/36-item-short-form/survey-instrument.html	Conditions at https://www.rand.org/health-care/surveys_tools/mos/36-item-short-form/terms.html.	Nil
LEIPAD	49	25 to 40 minutes	None in Indian Context	Marathi, Hindi (With authors)	NA	https://scales.arabpsychology.com/s/leipad-questionnaire/	Freely available	Nil

Rating scales for General Functioning

The rate of the severity of psychiatric disorders has been taken into account from the DSM-III era. The Global Assessment of Functioning (GAF) scale, which is a summary indicator of how well patients are coping with their disease, was introduced in DSM-III.[28] It is a general, multi-dimensional tool that measures how much a patient suffers across a number of categories and it is not a diagnosis-specific scale. [**Table-2]** The final GAF score, however, is reduced to a single number that reflects severity rather than the preservation or loss of GAF domains. It is calculated on a scale of 0 (mental sickness) to 100(ideal mental health). This technique-sensitive scale comes with a unique set of restrictions. The most significant of these is that it combines functional impairment and symptom severity, as well as risk to oneself or others, into a single global assessment score, which reduces the construct validity of the GAF. This also renders it difficult to use this scale as a repeat measure in longitudinal studies or clinical follow-up situations.[29] The GAF may be carried out by a clinical interview with the subject or members of their family, an examination of their medical records, or any other record (legal or court, etc) that provides information on their past behaviour.

In the Indian setting, the GAF scale has been used widely. The Hindi version has been used successfully. In addition, Kannada and Malayalam version has been validated besides its global validity.[30-35] It is reported that different studies show inter-rater reliability to be highly variable but with reliability. On a cautionary note, it was noted that it had lower reliability in routine clinical practice than in research.[36] As this is a continuum, there are no specific cut-off values prescribed and no prominent studies have indicated the same. One study conducted in Kerala, India in Malayalam has used the cut-off as <40 poor functioning; 41-60 moderate functioning; 61-80 good functioning; 81-100 superior functioning arbitrarily.[32]

The Kennedy Axis V system, commonly known as K-Axis, was created as an alternative to the GAF scale. Since it is copyrighted, use of it would require authorization. Similar to GAF, this also condensed scores into a single format, but it also generated seven subscales that would retain a number of critical markers of the client's symptoms and functionality.[37] Most of the GAF questions have been retained and assigned to 7-domains. These are the "1) Psychological Impairment, 2) Social Skills, 3) Violence, 4) Activities of Daily Living (ADL)–Occupational Skills, 5) Substance Abuse, 6) Medical Impairment, and 7) Ancillary Impairment"[37]

For scoring, as in the GAF format, a 10-point scale is provided for each of the 7 domains. In addition, for 4 domains, additional information is sought.[37] They are psychological Impairment (Not Impaired/ Antisocially Impaired/Other Impairment/ Both); Violence (Nonviolent/ Violent to Self/ Violent to Others/ Violent to Self and Others) and Substance Abuse (Non-abuser/Alcohol Abuser/ Drug Abuser/Both). From these scales, GAF equivalence and dangerousness level are arrived at. The Psychological Impairment and Violence subscales speak on the psychiatric symptoms and the Social Skills and ADL–Occupational Skills subscales report on the level of functioning. Adding these first four subscales and dividing them by 4 generates the GAF Equivalent Score. This has been validated earlier. The Dangerousness level is a degree of assessment of how dangerous a subject pose to self or others. The K-axis manual points out that for every domain, dangerousness is a part of each of the subscales and the most dangerousness level is awarded to the subject.[37] To the best of our knowledge, there are no studies done in India

using this scale. Hence a cautious approach is to be undertaken while using this study in an Indian clinical/research setting.

A newer scale called the Social and Occupational Functioning Assessment Scale (SOFAS) was created about the same period (early 1990s) of GAF to adjust for the limitations of GAF. This scale focused on a subject's level of social and occupational functioning rather than their overall severity of psychological disorders. The SOFAS scale is fairly similar to the scoring of GAF. The SOFAS assessment [**Table-2]** also considers any impairment in social and occupational functioning brought on by underlying medical conditions, in contrast to the GAF Scale. If there exist trustworthy data, SOFAS can be used to evaluate performance for a certain period of time in the past (at the time of the evaluation) too. Nevertheless, caution should be taken to rule out any adverse effects of the environment, lack of opportunity, and other extraneous factors that can replicate or skew the outcome.[38] SOFAS has been successfully used in Indian studies but to the best of our knowledge, its validity, reliability, and cut-off values have not been described in Indian literature while it is done in the Western population.[39-43] An attempt was also made to correlate a similar scale with disorder severity in a limited setting.[44]

In India, the functioning assessment was studied as early as the mid-1970s in Chandigarh. A PGI disability scale was developed and its validity was confirmed.[45] Later several scales were developed including the Schedule for Assessment of Psychiatric Disability (SAPD) and last was the Indian Disability Evaluation and Assessment Scale (IDEAS).[46, 47] The latter was developed by a special task force of the Indian Psychiatric Society (IPS).[47]

The IDEAS [**Table-2]** assesses impairment in four domains (also known as items in the scale), including self-care, interpersonal activities, communication and understanding, and job. Each item is graded on a scale of 0–5, meaning no (Score-0) to substantial disability (Score: 4). Questions specifically connected to each area of functioning are provided for each item to make it easier to rate them, and each score has a description. The ratings on each item are added up to get the overall disability score. The "total disability score" and the Duration of Sickness (DOI) score (<2 years= +1; 2 to 5 years:+2; 6 to 10 years: +3; >10 years+4) which has been operationalized for various duration of illness categories. The sum of the “Total disability score” and DOI are added to create the global disability score. The cut-off for the global disability score has also been provided. A global disability score of 0 indicates "no disability (0%)" a score of 1 to 6 denotes "Mild disability (≤40%)" a score of 7 to 13 implies "moderate disability (40 to 70%)," a score of 14 to 19 suggests "severe disability (71%-99%)," and a score of 20 reflects "profound disability (100%)."[47]

Later Government of India (GoI) suggested a few changes in the IDEAS before adapting this for its operational definitive tool for estimating the extent of mental illness. GoI extended IDEAS for all "mental illnesses" as defined under the Persons with Disability Act. The IPS imposed a minimum 2-year time period of illness for applying IDEAS with definitions and accommodating episodic diseases. The GoI did not prefer to enforce a time limit for the same. As this scale has acquired legal status, it is being used to assess the disability and limitations posed by mental illness.[48,49] IDEAS has been successfully tested and its validity by various groups across India, including by the formulating ones.[47, 49-53]

In the interim, with the introduction of DSM-5 & removal of Axis-V, more emphasis was placed on the multi-dimensional aspect of the disorder and the total effect of the disorder on the patient. The DSM-5 task force recommended using the World Health Organization Disability Assessment Schedule 2.0 (WHODAS 2.0) instead of the GAF. The WHODAS 2.0 scale per se, does not imply the origin of impairments, is independent of diagnostic considerations, and can represent any medical disease, psychiatric condition, or comorbid condition. Thus all health disorders, including diseases, illnesses, injuries, psychological or emotional issues, and issues with alcohol or drugs are intended to be covered by WHODAS2.0.[54] Like many psychiatric rating scales, it is a patient self-report assessment instrument. [**Table-2]** It estimates a score for overall disability based on the patient's ability to execute tasks in six domains of functioning over the last 30 days. The domains are- 1. Communication and comprehension; 2. Moving about (mobility); 3. Self-care; 4. Moving with other people & relationships (social and interpersonal skills); 5. Life activities (functioning at home, in school, and at work); and 6. Participation in society (involvement in social, familial, and neighbourhood events). These domains were resonant from the International Classification of Functioning, Disability, and Health.[8] To enhance the versatility a longer 36-item and a shorter 12-item WHODAS 2.0 questionnaires are available. For universal applicability, they are offered in self-administered, proxy-administered (a third party, such as a relative or caregiver), and rater-administered formats.

There are 2 ways to score the WHODAS 2.0- simple and difficult. Simple scoring requires no translation to a scale or weighting of items. The DSM-5 recommends this simple scoring method for busy clinical settings or paper-and-pencil interviews. This grading method lacks normative or comparative values. The sophisticated scoring approach requires a computer tool available on the WHO website and is based on the item-response theory. This grading methodology underpins WHODAS 2.0 normative values. The benefits outweigh the drawbacks.[55] The manual above establishes validity, reliability, and population normalcy, including from an Indian centre. The WHODAS 2.0 raw item scores can represent the respondent patients' function problems on an ordinal scale. From "no difficulty" to "mild," "moderate," "severe," to "intense." Every level is harder. Like the summary score, WHODAS 2.0 item scores have two uses: On a dichotomous (yes/no) scale, the response scales for "mild," "moderate," "severe," and "extreme" are combined into a single positive coding, indicating that the respondent has difficulty in a particular domain of functioning. On a polytomous (multiple-level) scale, the severity levels remain "mild," "moderate," and "severe." Due to information, item-level comparisons at the individual level require multiple-level scoring. Larger groups can employ dichotomous scoring. Item scores can report domain difficulty frequencies. In numerous settings, WHODAS 2.0 has been employed in Hindi, Tamil, Telugu, and Malayalam.[56-60] They have not questioned or proposed any cut-off specific to the Indian population as original WHODAS 2.0 has no such entity. The equivalence study of WHODAS 2.0 and IDEAS has been done in the Indian setting. Because IDEAS pays weightage to DOI. The discrepancy between the 2 entities has been highlighted, and the same needs to be accounted for, in case, where there are borderline scores that could affect the disability status. Hence while using the IDEAS or WHODAS 2.0, care should be exercised.[53] Quite recently, in a rural setting, with the removal of the DOI effect in IDEAS, a cut-off score for disability was established as 24 on the WHODAS 2.0 scale.[61]

Noteworthy Indian scale includes the Social Occupational Functioning Scale (SOFS) [**Table-2]** proposed and validated by a team from NIMHANS, India. It is a 14-point observer rating scale and can be used by anyone familiar with the patient and ratings based on the patient's behaviour in the past 1-month. Psychometric properties in Table-2.[62]

The Index of Independence in Activities of Daily Living is another lesser-known scale but is commonly used clinically. Katz created the scale to describe the functional status of elderly and chronically unwell people. A therapist or observer rates the scale based on observation and interviews. For each activity, the observer scores the patient's independence on a three-point scale. The scale assesses independence in washing, dressing, using the restroom, getting up from a chair, continence, and feeding. The Townsend Disability Scale, Karnofsky Performance Index, Barthel Index, London Handicap Scale, Quality of Well-Being Scale, Crichton Royal Behaviour Rating Scale, Clifton Assessment Procedures for the Elderly, University of California, San Diego, and Performance-Based Skills Assessment (UPSA), Occupational Functioning Scale (OFS), Mental Illness Research, Education, and Clinical Centre (MIRECC) GAF Social and Occupational Functioning Scales [The MIRECC GAF rates occupational, social, and psychological functioning separately]. It gives 100–0 scores like the GAF and Specific Level of Functioning Scale (SLOF) [a multidimensional behavioural rating scale developed in the early 1980s to assess daily living abilities and immediately visible functioning]. It has 43 behavioural items on a 5-point Likert scale, six subscales, and one "other" item for uncovered functioning. 1. Physical functioning (e.g., eyesight, hearing); 2. Personal care skills (eating, personal cleanliness); 3. Interpersonal relationships (interacts with others); 4. Social acceptability (follows social standards); 5. Activities of communal life (home chores); and 6. Work skills (completes assigned tasks). Lower scores (43–215) imply higher functioning. The SLOF's self- and third-party evaluation scales include a question about the reporter's subject familiarity, ranging from 1 to 5. This chapter does not include the context, reliability, validity, or application of these scales, but the reference does.[16,63]

As a part of the Skills Assessment and Objective Planning (SAOP), a set of tools for mental health professionals, Morosini P-L et al, in 2000 developed the Personal and Social Performance scale (PSP). PSP is a 100-point single-item rating scale, subdivided into 10 scores of each. The evaluation is based on four key factors: (a) work and study related factors that are beneficial; (b) personal and social interactions; (c) self-care and (d) unsettling and hostile actions. The degrees of behaviour and other areas of functioning need to be adjusted for accurately pointing the score. The validity and reliability have been well established but not in Indian settings.[64]

Table-2: Sample, language and cut-off of selected Indian Studies using General Functioning Questionnaire

Name of the tool	Number of items	Administration time	Psychometric properties	Indian vernacular translation available	Cut-offs	Scale URL	Copyrighted/public domain	Licensing fee
Global Assessment of Functioning	10 sections	30 to 60 minutes depending on the source – in-person or records	Reliability shows intra/inter observer variability; Validity highly subjective	Hindi, Malayalam (With authors)	Nil	Nil	In DSM IV TR	Nil
Social and Occupational Functioning Assessment Scale (SOFAS)	10 sections	30 to 60 minutes depending on the source – in-person or records	Reliability shows intra/inter observer variability; Validity highly subjective	Tamil (With authors)	Nil	Nil	Not copyrighted	Nil
Indian Disability Evaluation and Assessment Scale (IDEAS)	4 Item scale	15 minutes	Scores on all four items correlated significantly with each other and the total and global scores. The inter-item correlations varied from 0.385 to 0.599. The Cronbach's alpha which is a measure of internal consistency was 0.721 (4 items)	Several Indian Languages – With authors and Government websites	Global disability score of •0 (i.e. 0%) - 'no disability' •1 to 6 (<40%) - 'mild disability' •7-13 (40 - 70%) - moderate disability •14-19 (71-99%) - severe disability •20 (100%) - profound disability.	Nil	Not copyrighted	Nil

World Health Organization Disability Assessment Schedule 2.0	36 item; 12 item	10 to 25 minutes	Test–retest reliability had an intra-class coefficient of 0.69–0.89 at item level; 0.93–0.96 at domain level; and 0.98 at overall level. Face validity 64%; Concurrent validity = 0.45 to 0.65	With individual authors	NA	https://www.who.int/standards/classifications/international-classification-of-functioning-disability-and-health/who-disability-assessment-schedule	Not copyrighted	Nil
Social Occupational Functioning Scale	14 item scale	Not mentioned	For the schizophrenic population, the coefficient alpha was 0.91 for the total scale. Test–retest reliability for the total	With individual authors	NA	With authors	Not copyrighted	Contact authors

			SOFS score by the intraclass coefficient was 0.95 and for individual items, it ranged from 0.73 to 0.96. With SOFAS, it had concurrent validity. The SOFS total score was significantly negatively correlated with the SOFAS score ($r = 0.70$, $P<0.001$) reflecting its impact on social functioning. Criterion validity was significant with PANSS positive symptom score ($r = 0.39$, $P<0.001$) and negative symptom score ($r = 0.70$, $P<0.001$) but did not correlate well with the mini-mental state examination					

Future Directions from Authors' Perspective

Given its diversity and culture, Indian QoL and functioning are distinctive. Due to their strong cultural ethos, Indians view QoL and "normal functioning" differently. Spirituality also matters.[65] Given the complexities, the simplest way to clinically analyse and approach the situation, especially when using scales, is to plot the QoL or function-related scales against the disorder-related scales, with one serving as the "X" axis and the other as the "Y" axis, intersecting at their respective centres. Scores determine four outcomes. The patient can have severe disease and not be able to function well—probably needs pharmacotherapy and hospitalisation; mental disorder but doing well—needs to be closely followed up due to the pure nature of the disorder; less disease but not functional—needs a complete history and introspection; or less disease and fully functional—needs periodic follow-up. This basic chart helps generate significant assumptions about the patient, carer, paperwork, treatment goals, treatment plan, and most importantly, patient-caregiver involvement in clinical decision-making.

For scale selection for a clinical or research situation, Indian psychiatrist has to look for the appropriate questionnaire that best suits their need. He/She has several Indian and non-Indian tools in their armamentarium. If the tool/scale/questionnaire does not have reliability and normalization parameters for Indians, they need to be developed.

Conclusion

Quantifying or qualitatively measuring function and QoL is a practical, straightforward technique to forecast a patient's real-life function. The tests mentioned in the chapter can assess QoL and function. Data collection methods and computation vary by requirement and situation. Clinicians must weigh the pros and downsides of each battery of tests when assessing a patient's QoL and functions. The commonly used tests such as WHO QoL BREF, SF-8, GAF, IDEAS and WHODAS2 are ideal and clinically relevant tools. The clinician may choose or develop a tool to suit the need. But they should ensure that the tool is reliable and validated for Indian situations. Ideally speaking the non-availability of validation and reliability of several QoL and General Function assessment tools for the Indian population could serve as a research topic for the newer generation.

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Chapter 20

RATING SCALES FOR ADVERSE EFFECTS OF PSYCHOTROPIC MEDICATION

Seshadri Sekhar Chatterjee [1]*, Amrita Chakraborti [2]

Take Home Message

- Scales evaluate physical, cognitive, and emotional adverse effects.
- They ensure consistent identification of medication-related side effects.
- Vital for early detection, personalized interventions, and informed decisions.
- Equips stakeholders to navigate complex adverse effect assessments.
- Enhances patient safety and psychopharmacological care.
- Chapter gives concise overview of SAS, Pittsburgh Scale, ASEX, AIMS.

"To measure is to know"

- Lord Kelvin

INTRODUCTION:

Psychotropic medications rank among the most extensively prescribed drugs worldwide, exerting a substantial impact on both morbidity and quality of life. However, as the saying goes, "every rose has its thorn." Many patients experience adverse effects during therapy, which can significantly impact their quality of life and even lead to early termination of treatment. A balanced approach, guided by ethical principles and evidence-based practice, is therefore essential for maintaining good medical practice in this field.

Clinicians often view psychotropic side effects as inevitable, undesirable, and bothersome. The majority of individuals undergoing psychiatric drug treatment encounter one or more side effects. Adverse effects stand as the primary reason for non-adherence to medication across all psychiatric disorders, representing the most frequent cause of discontinuation during the initial phases of treatment. Despite this, approaches for monitoring drug side effects are notably less established compared to methodologies used to assess pharmaceutical effectiveness. Additionally, only a limited number of clinical trials have utilized rating scales, and perhaps only a few have evaluated the intensity and lasting nature of these side effects.[1]

Setting the context:

In conventional medical care, rating scales play an essential role in detection, diagnosis, and prognosis. They can be assessed either by patients or clinicians. Clinician-rated scales for side effects tend to be time-intensive, requiring 30 to 60 minutes to complete, which makes them

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impractical even for use in clinical trials. This article briefly describes some of the relevant rating scales for measuring medication side effects. This discussion will elaborate on a few commonly used scales in different psychotropics classes. In this article, we briefly describe some of the relevant rating scales for measuring medication side effects. In this discussion we will elaborate on a few commonly used scales on different psychotropics classes. According to WebMD, there are five main types of psychotropic medications broadly categorized as: antidepressants, anti-anxiety medications, stimulants, antipsychotics, and mood stabilizers.[2] We will follow the above classification as we write this draft.

Antipsychotic related rating scales:

Antipsychotic side effects can be rated using a variety of rating scales, a few of which rate multiple or multi-domain side effects while others just rate specific effects, including extrapyramidal symptoms or sexual function.

Around fifty percent of those with schizophrenia have one or more adverse effects.[3] Side effects, such as extrapyramidal symptoms, drowsiness, weight gain, and sexual problems, have been assessed using rating scales. [4] Nevertheless, these scales usually measure a particular side effect, such as parkinsonism (or sexual functioning). They are frequently used for medications other than antipsychotics, like the drug-induced parkinsonism rating scales. [5,6] One scale can provide a better insight into the side effects than several separate scales (e.g., less time-consuming). However, there are few studies evaluating multiple side effects with one scale. Van Strien et al. [7] included 14 rating scales for multi-domain adverse effects, 29 for extrapyramidal side effects, 7 for sexual problems, and three for various single-domain side effects in their systematic review (Table 1).

Among the comprehensive list, some essential and most relevant scales are discussed in detail below.

Table 1: Comprehensive list of common scales assessing ADR

Common side effects	**Antidepressant related and Sexual side effect**
1. UKU Side Effect Rating Scale (UKU) (for Clinicians and patients) 2. Liverpool University Neuroleptic Side Effect Rating Scale (LUNSERS) 3. Matson Evaluation of Drug Side Effects (MEDS) 4. Association for Methodology and Documentation in Psychiatry psychotropic side effect rating scale (AMDP-5) 5. Antipsychotic Non-Neurological Side Effects (ANNSERS) 6. Distress Scale for Adverse Symptoms	1. Antidepressant Side-Effect Checklist (ASEC) 2. Toronto Side Effects Scale **Sexual adverse effect** 1. Arizona Sexual Experience Scale (ASEX) 2. Psychotropic Related Sexual Dysfunction Questionnaire (PRSexDQ) 3. International Index of Erectile Function Erectile Function Domain (IIEF-EF)

7. Subjective Side Effect Scale
8. Global Index of Safety (GIS)
9. Glasgow Antipsychotic Side Effect Scale (GASS)
10. Subjects' Response to Antipsychotics (SRA)
11. Systematic Monitoring of Adverse Events Related to Treatments (SMARTS)

Extrapyramidal side effects

1. Simpson-Angus Scale (SAS)
2. Abnormal Involuntary Movements Scale (AIMS)
3. Barnes Akathisia Rating Scale (BARS)
4. Extrapyramidal Symptom Rating Scale (ESRS)
5. Unified Parkinson's Disease Rating Scale
6. Drug Induced Extrapyramidal Symptoms Scale (DIEPSS)
7. Hillside Akathisia Scale
8. Rockland Simpson Dyskinesia Scale
9. St. Hans Rating Scale for extrapyramidal syndromes
10. Abnormal Kinetic Effects Scale (TAKE)
11. Dyskinesia Identification System Condensed User Scale (DISCUS)
12. Australian Survey of Chan for Parkinsonism
13. Columbia University Rating Scale
14. Cornell University Rating Scale for Parkinsonism
15. Tardive Dyskinesia Rating Scale
16. Schedule for the Assessment of Drug-Induced Movement Disorders (SADIMOD)

4. Derogatis Interview for Sexual Function (DISF-SR)
5. Sexual Function Questionnaire (SFQ)
6. Changes in Sexual Function Questionnaire-14
7. Antipsychotics and Sexual functioning Questionnaire (ASFQ)
8. Nagoya Sexual Function Questionnaire (NSFQ)

Pediatric Adverse effect to psychotropic

1. Systematic Monitoring of Adverse events Related to Treatments (SMARTS)
2. Systematic Assessment for Treatment of Emergent Events (SAFTEE SI)
3. Safety Monitoring Uniform Report Form (SMURF)
4. Columbia-Classification Algorithm for Suicide Assessment
5. Barkley Side Effect Rating Scale (SERS)
6. Pittsburgh Side Effect Rating Scale

Other single side effects

1. Epworth Sleepiness Scale (ESS)
2. International Restless Legs Scale (IRLS)
3. Food Craving Inventory
4. Hunter Serotonin Toxicity Criteria
5. NMS rating scale
6. Lithium Side Effects Rating Scale (LiSERS)

17.Akathisia Ratings of Movement Scale (ARMS) 18.Maryland Psychiatric Research Center scale (MPRC scale) 19.Tardive Dyskinesia Videotape Rating Technique 20.Yale Extrapyramidal Symptom Scale (YESS)	

UKU Side Effect Rating Scale (UKU) (for Clinicians and patients)

The UKU-SERS included three aspects in its 1986 version; a single symptom rating scale, a global assessment of the influence of side effects on daily function, and a long-term treatment outcome. The 48 items are classified as psychiatric, neurological, autonomic, and other. For every item, the assessor determines if the symptom can be witnessed, whether the symptom is present, and how intense it has been over the past three days (except for weight gain or weight loss, which are assessed during the past month). The intensity and existence of the symptoms are graded on a scale of 0 to 3. [8]

Liverpool University Neuroleptic Side Effect Rating Scale (LUNSERS)

This self-rated scale is mostly modelled on the physician-rated UKU scale, which takes 60 minutes of administration time. There are 41 items, concentrating on psychological, neurological, autonomic, hormonal, and other adverse effects. In addition, 10 'red herring' items illustrate the authenticity of the patient's self-report, i.e., symptoms unrelated to antipsychotic adverse effects. On a five-point scale, items are scored from 0 to 4. The adverse effects vary from 0 to 164, with greater values suggesting more significant adverse effects. The test's validity and reliability were evaluated on 50 patients with an average age of 46 years and 16 years of antipsychotic use.[8,9]

Barnes Akathisia Rating Scale (BARS)

The BARS scale rates akathisia according to four factors: clinical examination (rated 0 to 3); subjective reporting of restlessness awareness; (patient rating of distress due to restlessness (rated 0 to 3), and a global clinical assessment of akathisia. The global clinical assessment includes five clinically meaningful severity levels. Depending on duplicate assessments of 42 chronic in-patients, observation (0.74), awareness (0.83), distress (0.90), and global clinical assessment (0.96) demonstrated the highest inter-rater reliability. Actometry examines just real movement, whereas BARS also assesses the patient's awareness and distress, which may explain why there is only a small correlation between the two measurements.[10]

Abnormal Involuntary Movement Scale (AIMS)

The 12-item AIMS scale is suitable for physicians or investigators to examine dyskinesias. Four of the first seven items are about face and vocal movements, two about extremity movements, and one about trunk movements. Additional elements include two items related to dentition, and global evaluations (global severity, incapacitation, and patient awareness). Apart from the following categories pertaining to dentition: none, normal, minimum, mild, moderate, or severe, all items are graded on a 5-point scale. It is one of the most extensively used scales in its category. [11] In Indian

contexts, Gharabawi et al., [12] used logistic regression to assess relationships between individual-related and overall severity ratings from the AIMS and Extrapyramidal Symptom Rating Scale (ESRS).

Simpson–Angus Scale (SAS)

A SAS test was developed for identifying Parkinsonism caused by neuroleptics in the 1960s. Ten items are included in the scale: one measures gait, six measure rigidity, and three measure glabellar tap, tremor, and salivation. Using a 5-point scale, each item is scored from 2 (absolutely absent) to 4 (extremely absent), with a total score derived by summing the scores and dividing by 10 (the number of items). Normal scores were considered to be up to 0.3. Recently, it has been proposed that the normal should be raised to 0.65. There was an 87 percent correlation coefficient between the scores of two physicians in a trial of haloperidol containing 14 participants. Participants treated with haloperidol scored significantly higher than placebo in this trial, confirming the SAS' discriminant validity.[13]

Further comments:

The UKU and the LUNSERS are used to assess multi-domain side effects the most frequently. The SAS, AIMS, and BARS evaluate extrapyramidal side effects. The Glasgow Antipsychotic Side Effect Scale (GASS), the UKU-SERS-Pat, the LUNSERS, and the UKUSERS-Clin all had acceptable validity and moderate to good reliability (Cronbach's> 0.70) in terms of the multi-domain side effect scales. The internal consistency of the UKU-SERS-Clin was 0.49–0.91.

The UKU-SERS-Clin was used the most to evaluate multi-domain side effects, whereas the LUNSERS has the highest psychometric characteristics (Cronbach's α 0.81 and test–retest reliability 0.89). SAS is the most commonly used method to assess extrapyramidal side effects, but the Maryland Psychiatric Research Center scale (MPRC scale) has the highest reliability characteristics (Cronbach's 0.80, test-retest reliability 0.92, and inter-rater reliability 0.81–0.90). ASEX and ASFQ were much more effective in assessing sexual dysfunction than the Nagoya Sexual Functioning Questionnaire.

The AIMS, BARS, and SAS scales are used in the majority of clinical trials for schizophrenia, while the UKU-SERS is missing several essential components, such as metabolic parameters. [14] The authors also commented that scoring multi-domain scales is challenging. The SAS, St. Hans Rating Scale for Extrapyramidal Syndromes, and Drug-Induced Extrapyramidal Symptoms Scale (DIEPSS) appear to be the most reliable, valid, and user-friendly scales for use in clinical settings, according to Knol et al. SAS, BARS, and AIMS were the most common tools to evaluate extrapyramidal symptoms. The psychometric properties of SAS, St. Hans Rating Scale, and DIEPSS were superior. [5]

The best scales to utilize in clinical settings are those that are quick and simple to use. Patients may choose to complete a scale as one option. Because physician ratings are more objective, they may be more suited for tracking antipsychotic side effects in research. Although the literature was explored for pertinent rating scales, it should be emphasized that it might not necessarily represent clinical practice. A scale's real use in clinical settings cannot be ascertained only by published research.

Clozapine related

Glasgow Antipsychotic Side-effects Scale for Clozapine (GASS-C)
The GASS-C questionnaire is a self-rating tool created to evaluate clozapine's potentially adverse reactions. There are four options for each question, ranging from never to every day. All item scores, which vary from 0 to 48, are summed to determine the total GASS-C scores. It takes around five minutes to complete the questionnaire. Both the frequency of adverse effects and the distress are ranked. The intra-rater reliability of GASS is 0.72. [15]

NMS rating scale
Neuroleptic malignant syndrome (NMS) is an uncommon but serious neuroleptic medication adverse effect. Malignant catatonia and other NMS-like syndromes may be assessed using the NMS scale. It consists of oral temperature, EPS, autonomic instability, altered consciousness, catatonic features, and laboratory testing. The maximum score is 36. Validity and interrater reliability are acceptable (Spearman's index = 0.67, P 0.05). For the total score, the intraclass correlation coefficient was 0.84. All coefficients were greater than 0.7 (range 0.72–0.93). [16]

Antidepressant related rating scales

Background

A significant number of individuals suffer from depression each year, which is a chronic disorder. Long-term therapy is required to relieve the symptoms of depression. Antidepressants have been demonstrated to help treat depression but are frequently discontinued. When a person continues to take the medicine, the unfavourable effects appear to diminish.[17] An UK-based RCT was conducted over 600 populations investigating the association between adverse effects of antidepressant treatment with its discontinuation using the modified version of the Toronto Side Effects Scale [18], and it assessed 14 physical symptoms. Nevertheless, the questionnaire's psychometric properties have not been validated in the research population, and it was challenging to differentiate between depressive symptoms from antidepressant-induced side effects.

Antidepressants-induced sexual dysfunction

During the past several years, emphasis on sexual dysfunction brought on by psychopharmacological therapy has escalated. Most of this research concentrates on sexual dysfunction brought on by antidepressant medication since severe depression is the most prevalent mental illness in the general population.[19] Certain sexual response cycle stages that might be related to sexual issues are influenced by SSRIs.[20] The most often reported sexual dysfunction in the literature is delayed ejaculation; other frequently reported concerns include delayed orgasm, diminished or absent sexual desire, and diminished or absent sexual excitation (erectile dysfunction and inadequate vaginal lubrication). The main measures used to evaluate sexual dysfunction are shown in Table 2. However, a few of them deserves special mention.

- *Arizona Sexual Experience Scale (ASEX)* is by far the most widely used, has good psychometric properties, and has been translated and validated in many Indian languages, including Hindi.[21]

- The *Sexual Functional Questionnaire (SFQ)*, developed primarily to assess sexual functioning in individuals suffering from severe mental disorders (SMI), was additionally validated in India, demonstrating acceptable reliability and validity.[20,22]
- *International Index of Erectile Dysfunction (IIEF)* is designed for male subjects, translated into Malayalam, and used in the Indian population.[23]
- *Sexual Function Questionnaire (SFQ)* is designed to assess sexual dysfunction, specifically in females. The original scale is a 34-item scale, whereas a newer 28-item version has been used and validated.[24]

UKU Side Effect Rating Scale, Nagoya Sexual Function Questionnaire (NSFQ), and Psychotropic-Related Sexual Dysfunction Questionnaire (PRSexDQ) are scales that are particularly designed for assessing psychotropic medication-induced sexual dysfunction. [25]

Studies using different rating scales revealed varying rates of sexual dysfunction. Some rating scales, such as the Change in Sexual Functioning Questionnaire (CSFQ), seem more sensitive than others. Moreover, utilizing direct inquiries rather than specialized questionnaires to examine patients diminishes the likelihood of detecting drug-induced sexual problems appropriately. According to a recent study conducted on 79 clinical trials, a significant difference was observed between drug-induced sexual dysfunctions in studies published since 2000 (48.6%) and those published before 2000 (which decreased to 18%). [26]

Serotonin syndrome

A potentially fatal condition linked to elevated serotonergic activity in the central nervous system is serotonin syndrome, also known as serotonin toxicity. It has been observed that inadvertent drug interactions and deliberate self-poisoning can occur with therapeutic medication. However, there is no specific scale regarding this. Hunter's criteria can be used to diagnose serotonin syndrome. It includes the presence of serotonergic medication plus symptoms or signs of - Spontaneous, inducible, or ocular clonus, agitation, diaphoresis, tremor, hyperreflexia, and hyperthermia.[27]

CHILD PSYCHIATRY RELATED RATING SCALES

With the rising rate of Paediatric psychotropic prescription rates, the need for careful monitoring of drug safety in this population becomes a matter of clinical importance. Children and adolescents are more likely to experience nausea and activation when prescribed antidepressants. Among the paediatric population, the use of antipsychotics has been associated with increased sedation, weight gain, prolactin elevation, and withdrawal dyskinesia. In contrast, mood stabilizers and lamotrigine have been associated with weight gain and dermatologic side effects.[28,29]In 2003, a letter from GlaxoSmithKline alerted doctors to a potential relationship between the SSRI, paroxetine and a rise in paediatric suicide risk. The US FDA found this linkage by compiling post-marketing information from several unreported trials. 30 The FDA now requires all antidepressant and anticonvulsant trials to assess suicidality.[31]

Barkley Side Effect Rating Scale (SERS)is an example of a caretaker evaluation meant for teachers or caretakers of children using psychostimulants. It asks responses on 17 items on a 9-point Likert scale, covering physical AEs (reduced appetite, sleep disturbances, headaches, and stomach pains) and behavioural problems (e.g., irritability, anxiety). [32]

Pittsburg Side Effect Rating Scale. A carer or teacher completes the 13-item checklist, and a physician should review it. There are four levels of severity for AEs on this checklist: none, mild, moderate, and severe. [33]

Systematic Monitoring of Adverse Events Related to Treatments (SMARTS) is a clinician-administered drug-class-specific checklist. It is a 12-item checklist that addresses general physical side effects associated with antipsychotics.[4]

Systematic Assessment for Treatment of Emergent Events: SAFTEE-SI deserves mention, while not a paediatric scale, since it served as the model for an AE scale for children. It usually takes 30 to 45 minutes to finish and thoroughly covers 29 bodily systems. The physician can assign five severity levels and gather data on the onset, course, duration, attribution of cause, and course of action. [34]

Safety Monitoring Uniform Report Form: Adapted from the SAFTEE, the SMURF is an AE-elicitation tool for paediatrics. The SMURF contains a general inquiry and body system review (BSR). AEs unique to 26 body systems are explicitly asked in the body system inquiry section.

Paediatric AE elicitation, however, lacks an accepted gold standard. As demonstrated during the assessment of suicidal AEs in the TORDIA (Treatment of SSRI Resistant Depression in Adolescents) study, switching from a general inquiry prompt to a systematic elicitation method increases the number of adverse events reported. At the beginning of the study, 184 subjects spontaneously reported suicidality; midway through the study, another 153 subjects were assessed for suicidality systematically. In general inquiry, fewer suicidal AEs (8.8 vs. 20.9%) and non-suicidal AEs (2.2 vs. 17.6%) were detected compared to systematic monitoring. [35]

ADHD

Pittsburgh Side-Effects Rating Scale: A standardized scale for assessing stimulant side effects is the PSERS, employed in trials on medication therapy for ADHD in children. The PSERS measures 13 possible adverse effects for existence (tics, tongue movements, skin picking, anxiety, tiredness, headache, stomach ache, irritability, tearfulness, loss of appetite, nausea, tremors, difficulty sleeping) and severity (mild, moderate, severe) [33]

MOOD STABILIZERS RELATED RATING SCALE

Lithium is the mainstay of treatment in bipolar disorder; however, it is known for causing a wide range of toxicity symptoms and needs monitoring for toxicity. In the **Lithium Side Effects Rating Scale (LISERS),** the severity of the common side effects of lithium is rated on a four-point scale and summed. Which measures 30 symptoms ranging from metallic taste, slurring of speech to muscle weakness, confusion, and psoriasis. [36]

DIFFERENT PARADIGMS OF ADR MONITORING:

In order to assess and prevent the patient burden due to ADR, essential scales from the domain of causality, severity, and preventability that deserve special mention are as follows.

ADR Causality assessment tools in practice

The key to identifying adverse effects is causal attribution. Assessing the likelihood that the adverse event can be attributed to the medication is essential. An adverse event can be causally linked to a particular treatment through a causality assessment. It evaluates the link between pharmacological therapy and an adverse outcome. It is an essential part of pharmacovigilance, assisting with better estimates of the risk-benefit profiles of drugs. [37]

The WHO-UMC causality assessment system

A practical tool for assessing case reports, the WHO-UMC system was developed in consultation with National Centres participating in the Program for International Drug Monitoring. According to WHO-UMC criteria, ADRs were classified as certain, probable, possible, unlikely, unclassified, and unclassifiable based on their causality assessments. [38]

Another causality assessment tool, the **Naranjo criteria,** classifies adverse events based on weighted questions to categorize ADRs into definite, probable, possible, and doubtful. When comparing the above methodologies, the WHO-UMC criteria took less time to assess causality than the Naranjo algorithm. Some studies in India have assessed the causality of ADR using Naranjo and the Liverpool ADR Causality Assessment Tool (LCAT). [37,39]

The modified Hartwig and Siegel scale

This is a helpful tool for severity assessment. It consists of seven questions whose answers are used to classify ADR severity levels into mild, moderate, and severe. [40] The severity of ADR to psychotropics was studied by Ithnin et al. using this scale in the Indian context. [41]

Table 2 Psychometric Properties and details of selected scales

Name of the tool	Number of items	Administration time	Psychometric properties	Indian vernacular translation availale	Cut-offs	Scale URL	Copyrighted/ public domain	Licensing fee
1. Multiple ADR screening								
Udvalg for Kliniske Undersøgelser Side Effects Rating Scale for Patients (UKU-SERS-Pat) (Herres et al., 2019)	48	11.6	Internal consistency ICC = 0.49–0.9	Yes Marathi	has been validated in India	https://scnp.org/fileadmin/SCNP/SCNP/UKU/UKU-Pat-%20English%20.pdf	NA	NA
Udvalg for Kliniske Undersøgelser Side Effects Rating Scale for Clinicians (UKU-SERS-Clin) (Lingjaerde et al., 1987)	48	30	Intra-rater reliability P = 0.89	NA	Validated	https://scnp.org/fileadmin/SCNP/SCNP/UKU/UKU-PAT-artikkel.pdf	NA	NA

Glasgow Antipsychotic Side effect Scale (GASS)(Waddell & Taylor, 2008)	22	5	Internal consistency α = 0.72 κ = 0.72	NA	Validated	https://www.dpt.nhs.uk/download/gwWX3mR9SJ	NA	NA
Liverpool University Neuroleptic Side Effect Rating Scale (LUNSERS) (Day et al., 1995)	41	5-20 minutes	Test-retest reliability of the LUNSERS was good (r= 0.811, concurrent validity against the UKU (r=O.828).	NA	Validated	https://innovation.ox.ac.uk/outcome-measures/liverpool-university-neuroleptic-side-effect-rating-scale-lunsers/	https://process.innovation.ox.ac.uk/clinical/	NA
2. Extrapyramidal ADR screening								
Abnormal Involuntary Movements Scale (AIMS)	10	10	Internal consistency ICC = 0.05–0.29	NA	Validated	https://www.ohsu.edu/sites/default/files/2019-10/%28AIMS%29%20Abnormal%20Involuntary%20Movement%20Scale.pdf	NA	NA
Simpson-Angus Scale (SAS)	10	10	Test–retest reliability/ r = 0.71–0.96	NA	Validated	https://www.psychdb.com/_media/meds/antipsychotics/sas_simps	NA	NA

						on_angus_scale _modified.pdf		
3. Sexual ADR screening								
Arizona Sexual Experience Scale (ASEX)	5	5	α = 0.90 It has good convergent and discriminant validity along with internal consistency, test-retest reliability	Yes Hindi	Validated	https://www.mirecc.va.gov/visn22/Arizona_Sexual_Experiences_Scale.pdf	© Copyright 1997, Arizona Board of Regents, University of Arizona, All rights reserved.	NA
International Index of Erectile Dysfunction (IIEF)	15		Internal consistency Cronbach's alpha of 0.90. test-retest reliability ICC 0.91	Yes Malayalam	A cut off of 14 to define sexual dysfunction as per SFQ	https://www.baus.org.uk/_userfiles/pages/files/Patients/Leaflets/iief.pdf	NA	NA
Sexual Functioning Questionnaire (SFQ)28	28		The scale has high reliability and internal consistency (Cronbach's α 0.852)		Validated in India		NA	NA
Sexual Function Questionnaire	34		High internal consistency (Cronbach's	Yes	Validated in India	Quirk et all. (Quirk et al., 2002)	© Mary Ann Liebert, Inc.	NA

			α—from 0.70 to 0.93 for subjects with FSAD and HSDD)	A new version SFQ-28				
Antipsychotics and Sexual Functioning Questionnaire (ASFQ)	7- (for males) to 9-item (for female)	5	Internal consistency A = 0.90 Test–retest reliability R = 0.61–0.84	NA	Validated	https://research.rug.nl/en/publications/antipsychotic-treatment-and-sexual-functioning-rol-of-prolactin	NA	NA
4. Antidepressant ADR screening								
Antidepressant side effect checklist (ASEC)	Design do not support single scoring system		Agreement ASEC and UKU was good, kappas 0.55- 0.89 correlation with UKU was 0.63	NA	Validated	https://www.researchgate.net/figure/Antidepressant-Side-Effect-Checklist-ASEC-items-grouped-according-to-physiological_tbl1_259699487	NA	NA
5. ADR causality related								
World Health Organization-Uppsala Monitoring	Design do not support single		Inter Rater Agreement Kappa (k) 0.67	NA	Validated in India	https://www.who.int/medicines/areas/quality_safety/safety_effica	NA	NA

Centre (WHO-UMC) scale	scoring system					cy/WHOcausality_ assessment.pdf.		
Naranjo algorithm	10		Inter Rater Agreement to WHO-UMC Kappa (k) 0.80	NA	Validated in India	https://www.ncbi.nlm.nih.gov/books/NBK548069/bin/Naranjoassessment.pdf	NA	NA
Modified Hartwig and Siegel scale	Design do not support single scoring system		Inter Rater Agreement to WHO-UMC Kappa (k) 0.89	NA	Validated in india	Hartwig et al (Hartwig et al., 1992)	©1992, American Society of Hospital Pharmacists, Inc	NA
Modified Schumock and Thornton scale	Design do not support single scoring system		Inter Rater Agreement to WHO-UMC Kappa (k) 0.43	NA	Validated in india	Mobile app: Adverse Drug Rxn Preventability	NA	NA
Liverpool ADR Causality Assessment Tool (LCAT)	Flow diagram		Moderate IRR (kappa 0.48), compared to Naranjo	NA	Validated	Mobile app: Adverse Drug Reaction Causality	NA	NA

ADR MONITORING SYSTEM AND PHARMACOVIGILANCE

Pharmacovigilance (PV) is the study of adverse effects and other drug-related problems and its collection, detection, assessment, monitoring, and prevention. Using good clinical practices, it describes the process of monitoring, evaluating, and analyzing adverse drug reactions. Signal generation with pharmacovigilance (credible report of a new, specific adverse effect associated with a given drug) can be collected from multiple sources. For example, "signals" may come from pharmaceutical company data or a pooled data analysis from academic centers or hospitals. The most cost-effective signal generation method is through a "spontaneous reporting database" in which clinicians report suspected adverse events. With World Bank funding, the National Pharmacovigilance Program (NPVP) was launched in India in 2004. This program was renamed the Pharmacovigilance Program of India (PvPI) in 2010 by the Central Drugs Standard Control Organization (CDSCO) under the Ministry of Health and Family Welfare, Government of India. Now under NCC authority, PVPI works closely with WHO's Uppsala Monitoring Centre (UMC) in Sweden. The program's National Coordinating Centre (NCC) is the Indian Pharmacopoeia Commission (ICP), Ghaziabad. According to CDSCO's website, 22 ADR monitoring centers (AMCs) exist. The PvPI envisions every medical college having an AMC. PVPI faces the challenge of gross underreporting of adverse effects, which may be due to a lack of medical expertise in drug administration, insufficient skilled resources in PV, and a lack of awareness nationwide.

Electronic medical records, biomedical literature, and patient-reported data in health forums are some platforms where research is increasingly focused. In this regard, NCC Gaziabad has introduced Vigiflow, a web-based report management system.[42]

Any psychiatrist employed by the government or private practice may submit side effects from psychoactive substances. A standard form for reporting ADRs is available on the Central Drugs Standard Control Organization (CDSCO) website. The identity of the reporters and all information gathered is kept anonymous and are free of any medicolegal risks. Because of their proximity to the general public and public health professionals, PV systems' reporting of adverse events may help the population. [43]

Various Indian researchers have examined ADRs in response to psychiatric treatment using independent and government-appointed researchers. Most of these studies used WHO UCM criteria. GASS, SAS, and the Antidepressant side effect checklist (ASEC) have been included in some studies. One study assessed ADR in bipolar disorder patients using the Abnormal Involuntary Movement Scale (AIMS) and WHO UCM.[38,44]

CONCLUSION:

In conclusion, adverse effects are common in psychiatric practice, and they need to be addressed in an adequate and timely manner to enhance treatment compliance. Rating scales for their assessment are valuable tools but time-consuming, hence not very popular among clinicians. Clinical trials and strengthening the ADR reporting system in pharmacovigilance are essential measures in addressing the adverse effect issue; both promote systematic assessment in the form of Rating Scales. Despite this, both operations are costly, skill-intensive, and require multi-sectoral support from the government,

industry, drug regulators, clinicians, and others in healthcare. The future of a more developed ADR reporting system lies in strengthened information technology-powered data generation. It enhances their contribution to public health by establishing potential benefits to the community of psychiatric patients.

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Chapter 21

ASSESSMENT IN FORENSIC PSYCHIATRY: CRIMINAL RESPONSIBILITY, FITNESS TO STAND TRIAL

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Take Home Message

- Due to a lack of objective tests and tools in forensic psychiatry, there are differences of opinion among practitioners on various topics.
- Various tools and screening questionnaires have been developed to help assess a person's capacity to stand trial with improved efficiency and precision.
- There is a need for more practical research in forensic psychiatry that can be started by both mental health and legal specialists and will benefit speedy legal choices through easy and early assessment of forensic patients.

INTRODUCTION

The field of forensic psychiatry in India is slowly evolving despite a dearth of research materials.[1,2] Psychiatry Postgraduate training in India needs to be improved in forensic aspects.[3] Forensic psychiatry is "a subspecialty of psychiatry in which scientific and clinical expertise is utilized to legal issues in a legal context, which concerns civil, criminal, or legislative matters".[4]

In India, forensic psychology is still in its infancy. Psychiatry postgraduate students and working psychiatrists have substantially less exposure to this growing subspecialty of the field. Mental health specialists must frequently visit court as experts to testify due to their interaction with the law. Due to a lack of objective tests and tools in forensic psychology, there are differences of opinion among practitioners on various topics. With the creation of objective examinations and scales used for assessment, there have been some changes in Western countries. Materials are rare in the context of India.

When it comes to evaluations, structured assessments might miss many essential aspects. At the same time, unstructured methods may dilute or include unnecessary details and be difficult to substantiate in a court of law because of the absence of objectivity, so semi-structured methods are considered a standard across the globe in forensic psychiatry.[2] Ethical and professional

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judgment should be employed as with any evaluation or assessment tool or process. Structured instruments afford limited flexibility to the examiner when determining the importance of specific risk factors about the individual being evaluated.[5]

CHALLENGES FOR ASSESSMENTS IN FORENSIC PSYCHIATRY

Scales used in forensic analysis are few in India. We continue to rely on conventional testing methods, such as interview schedules, the MMPI (Minnesota multiphasic personality inventory), WAIS (Wechsler adult intelligence scale), VSMS (vineland social maturity scale), Rorschach, IDEAS (Indian disability evaluation and Assessment scale) and MMSE (mini mental status examination). In this background of limitations of objective testing for forensic assessments, it is necessary to know the importance of tests and scales in forensic assessments and reporting. Challenges for assessments in forensic psychiatry are mentioned in BOX 1. This chapter explores the availability of scales and assessments in forensic psychiatry and their features. Given below is the proforma for general forensic assessment (Box 2)

BOX 1 Challenges for assessments in forensic psychiatry [6,7]

- The assessment is mainly clinical and is a subjective assessment by psychiatrists
- The assessment is after many months or years after the crime has been committed
- Delay in referral by the investigating agencies
- Lack of forensic psychiatrists.
- Forensic psychiatry training is abysmal.
- Disagreement among different psychiatrists.
- The assessment of mental status is usually retrospective to crime
- The illness pattern of certain disorders i.e. episodic makes it difficult for assessment
- Non-availability of reliable informant and medical records
- Scarcity of objective assessment tools
- Scarcity of lab tests in Psychiatric evaluation.
- The court of law expects the person's mental status at the time of the crime, which is usually difficult to assess to give a definitive opinion.
- Need to depend upon circumstantial evidence, old treatment records and history gathered from available people.
- Difficulty in getting reliable and accurate information from different sources

BOX 2: Detail workup proforma for forensic psychiatry patients. [1]

- Date: Time:
- Place of Examination:
- Name of the Patient with alias:
- Father's/Mother's Name:
- Residential address with mobile number:
- Identification Mark:
- Gender: Age: Marital status: Education: Occupation before arrest:
- Name the referring authority:
- Reason for referral:
- Accompanying letters (Referral letter with date):
- Legal issues related to the prisoners
- Duration of stay in prison (in months):
- Charges against the person (utilise IPC sections):
- Behavioural Observation report from the prison:
- Chief complaints as per the referring authority:
- Chief complaints as per the patient:
- Circumstances around the alleged crime:
- History of Presenting Illness:
- Past history of Medical/psychiatric illness and Treatment history:
- Family history
- Personal history: Premorbid personality:
- Mental Status Examination and Cognitive Function:
- Provisional Diagnosis: Plan of management: Investigations:
- Request for additional information

  -FIR from the police station

  -Include Family members to get information and to plan for management

  -Any other letters

-Treatment

Box 3 provides information on critical topics for gathering background information and facts that may be useful for later, more focused analyses. We are limiting this chapter to assessments of the insanity defense, fitness to stand trial, and risk assessments due to the complexity of forensic psychiatry.

BOX 3: Behavioural observation report may include following points [1]

- Check for appearance and observe behaviour:
- Assessment of personal hygiene
- Observation of social interaction and functioning
- Record biological functioning
- Participation in ward activities
- Handling of activities of daily living
- Monitoring medicine intake
- Need for assistance in day-to-day activities
- Observation of Abnormal/disorganized behaviour and its
- record
- Assessment of negative symptoms
- Behaviour leading to self-harm/ harm to others
- Violent behaviour
- Recording of substance use if any
- Behaviour of the person when not being supervised/alone

CRIMINAL RESPONSIBILITY INSANITY DEFENSE

Whether a person with a mental condition should be held accountable for a crime he or she has committed is referred to as criminal responsibility. In Indian law, the concept of criminal responsibility was introduced based on McNaughton's Rules.

In cases of partial insanity or impaired responsibility, the person might have delusions, but their general understanding and memory in various life areas remain unaffected. For instance, a person harboring delusion of persecution against a colleague might continue to maintain cordial relations with other people in his life. His work-life balance could also be unimpaired. When a crime is committed against this colleague under the delusion of persecution, this person would not be held accountable for his

crime under partial insanity or impaired responsibility. However, this concept is not recognized by the Indian Law.
If a person with a mental disease is found guilty and uses the insanity defense, they may not receive punishment but are instead confined to a mental health facility to continue receiving treatment for their condition.

There are recognized lucid periods between the increased episodes of mental sickness in mental illnesses, and during these lucid intervals, the patient's reasoning and judgement remain unaffected. Therefore, the patient must have been mentally unwell at the time of the offense, as well as before or after it was committed, in order to qualify for criminal liability. If a patient commits a crime while experiencing a period of lucidity and then subsequently develops a mental illness, he is still held accountable for the act, but it depends upon various factors. Factors indicating mental illness is given in the BOX 4 below and points not favouring the insanity defense is given in the BOX 5 below. The probable questions to be used during interview is given in BOX 6 below.

As per law in India, idiots and persons who are deprived of all understanding and memory, with a lack of maturity, are not held criminally responsible.[6] Sections 82 and 83 of the Indian Penal Code confer immunity from criminal liability to children up to 12 years. Children below seven years get a complete defense from criminal liability, whereas, for children from 7 to 12 years, the immunity conferred depends on their maturity of understanding during the commission of the crime. [8]

BOX 4: Factors that may indicate the possible presences of mental illness in the accused[1]

To quote the American Law Institute (ALI), "A person is not accountable for criminal activity if, at the time of such conduct, he lacks sufficient capacity either to grasp the criminality (wrongfulness) of his action or to conform his conduct to the requirements of the law".[4]

Even in India, the "act of a person of unsound mind" is addressed in Section 84 of the Indian Penal Code (IPC), which also covers the insanity defense.

The following tests were used to assess criminal responsibility in the past, which laid the foundation for M'Naughten's rule.

1. Wild Beast test
2. The Insane Delusion tests
3. test of capacity to distinguish between right and wrong."

MC NAUGHTEN'S RULE

In 1843, Daniel McNaughten, a Scottish woodturner, opened fire on Edward Drummond, the private secretary of the then Prime minister of England, Sir Robert Peel. McNaughten had delusions of persecution against Robert Peel and his conservative political party, the Tories, since 1841, which no one, including his father, took seriously until the fateful day. He mistook Drummond for Robert Peel. The House of Lords formed a panel of judges to develop a set of rules on the defense of insanity, now famously known as McNaughten's Rule.[9,10]

Indian Penal Code (IPC) Section 84

The IPC's Section 84 deals with the "act of a person of unsound mind." Nothing that is done by someone who, at the time of doing it, is unable to understand the nature of the conduct or that he is doing improperly or against the law—whether owing to mental incapacity—is an offense. The following are the main points based on an analysis of Section 84 of the IPC.[11]

For the convenience of comprehension, the Section 84 IPC can be divided into two main categories: major requirements (medical need of mental disorder) and minor criteria (loss of reasoning requirement). To satisfy the major requirements, the offender must have had a mental disorder at the time the crime was committed (mental illness requirement). Minor requirements (loss of thinking requirement) specify that the applicant must be incapable of recognizing the nature of the act, the wrongness of his behaviour, or the legality of it; as a result, Section 84 IPC does not impose any liability on those who have mental illnesses since they are unable to reason rationally or have the essential guilty intent.[11,12]

BOX 5: Points not favouring Insanity defense [1]

- Evaluation of additional evidence to determine the defendant's capacity for rational thought during the commission of the crime[16]
- Planning: thought-out plan, time spent planning, presence of an accomplice, acquisition of necessary weapon, the timing of crime, and arrangement of escape vehicle
- Using gloves and a mask, waiting until the right moment, transporting the victim to a remote area, using a disguise, and concealing weapons to avoid detection.
- Disposing of evidence, including the removal of fingerprints and blood, the disposal of weapons, the destruction of papers, the burying of victims, the planting of false evidence, and the intimidation of witnesses.

- Attempting to flee the site of the crime, resisting arrest and lying to the police, alerting police, and admitting guilt after the fact
- Presence of accomplice: If more than one accomplice is present, then it accounts for a Complicated Operation
- When a person commits a crime soon before or after performing a complex activity (which calls for cognitive abilities), this is referred to as "complex task performance."

Box 6 : Technical questions to interview the defendant [1]

a) Describe the surroundings and those present when the incident occurred.

b) How did onlookers react to the act? Why?

c) How did the victim react behaviourally and emotionally?

d) Why the victim may have behaved in that way?

e) If you were a victim, how would you react?

f) what legal remedies would you expect if you were a victim?

g) What would you do if someone else had carried out the deed?

h) What role will the police play in these incidents?

i) What would you do if one of the victims was a known person?

SCALES TO ASSESS CRIMINAL RESPONSIBILITY

There needs to be more research in this field, particularly on assessment. According to important supreme court rulings, a study by Kumar et al. describes how to evaluate forensic psychiatry patients using semi-structured evaluation.

Conducting a uniform evaluation process on each patient who asserts their sanity is vital. It is disappointing that our country still needs to have such standardized procedures. A psychiatrist is called in to certify the existence or absence of a psychiatric disease if the defendant requests an insanity plea (the defendant's mental state at the time the alleged offense took place). The psychiatrist should compile all relevant documentation, speak with witnesses, and pay particular attention to details on the defendant's mental state, not just at the time of the offense but also a week before and after. Observations of behavior may be made in the ward. So, the onus of proving the existence of circumstances (Section 84 IPC) for an insanity defense would be on the accused (Section 105 of the Indian Evidence Act 1872), and the court shall presume the absence of such circumstances. The accused has to prove by placing material before the court, such as expert evidence, oral and other documentary evidence, presumptions, admissions, or even the prosecution evidence, satisfying that he was incapable of knowing the nature of the act or of knowing that what he was doing was either wrong or contrary to law. [(1)] Ward observation period can be up to 10 days (sec.24 and sec.25, MHA

1987). The following list includes some of the scales used in this field in various nations, along with statistical values.

Criminal Responsibility Scale (CRS)

In Brazil, forensic psychiatrists conduct mental evaluations following the guidelines outlined in Article 26 of the penal code.

Four elements make up the biopsychological criterion are:

1. Mental illness
2. Causality between the mental illness and crime committed
3. Cognitive and volitional components
4. Chronological order.

Following the evaluation, Brazilian forensic psychiatrists come to the following three conclusions.

1. Criminally responsible
2. Partially responsible
3. Not criminally responsible

Both the capacity for understanding (CU) and the capacity for self-determination (CD) are thought to be essential elements of criminal culpability, although M'Naughten's rule only takes the former into account.

The overall score range for the criminal responsibility scale, which consists of 12 elements and 19 questions, is 0 to 38. There are nine items and 15 questions on the capacity to understand (CU) subscale, with a score range of 0 to 30. The ability for self-determination subscale consists of three items with four questions each, with scores ranging from 0 to 8. Likert scoring is used for the scale.
"0" indicates a failure to acknowledge the psychological or psychopathological components of the citation.
"1" indicates some recognition of at least one of the listed psychopathological components.
"2": Conviction that at least one of the listed psychopathological components exists.

Schizophrenia and bipolar disorder with psychopathological abnormalities showed lower CRS scores when compared to other diagnoses, such as depressive and anxiety disorders associated with substance use, personality disorders, and mental disease.

The authors assert that this scale can be utilized by nations that employ the same criteria for determining criminal responsibility because the capacity to understand and the capacity for self-determination are factors that are like those used in ALI. [13]

Rogers Criminal Responsibility Assessment Scales (R-CRAS)

The R-CRAS was validated using the American Law Institute's (ALI) insanity standard, which calls for an assessment of a defendant's cognitive and volitional impairment at the time of the accused action.

A review of cognitive and volitional capacities at the time of the offense is combined with general diagnostic categories in the R-CRAS. Three reasonably crafted scales assess the following diagnostic problems:
(1) Patient Reliability
(2) Organic causality
(3) Psychiatric Disorders.

It appears that this model can be applied to defendants with various sociodemographic, criminal, and therapeutic factors.[14]

DIASS (Defendants Insanity Assessment Support Scale)
This scale was created using a competent decision-making model, and consists of two parts.
1. The epistemic element
2. A control element

These are rated as intact, partially compromised, or compromised on a three-point scale. The authors caution against using this rating as a guideline before carefully reviewing all available legal and medical sources. Although this scale was verified using Italian penal legislation, the authors claim it can be used in countries following the M'Naughten Rule or the ALI norm.[15]

The details for the above-mentioned scales is given in the TABLE 1 given below.

Table 1. Scales for assessment of criminal responsibility

Scale	Remarks	Results	Statistical significance
Criminal responsibility scale[13] 2020/Brazil	1.Sampling from a single Brazilian state 2. The use of scales in other states and countries may be impacted by regional and cultural considerations	2 subscales: 1. Cognitive aspect of Capacity to Understand (CU): 9 items and 15 questions 2. The capacity for self-determination (CD) test consists of three items and four questions.	Kaiser-Meyer-Oklin = 0.82; p 0.001; the two-factor answer: Cronbach's alpha, a measure of reliability, yielded values of 0.72 for factor 1 and 0.72 for factor 2, respectively. Inter-rater reliability (k = 0.667-1.0) The correlation between F1 (CD) and F2 (CU) was found to be internal consistency, with a KMO value of 0.82 (r = 0.59).
Rogers criminal responsibility scale (R-CRAS) [14] 1999/Chicago /Toledo	Evaluation of insanity and cognitive and volitional impairment at the alleged crime's in the past	1.The evaluation of generic diagnostic categories is step one in the R-CRAS decision process. 2.Evaluation of the offender's mental and behavioural (i.e., volitional) skills at the moment of the offence.	The average dependability coefficient for each variable was 0. 58 0.81 is the Kappa coefficient The effect sizes for hallucinations (Cohen's d = 1.80) and delusions (Cohen's d = 3.15) on criminal behaviour were found to be extremely substantial.
Defendant's insanity assessment support scale [15]	The small sample size and typology of hypothetical forensic cases, as well as the small number of forensic	24-item The scale's development included an evaluation of symptom severity using the BPRS. It consists of nine binary (present/absent) elements broken down into four dimensions:	The highly substantial correlation between forensic specialists' judgement obtained via the DIASS and the court verdict on the actual cases (rho = 0.674; p 0.001) demonstrated the DIASS's good internal consistency (Cronbach's alpha = 0.86) and good concurrent validity. Significant

2022/	professionals (N = 40) who analysed the cases, may represent as the study limitation.	"Knowledge/understanding of the crime" (three items), "Appreciating of the crime" (one item), "Reasoning" (three items), and "Control of voluntary motor activity" (2 items).	DIASS internal consistency was revealed by Cohen's kappa, which ranged from 0.44 to 1, with a mean value of 0.72.

To summarise, despite the existence of statistically proven Western scales for the defense of insanity, their application in India is restricted by cultural differences, the consideration of only cognitive factors, the delay in obtaining a person for an evaluation after a crime, a dearth of research, and a lack of training.

FITNESS TO STAND TRIAL

Complacency, prejudice, and wrong assumptions can easily lead to liberty being compromised and even forfeited, thereby generating tragic outcomes like delays in the legal process for vulnerable persons (Accused with mental illness).[16]

Fitness to stand trial evaluations have significance because the court's decisions and the defendant's rights are both impacted by assessments of a defendant's capacity to stand trial. In the US alone, the statistics suggest 60,000 competency cases per year. Western countries carry out extensive research on these topics.[17-20]

In addition, there are not enough resources to give these people care and return them to full mental capacity so they can argue their case.[21]

INVOKING THE FITNESS TO STAND TRIAL ASSESSMENT IN COURT

The court may order an assessment of the person's mental state if it finds that such evidence is necessary to decide on the person's ability to stand trial, whether the defendant was suffering from a mental disorder at the time of the alleged offense, whether that mental disorder affects the person's capacity for reasoning, and whether he/she should be housed in an appropriate facility, such as a mental hospital, rehabilitation program, or prison.[22]

NATURAL JUSTICE PRINCIPLE

Two legal maxims serve as the foundation for the idea of natural justice: a) *nemo judex in sua causa*, which states that "Nobody shall be a judge in his own cause," and b) *audi alteram partem*, which assures that each party gets at least a fair opportunity to present their case. Achieving justice and preventing injustice are the two main objectives of the natural justice principle. They expand the law rather than replace it.[23,24]

A HUMAN RIGHT IS THE RIGHT TO A FAIR TRIAL

In Article 14 of the International Covenant on Civil and Political Rights, which India has ratified and is now a part of the Protection of Human Rights Act 1973, the right to a fair trial is acknowledged as a fundamental human right. According to Articles 14, 21, 22, and 39-A of the 1973 Code of Criminal Procedure (CrPC), the concept of a fair trial is recognized as a fundamental requirement. (CRP Sections 328, 329, and 330).[25,26]

MEDICAL EVALUATION OF FITNESS TO ATTEND TRIAL

Determining whether a defendant is fit to stand trial or not requires consideration of several different factors, and the presence of a mental illness is one of them. Unless it can be demonstrated differently, it should be assumed that a person has the mental capacity to make decisions, even if they are dealing with a mental illness. Thus, it must be established that the defendant's mental state affects how well he or she functions during adjudicating.[27]

Whether an examination can be performed in an inpatient or outpatient setting depends on the specifics. Four to eight weeks may be needed for the inpatient evaluation and treatment necessary for fitness restoration, which is a time-consuming and expensive process. Therefore, a fitness evaluation will cause the case's procedures to be delayed.[28,29]

The absence of a good number of forensic psychiatrists in India is possibly one of the obstacles to conducting the examination and delay in the legal process, and also, there are not many hospitals in India that provide inpatient forensic psychiatry care. [2] Unfortunately, forensic training is not widely available among psychiatrists. Forensic psychology training programs and courses are recently considered in India.[3]

ETHICAL AND LEGAL CONCERNS WITH REGARD TO FITNESS FOR TRIAL

Individual rights are at the heart of the many moral and legal questions concerning a defendant's capacity to stand trial.

Knowing whether a person's unfitness is reversible (caused by treatable conditions like schizophrenia, bipolar disorder, acute psychosis, or delirium) or irreversible (caused by conditions for which there is no known treatment, like mental retardation, dementia or irreparable brain damage) is essential in order to inform a court of law. Reversibility is the capacity to regain one's eligibility to testify at a subsequent hearing, whereas irreversibility is the impossibility of doing.[22,23]

Even though no specific format is available in India, reversibility certification must provide enough information, such as an estimate of the time required for restoration within a reasonable time frame. However, various issues arise due to the inevitable fitness to stand trial, including

a. the need to wait until a new treatment is available.
b. What legal actions should be taken next?
c. Where should the accused be placed, like prison, home, or rehabilitation?
d. What will become of the legal actions?
e. What kind of care is going to be given to the prisoner?

The defendant has the right to refuse treatment when offered in some circumstances and, if pressured, may even threaten to harm themselves. It creates a tension between his/her right to refuse treatment and the ability to be restored to fitness for trial by compelled treatment (including Electro-Convulsive Therapy).

While evaluating their readiness to testify in court, defendants may self-incriminate by voluntarily confessing to behaviors or responding to the interview. Whether a court can convict a defendant based on information from a competence assessment because of a record of such self-incriminatory evidence is debatable and inconclusive.[30]

Given the legal setting, psychiatrists should uphold confidentiality as far as possible. The evaluation process and report submission to the court need to be made clear. Additionally, the psychiatrist must make the defendant aware that additional sources of information, such as the defendant's family history, past treatment histories, criminal histories, and personality histories from his or her relatives, would be gathered. Thus, the defendant must be informed of any confidentiality restrictions. The court shall be notified if the defendant objects to confidentiality, and any additional instructions must follow the court's rules.[31]

SCALES FOR FITNESS TO STAND TRIAL

Given the scarcity of mental health professionals in nations like India, a straightforward screening tool for determining a person's ability to stand trial by a lawyer, medical practitioner, or licensed psychologist is required. Various tools and screening questionnaires have been developed to help assess a person's capacity to stand trial with improved efficiency and precision. Among the popular instruments are interdisciplinary fitness interviews.[32]

Competence Assessment for Standing Trial for Defendants with Mental Retardation (CAST-MR)[33] and MacArthur Competence Assessment Tool-Criminal Adjudication (MacCAT-CA).[34] These tools are solely meant to be used as a tool to speed up the evaluation of a defendant's ability to stand trial so that they do not have to wait for a fitness assessment certificate from a licensed psychiatrist. If he or she is determined to be qualified after employing such a screening tool, the study will move forward. Before being deemed incapable of standing trial, a defendant must undergo a thorough evaluation and mental status examination, and a psychiatrist should make a diagnosis. As a result, only a certified psychiatrist who has conducted a thorough examination can certify that a defendant lacks the mental ability to engage in the judicial process. The basis for this certification must be stated in writing and include the defendant's diagnosis. A good screening tool would save time and money because it would take only a few hours to apply without the need to admit the person to an expensive mental institution**.** Table 4 gives details about interdisciplinary fitness interview.

Table 4: Scales for fitness to stand trial

Interdisciplinary fitness interview Canada/1984[35]	Attorneys achieved quite respectable levels of agreement with mental health professionals, with kappa ranging from 0.48 for item-cluster 12 (affective disturbances) to 0.91 for item-cluster 9 (delusional processes).	Designed to consider both legal and mental health issues and calls for an interdisciplinary approach to assessing competency.	It consists of three major sections: (a) legal issues (5 items), (b) psychopathological issues (11 items), and (c) overall evaluation (by each examiner separately) (4 items)

	Mental health professionals exhibit lower levels of agreement with attorneys on legal items [Mann-Whitney U(5,10) = 3, p < .02, two-tailed], with the mean kappa for psychopathology items being 0.67, and for legal items, 0.48 The simple mean correlation for all legal items is 0.43, while that for psychopathology items is 0.29.		

Through the use of various biopsychosocial treatment modalities, instructional modules, and programs that have been established, an effort should be made to improve the defendant's ability to stand trial.

In conclusion, the legal concept of "fitness to stand trial" addresses whether the accused is mentally capable of taking part in judicial procedures. The court is reassured by the fitness to stand trial on evaluation that the defendant has sufficient mental capacity to provide a defense. Psychiatrists should be specific when stating their opinion on a defendant's ability to stand trial.[6]

If the opinion is that the person is "unfit," it must be supported by information about their mental health diagnosis, the reasons for their faulty reasoning, and how this affects their capacity to participate in judicial procedures. In the framework of Indian law, fitness to stand trial is a crucial issue still developing. It must be applied judicially to safeguard the rights of those who are mentally ill without becoming a weapon that can be abused.[6]

CONCLUSIONS

Some recommendations for better evaluations and outcomes in forensic settings are as follows:

1. Facilitate assessment immediately following crime
2. Provide access to essential and prior medical and psychiatric records
3. Enlist the assistance of the investigative team
4. Grant permission to gather all collateral information

In conclusion, there is a need for more practical research in forensic psychiatry that can be started by both mental health and legal specialists and will benefit speedy legal choices through easy and early assessment of forensic patients.

Disclaimer:
Terms such as "insanity" and "unsoundness of mind" are legal concepts and are used frequently in a court of law. Though the Mental Health Act 1987 has recommended the abolition of various offensive terminologies, unfortunately, these terminologies continue to exist in various legislations, rules, regulations, and even recent case laws. The researchers were also, therefore, unable to entirely avoid these terminologies. If any person reading this research article feels offended because of the usage of such terms, researchers deeply regret it.[36]

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Chapter 22

RATING SCALES IN TELE-PSYCHIATRY: ISSUES AND CHALLENGES

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Take Home Message

- Telepsychiatry is a rapidly progressing psychiatric speciality accelerated by COVID-19
- Ease of use, time and cost-effectiveness, and broader reach of telepsychiatry have made it popular, thus increasing the need for validated telepsychiatric rating scales
- Several rating scales have been validated for use in telepsychiatry with similar usefulness compared to face-to-face consultation (e.g., BPRS, HAM-D, MMSE)
- Virtual Physical Examination (ViPE) has good sensitivity and specificity in assessing the extrapyramidal side effects using telepsychiatry
- Further research from India is warranted for the cultural adaptation of rating scales in telepsychiatry

"If a thing exists, it exists in some amount; and if it exists in some amount, it can be measured."
- E. L. Thorndike (1914)

INTRODUCTION

Telepsychiatry is a branch of telemedicine that utilises telecommunication tools to offer psychiatric services to persons who are geographically isolated from a mental health professional and/or feel more comfortable availing psychiatric care from home. The history of telepsychiatry dates back to 1959 when interactive videoconferencing was introduced by the Nebraska Psychiatric Institute for consultation, research, and training.[1] In the next six decades, the use of telepsychiatry remained limited until the Coronavirus disease 2019 (COVID-19) pandemic brought it to the limelight. In response, the National Institute of Mental Health and Neurosciences (NIMHANS), in collaboration with the Telemedicine Society of India and the Indian Psychiatric Society, developed Standardised Telepsychiatry Operational Guidelines (2020)

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for telepsychiatry practices and research in India.2 Similar to the usual psychiatric practice, rating scales are likely to form an integral component of telepsychiatric consultations and research - including screening, severity assessment, and prognostication by reducing subjective biases. In recent years, several pieces of research have been conducted to assess the use of rating scales in telepsychiatry compared to face-to-face (FTF) consultations. This chapter describes the applicability, usefulness, and limitations of different rating scales for telepsychiatric settings.

AVAILABLE RATING SCALES FOR USE IN TELEPSYCHIATRY

The difference in the mode of delivery in telepsychiatry raises a critical question: should new rating scales be explicitly developed for telepsychiatry, or should the existing ones be adapted for use in telepsychiatry? At present, our understanding is limited to answering this question with certainty. The literature review is yet to reveal any new rating scale being developed for telepsychiatric use only. A few questionnaires were developed for online surveys (e.g., coronavirus anxiety scale) during COVID-19 to measure the psychological impact. However, their use in clinical telepsychiatric practices may be limited.[3] Many prominent psychiatric rating scales (e.g., Brief Psychiatric Rating Scale) adapted for clinical and research applications in telepsychiatry have shown similar results compared to the FTF applications (table 1). Further details of the individual rating scales enumerated in table 1 are described in the previous chapters.

Table 1: List of the rating scales adapted for telepsychiatric practices

Rating scales	**Psychiatric condition**	**Use (Clinical/ research)**	**Authors, year (original scale)**	**Authors, year (adaptation for telepsychiatry)**	**Country (cultural aspects)**	**Findingsand comments**
BPRS	Psychiatric symptoms (depression, anxiety, psychosis)	C/R	Overall and Gorham, 1962[4]	Yung *et al*., 2022[5] Baigent *et al*., 1997*[6] Zarate *et al*., 1997[7]	Hong-Kong Australia USA	The telepsychiatric application of BPRS was comparable to the FTF application. Blunt affect can have sub-optimal reliability when assessed using telepsychiatry (Spearman's rho=0.48*). Low network bandwidth did not affect the outcome
C-SSRS	Suicide risk assessment	C/R	Posner *et al*., 2011[8]	Yung *et al.*, 2022[5]	Hong-Kong	The telepsychiatric application of C-SSRS was comparable to the FTF application. (Spearman's rho=0.99)
GDS	Geriatric depression	C/R	Sheik et al., 1986[9]	Loh *et al.*, 2004 [10]	Australia	The telepsychiatric application of GDS was comparable to the FTF application. (Correlation=0.87)

HAM-A	Anxiety disorders	C/R	Hamilton, 1959[11]	Yung *et al.*, 2022*[5] Baer *et al.*,1995[12]	Hong-Kong USA	The telepsychiatric application of HAM-A was comparable to the FTF application. (Spearman's rho=0.93*)
HAM-D	Depression	C/R	Hamilton, 1960[13]	Yung *et al.*, 2022*[5] Kobak *et al.*, 2004[14] Baer *et al.*,1995[12]	Hong-Kong USA USA	The telepsychiatric application of HAM-D was comparable to the FTF application. (Spearman's rho = 0.92*) The scores in the item "agitation" had a poor agreement.
MADRS	Depression	C/R	Montgomery and Asberg, 1979[15]	Kobak *et al.*, 2008[16]	USA	The telepsychiatric application (both videoconference and telephone) of MADRS was comparable to the FTF application ($ICC_{videoconference}$ =0.94; $ICC_{telephone}$ =0.93).
MMSE	Cognitive impairments (dementia, delirium)	C/R	Folstein *et al.*, 1975[17]	Loh *et al.*, 2004[10] Grob *et al.*, 200[18] Ball *et al.*, 1999[19]	Australia USA UK	The telepsychiatric application was comparable to the FTF application. (kappa=0.70*). However, for more severe patients, tele assessment is difficult.
SANS	Negative symptoms	C/R	Andreasen *et*	Zarate *et al.*, 1997[7]	USA	The telepsychiatric application of

	of psychosis		*al.*,1989[20]			SANS was inferior to the FTF application.
SAPS	Positive symptoms of psychosis	C/R	Andreasen *et al.*,1990[21]	Zarate *et al.*, 1997[7]	USA	The telepsychiatric application of SAPS was comparable to the FTF application. Higher bandwidth is preferred for better assessment.
Y-BOCS	OCD	C/R	Goodman *et al.*, 1989[22]	Baer *et al.*, 1995[12]	USA	The telepsychiatric application of Y-BOCS was comparable to the FTF application. (ICC=0.99)
YMRS	BPAD	C/R	Young *et al.*, 1978[23]	Yung *et al.*, 2022[5]	Hong - Kong	The telepsychiatric application of YMRS was comparable to the FTF application. (Kappa for individual items ranged from 0.61-1.0)
	BPAD: Bipolar Affective Disorder, BPRS: Brief Psychiatric Rating Scale, C: Clinical, C-SSRS: Columbia Suicide Severity Rating Scale, FTF: Face To Face, HAM-A: Hamilton Anxiety Rating Scale, HAM-D: Hamilton Depression Rating Scale, ICC: Intraclass Correlation, MADRS: Montgomery Asberg Depression Rating Scale, MMSE: Mini Mental Status Examination, OCD: Obsessive-compulsive disorder, R: Research, SANS: Scale for Assessment of Negative Symptoms, SAPS: Scale for Assessment of Positive Symptoms, UK: United Kingdom, USA: United States of America, Y-BOCS: Yale-Brown Obsessive Compulsive Scale, YMRS: Young's Mania Rating Scale * *mentioned psychometric value of the rating scale was obtained from this article*					

APPLICATION OF RATING SCALES IN THE TELEPSYCHIATRY SETTING

Rating scales in telepsychiatry are applied for research or clinical assessment (including screening, severity assessment, and prognostication). It can be either self-rated, caregiver rated, or clinician-rated. Two commonly discussed communication methods of telepsychiatry applications of rating

scales are (i) *synchronous communication*: real-time, supervised by the rater and utilises audio/video conferencing (i.e., via webcam, monitor, headphone, or integrated devices), and (ii) *asynchronous communication*: user dependent, unsupervised and utilises pre-recorded audio, videos, or documents (i.e., via messaging, email, mobile application, or other communication modes).[24] For example, applying the Brief Psychiatric Rating Scale (BPRS) on a patient over video conferencing will be considered a synchronous application. Similarly, a shared online form (e.g., google forms) of Mood Disorder Questionnaire (MDQ) to screen for lifetime risk of bipolarity will be considered an asynchronous application. Traditionally, clinician-rated scales (e.g., BPRS) in telemedicine practices are applied via synchronous communications, and self-rated/caregiver-rated scales (e.g., MDQ) are applied via asynchronous communications. The advantage of the synchronous application is the availability of the rater for clarification and assistance, therefore, higher reliability of the registered score in the rating scale. Table 2 summarises the comparison between synchronous and asynchronous communication. The raters need to be versed in applying the rating scale to improve the validity of the scores obtained while the synchronous application of the rating scales. Additionally, the length of the interview should be adequate, and re-verification with the patient should be done to avoid miscommunication and erroneous recording of the scores.

Table 2: Comparison of the modes of application of rating scales in telepsychiatry

Points	**Synchronous communication**	**Asynchronous communication**
Assistance/ supervision	Yes	No
Types of measure	Any	Self-rated or caregiver rated
Audio call	Possible	Possible (pre-recorded calls)
Video conference	Possible, preferred	Possible (pre-recorded videos)
Google form	Not possible	Possible
Advantages	● Rater assisted ● Cross-questioning is possible ● Clinical observation is possible ● Higher reliability of scores ● Larger evidence of use	● Low cost ● No time constraints ● No special device required ● Can function with low-speed internet
Disadvantages	Both the rater and the participant have to be present at the same time for video conferencing	Clinician-rated scales cannot be applied
Need for telepsychiatric adaptation	Necessary: Scales applied using synchronous communication must be adapted for telepsychiatric use	Preferable: Scales applied using asynchronous communication should preferably be adapted for telepsychiatric use

ADVANTAGES OF TELEPSYCHIATRIC APPLICATION OF THE RATING SCALES COMPARED TO THE FACE-TO-FACE CONSULTATION

Face-to-face (FTF) consultation has been the norm in psychiatric clinical care. The existing psychiatric rating scales were originally validated in FTF interviews and the usefulness of the same needs to be tested in telepsychiatric practice. Even the scales validated for telepsychiatry applications (table 1) differ in several aspects from the application using pen and paper in FTF consultation. Some of the advantages of rating scales applied in telepsychiatry over FTF are as follows:

Mode of delivery

Telepsychiatric services utilise the synchronous and asynchronous modes of telecommunications, unlike FTF consultations (table 2). The obvious benefit of this mode of service delivery is the ability to utilise the services from a distance without the need to visit busy hospital outpatient departments. Recently, this mode of service delivery was found to be helpful during COVID-19 without increasing the risk of infection spread.[25]

Documentation

The documentation process also varies in FTF and teleconsultation. While the former is more conventional, the latter is easy to store, access and retrieve. Therefore, a large number of patients' data can be stored without occupying physical space, can be quickly retrieved, and clerical errors can be minimised to none. However, due to cyber security concerns, digital documentation may have a higher risk of confidentiality breach and misuse.

Certification

Certification in psychiatric conditions, such as issuing medical leave, fitness certificates, assessment, and granting disability certification can prove to be both cost and time-saving for all the shareholders. However, in the absence of clear guidelines or regulations, the risk of potential misuse, fabrication, impersonation, and legal complications should be kept in mind.

Logistical advantages

Telepsychiatry has another advantage over FTF consultation in terms of logistics as it saves time (reduces the loss of human hours in travel and waiting), effort (the complicated process of enlisting and queuing), and cost (travel to the hospital).

Health for all

Telepsychiatry provides the opportunity to achieve mental health for all. In a country like India, with a disproportionately low doctor-to-patient ratio, the utilisation of digital technology can broaden and liberalise mental health service delivery, including objective assessments. For example, the recently launched National Tele Mental Health Program (Tele MANAS) via the e-Sanjeevani platform can provide telepsychiatric services to an individual in the furthest corner of the country. Who is otherwise unlikely to receive FTF speciality mental health care.

ISSUES IN APPLYING RATING SCALES IN TELEPSYCHIATRY

Rating scales for psychiatric conditions are useful for objective assessments. There are several advantages of applying rating scales in telepsychiatry compared to FTF consultation. However, there are several limitations too. Following are the common challenges clinicians/ researchers are likely to face while applying rating scales during online interviews:

Patient-related factors

The ease of use of technical gadgets in different individuals varies. Some participants may find it easy to use their mobile phones for a consultation, while others may find it difficult. The patient's age and illness severity also create challenges in an online consultation. Improving technical literacy and involving caregivers may solve this problem.

Technology-related factors

Both the hardware and software problems related to technology and telecommunication can limit the use of rating scales in telepsychiatry. Some common technological challenges include internet connectivity, network bandwidth, and equipment quality. Most existing research suggests utilising an internet connection with a higher transmission rate (most commonly used 128 - 512 kilobytes per second) and higher bandwidth (most commonly used 30 frames per second) for one-to-one videoconferencing. Using offline mobile phone-based applications (i.e., asynchronous telecommunication) can also help solve network connectivity-related issues. Data privacy and cyber security remain other technological challenges that warrant using original licensed applications and cyber security software. All telepsychiatry practitioners must be aware of the local medicolegal implications of a privacy breach and data leak.

Rater-related factors

The attitude of the mental health professional and the comfort levels in performing an objective assessment through a teleconsultation is also important. Including the basics of telepsychiatry in the degree or diploma curriculum, organising practical training sessions (e.g., workshops), and technical staff support can help to mitigate this challenge.

Rating scale-related factors

Many rating scales are yet to be validated for their use in telepsychiatry. Cultural adaptation of the rating scales is necessary for using them in a multi-lingual country like India. More research is required to validate online rating scales in the Indian scenario. Another issue with the telepsychiatric application is the *lack of Physical Examination.* Conventionally, physical examination in medical science includes in-person inspection, palpation, percussion, and auscultation by the physician. Application of psychiatric rating scales for conditions like catatonia and extrapyramidal symptoms (EPS) might be challenging and incomplete in telepsychiatric assessment when compared to FTF. Virtual physical examination (VPE) in telepsychiatry provides the opportunity to overcome this challenge.

Illness-related factors

The nature of the illness (e.g., cognitive impairments) and its severity (e.g., severe psychomotor retardation) can also lead to difficulty in the telepsychiatric application of rating scales. Applying a caregiver-rated scale via telecommunication as an alternative to the clinician-rated scale can solve this problem.

Table 3 summarises the issues in applying rating scales in telepsychiatry and proposed solutions.

Table 3: Application of rating scales in telepsychiatry: Issues and proposed solutions

Points	Issues	Proposed solutions
Patient-related factors	Lack of depth perception and human touch affecting the rapport formation	Use of virtual reality for augmentation of sensory perception
	Difficulty in using the technology (e.g., extremes of ages)	The assistance of a family member to set up an online session
	External interference from the environment	Ensuring a calm environment (e.g., alone in the room)
Technology-related factors	Network-related video or audio issues	Using a dedicated network and backup internet connectivity
	Risk of data security and privacy breach	Use of licensed software with ensured data security
Rater-related factors	Competency in using technology	Training in the application of rating scales in telepsychiatric scenario
Rating scale-related factors	Lack of validation of the rating scales for telepsychiatric application	Validation studies for rating scales in telepsychiatric use in the Indian context
	Lack of possibility of physical examination in telepsychiatry	Virtual physical examination (VPE)
Illness-related factors	Nature of illness (e.g., cognitive deficits) or severity of illness (e.g., severe psychopathology)	Application of a caregiver-rated scale via telecommunication as an alternative to the clinician-rated scale, if available

RATING SCALES IN TELEPSYCHIATRY: INDIAN SCENARIO

In India, telepsychiatry services were first experimented on by the Schizophrenia Research Foundation (SCARF) in 2004 for the psychosocial intervention of individuals affected by the

Tsunami in Chennai.[26] The COVID-19 pandemic has brought significant interest in telepsychiatric services in India. Recent surveys have shown rising interest in telepsychiatry among Indian psychiatrists due to ease of use, and they were more likely to recommend the same to their peers.[27,28] Manjunatha and colleagues proposed the concept of *Virtual (inspection) Physical Examination* (ViPE) to detect EPS in videoconferencing. Authors argued that examining EPS relies crucially on inspection.[29] Although not a rating scale, ViPE is conceptual progress in measuring EPS via teleconsultation. An unpublished postgraduate dissertation has assessed this entity of ViPE for antipsychotic-induced EPS using the Abnormal Involuntary Movement Scale (AIMS) and Barnes Akathisia Rating Scale (BARS) and compared it with FTF consultation (usual physical examination). It was found that ViPE had a very good agreement (□=0.801) with FTF physical examination in detecting EPS. ViPE also had a high sensitivity (87.7%) and high specificity (92.3%) in detecting specific types of EPS, excluding rigidity.[30] Researchers from NIMHANS are also using the MERIT screening tool to train health workers to screen individuals with possible mental illnesses in the community using telepsychiatric training schedules. However, no published literature has systematically assessed the effectiveness of rating scales in telepsychiatric settings in Indian languages.

THE TRAJECTORY OF USE OF RATING SCALES IN TELEPSYCHIATRY: FUTURE DIRECTION

With progress in time, telepsychiatry has seen many advances in the last five decades, from using black and white televisions to smartphones. Advancements in the telephone network, technology, technical literacy, digital policies, and practice guidelines have contributed to telepsychiatry's rapid progression and popularisation. Despite being available for the last half a century, most expansion has happened since the COVID-19 pandemic. However, clinicians, researchers, and policymakers need to leverage the momentum to adopt telepsychiatry beyond pandemic and disaster relief. If telepsychiatry will become the equal alternative to FTF consultation or remain an adjunct to the existing psychiatric services - only time will answer. The use of artificial intelligence for the asynchronous application of rating scales is actively researched for possible future use in clinical practice. The use of virtual reality in clinical assessment and the application of rating scales has been actively discussed in an attempt to replicate FTF consultations. Although, the affordability and accessibility of such advances in India may take more time than what could be explained by cultural diversity and economic differences. Including telepsychiatry in the current psychiatric (undergraduate and postgraduate) training curriculums and (public and private) mental health service deliveries will improve the objective assessment using rating scales and reduce the mental health gap in a low-resource setting like India.

CONCLUSION

Telepsychiatry is a rapidly developing field of psychiatry that has been made possible through COVID-19. Telepsychiatry has been popular due to its simplicity, efficiency in terms of time, cost, and broader scope. Wide utilisation of telepsychiatry for clinical and research has also increased the demand for validated telepsychiatric rating scales. Numerous rating scales with utility comparable to in-person consultation have been approved for use in telepsychiatry (e.g., BPRS, HAM-D, MMSE). It is necessary to conduct more studies in India to evaluate the validity, affordability, and cultural suitability of rating scales used in telepsychiatry.

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