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Editorial

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JOURNAL INFORMATION

Indian Journal of Mental Health and Neurosciences was started in 2018. It is the official journal of the Tamil Nadu Chapter of the Indian Psychiatric Society (Reg. No. 114/2016). It is a peer-reviewed, open access journal published Biannually in January and July. The journal publishes articles on psychiatry, psychology, and other allied neuroscience disciplines.

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EDITORIAL

The current issue (Vol. 7; Issue 2) is an exciting blend of Perspectives, Review article and Original research articles. It is both an exciting and challenging time for Psychiatry and Psychiatrist in Tamil Nadu. The challenges brought on to our profession by the MHCA, 2017 and its implementation is being widely discussed and deliberated to make this not only a right based act for the sufferers and carers, but also practical for the good-natured Psychiatrists of Tamil Nadu, who care for both of them. The SMHA and TN-IPS are working closely to iron out the rough edges of the rules and regulations.

The other area of concern is the privatisation of the public health delivery system, of which Tamil Nadu has been a pioneer. Any PPP model must not come at the cost of the Public Institutions, especially like the Institution of Mental Health (IMH), Chennai, that is doing yeomen service to the poor and the downtrodden who suffer from mental illness. This MUST continue, with IMH and the proposed TNIMHANS becoming a guiding light for all other institutions in Tamil Nadu and India. This can only be achieved by IMH taking this opportunity to reinvent itself and becoming the true leader, both in policies and processes, there-by negating the harsh comments by vested interests. All that is needed is some introspection, united efforts and more hard & smart work. Only data and research out-puts will be the bulwark against such constant onslaught of negative tides. True Data never lies.

A great milestone in the annals of TN-IPS was achieved with the inauguration Prof. O. Somasundaram TN-IPS House at Kilpauk, Chennai. Now our Tamil Nadu State Journal, IJMHNS has a permanent address! A fully functional office there will go a long way to improve the journal. It will also function as a repository of all our publications.

The quality of any journal is determined by the enthusiastic authors, the erudite peer reviewers and the readers. We are happy to add Dr. Sabari Sridhar, Dr. Kailash, Dr. Aswath Babu, Dr. Ramya Rachel, Dr. Aruna Kaki from Tamil Nadu, Dr. Sai Krishna Tikka, Dr. Raj Kiran Donthu from AP/Telangana and others as Reviewers of our fast-growing journal.

There remains a lot to be done and achieved by our journal. Hopefully someday soon, we hope to make IJMHNS one of its kind reputed and indexed journal in Psychiatry and Mental Health in India.

Dr. R. Arul Saravanan,
Honorary Editor,
IJMHNS.

EMERGING PERSPECTIVE

The Role of Psychiatrists in Mental Health Care Delivery Spectrum: Addressing the Challenges and Expanding the Scope

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Psychiatry, as a medical specialty, faces unique challenges, one of which is the widespread perception that its skills are not technically distinct. This has fostered a misconception that the roles of psychiatrists can be easily replicated by other professionals, leading to an undervaluation of their expertise. This issue is particularly evident among allied health professionals and administrative decision-makers in the health sector, where psychiatrists' contributions are often seen as less rigorous compared to other specialties.[1]

Despite these misconceptions, psychiatrists engage in a diverse array of responsibilities.[2] In government service, they not only address acute psychiatric conditions but also promote mental well-being through suicide prevention initiatives, rehabilitate individuals with disabilities, and facilitate shelter homes for homeless persons with mental illness (HPWMI). These varied responsibilities underscore the depth of their role and the breadth of their expertise, which extends well beyond the confines of clinical practice to encompass public health and social care.

BRIDGING GAPS IN THE SYSTEM

In an ideal system, psychiatry professors and practitioners would focus predominantly on teaching, research, and clinical care.[3] However, systemic inefficiencies and the lack of robust frameworks often necessitate their involvement in administrative duties. They are compelled to fill gaps in organizational structures, advocating for evidence-based mental health policies and working toward more synchronized care delivery systems.

One of the most pressing gaps lies in the absence of clearly defined segments within the mental health care system. While private psychiatric services may offer outpatient care (OP), acute care, intermediate care, and long-term care (including rehabilitation and shelter homes), these segments are not uniformly structured across the sector. Many practitioners, particularly those in office-based roles, lack awareness of the needs associated with intermediate and long-term care. This often results in fragmented care, where patients receive treatment that is limited to medication or psychotherapy without addressing the broader psychosocial dimensions of recovery.[4]

For instance, a patient recovering from acute psychiatric episodes may require sustained intermediate care, focusing on their gradual reintegration into society. Without clear guidelines or established systems, such patients risk being overlooked or inadequately treated, prolonging their recovery, and potentially leading to relapses. This is more often happening due to lack of awareness in care gradient in mental health care spectrum and segments involved. This can be addressed by establishing norms as we shift patients from one segment to another till his reunion with family occurs.

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THE ROLE OF NON-GOVERNMENTAL ORGANIZATIONS

Non-Governmental Community Service Organizations (called CSOs or NGOs) have emerged as key players in bridging the gaps in intermediate and long-term care. These organizations often specialize in areas such as rehabilitation, halfway homes, and long-term shelter care[5] areas traditionally underemphasized in medical training.

However, while their contributions are invaluable[6], there has been a noticeable trend of CSOs overstepping into domains traditionally managed by health care providers. For instance, some CSOs have expanded their focus beyond social and rehabilitative care to include aspects of diagnosis, treatment planning, and even direct medical intervention. This encroachment, while driven by the intent to fill systemic gaps, risks blurring the boundaries between health care and social care which may lead to inadequate health care many times when its required.

The overreach of CSOs into health care delivery can lead to several complications:

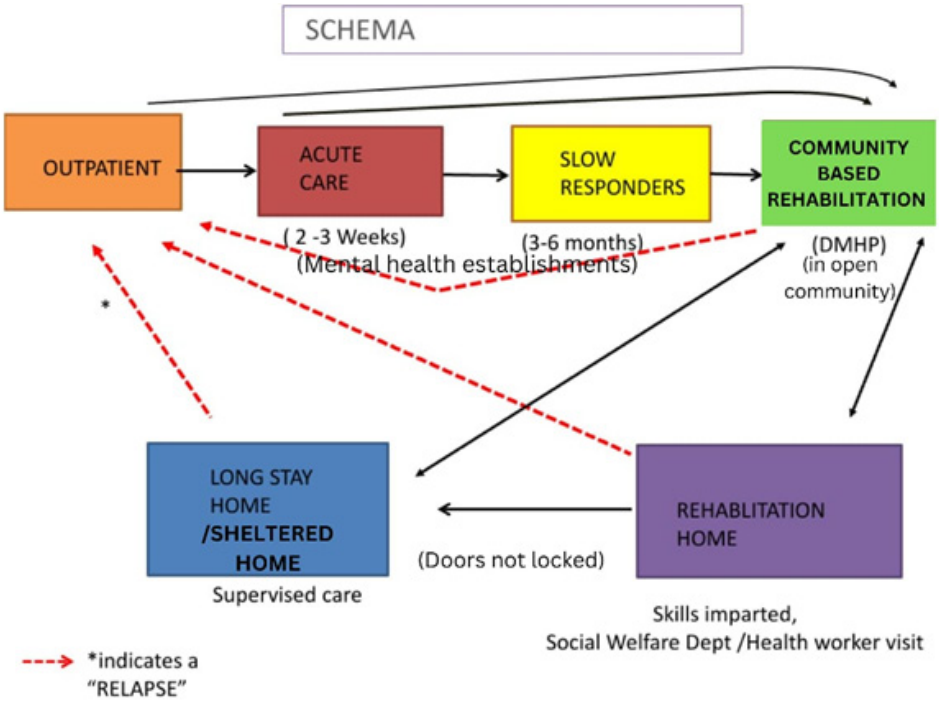
- **Lack of Standardization:** Unlike licensed medical professionals, many CSOs operate without adhering to established clinical guidelines, which can compromise the quality of care.
- **Policy Influence:** CSOs, through their increasing involvement in care delivery, have begun to influence government policies and resource allocation. This sometimes results in the marginalization of psychiatrists and other healthcare professionals, whose roles are critical in developing evidence-based mental health policies.
- **Fragmentation of Care:** With CSOs taking on responsibilities that should ideally remain within the purview of trained psychiatrists and allied health teams, there is a risk of fragmented care. Patients may receive incomplete or inconsistent treatment as they transition between health care providers and CSOs.

This overstepping highlights the need for better delineation of roles between health care providers and CSOs. This overstepping leads to shift in responsibility and has marginalized psychiatrists in areas beyond acute care and medical therapy. Their voices are often absent in broader policy discussions, further reducing their influence in shaping mental health care delivery. Over time, this has led to a diminished perception of psychiatry as a discipline capable of addressing the full spectrum of mental health care needs.

EXPANDING PSYCHIATRY'S ROLE

To reclaim their leadership role in mental health care, psychiatrists must actively participate in creating unified segmented care systems that delineate responsibilities and establish clear guidelines for patient management across all care levels. This involves collaborating with allied health professionals to ensure seamless transitions for patients between acute care, intermediate care, long-term care and community-based rehabilitation (CBR).[8]

A more integrated approach [9] in a segmented or care gradient established mental health care system would help psychiatrists to expand their scope of practice with the specialized knowledge for that segment. For example, patient in acute care or intensive care unit would require multiple visits by a psychiatrist whereas patient in intermediate care requires a visit once in 2-3 days. Beyond diagnosing and prescribing treatments, they must engage in leadership roles within rehabilitation and community-based care systems. By doing so, psychiatrists can address the psychosocial aspects of mental health, advocate for comprehensive care policies, and provide holistic treatment plans that encompass medical, psychological, and social dimensions.



DIFFERENTIATING HEALTH AND SOCIAL CARE

A key difference exists between health care and social care organizations, each playing a distinct role in mental health care. Social care organizations help individuals with mental illness (PWMI) find employment, secure housing, and access supported living arrangements. Their work addresses the socioeconomic factors that influence mental health and well-being.

Health care organizations, in contrast, focus on clinical goals, including diagnosis, treatment, symptom management, relapse prevention, and reducing disability. While they also engage in rehabilitation and some social care aspects, their main objective is medical recovery and long-term stability. Unfortunately, the high number of long-term patients in institutions like the Institute of Mental Health (IMH) has led to the misconception that these facilities primarily function as social care centres. This misunderstanding detracts from the vital clinical role they play in treating complex psychiatric conditions, painting them as primarily rehabilitation-focused. IMH provides rehabilitation as part of a gradual transition through various levels of care. The process begins with intensive medical intervention and social support, gradually moving towards less medical intervention and more focus on social support as patients transition into social care homes closer to their communities.

The rehabilitation process is often misunderstood as just providing supportive measures, but it involves continuously engaging individuals with mental illness, helping them develop skills for independent living, and, when possible, enabling them to support themselves financially. Health care institutions focus on symptom reduction, symptom stability, and psychosocial support. However, it is the responsibility of social care organizations to ensure that the psychosocial interventions introduced in health care settings continue once patients return to the community. In this context, community-based rehabilitation (CBR) after intermediate care is preferable, avoiding long-term stays in health institutions. The Directorate of Social Welfare and the Directorate for the Welfare of Differently Abled Persons, along with social care organizations, should focus on CBR rather than overlapping with the activities of health care institutions.

EVOLUTION OF MENTAL HEALTH CARE SYSTEMS

Historically, mental health care systems were integrated, with health and social care delivered under a unified framework. Over time, advancements in medical science and administrative reforms led to the specialization of these services. For example, the Directorate of Medical Services (DMS), which once operated as a single entity, evolved into multiple specialized directorates to address distinct health care needs. Similarly, the Directorate of Public Instruction (DPI) in Nungambakkam expanded into many directorates to cater to specialized areas of education.

In mental health care, similar transitions have occurred. The establishment of the Institute of Mental Health in 1794 marked the beginning of organized mental health care in South India. Over the centuries, new ministries and departments emerged, including the Social Welfare

Ministry in 1961 and the Department for the Welfare of Differently Abled in 1994. These entities gained momentum with international initiatives like the UN Convention on the Rights of Persons with Disabilities (2008) and domestic legislation such as the Rights of Persons with Disabilities Act (2016).

The introduction of the Mental Health Care Act (2017) further redefined care delivery, emphasizing patient rights and least-restrictive care models. These developments have shifted the paradigm from institution-based care to a health care-centric model, with community-based rehabilitation playing a complementary role.

TOWARD A HOLISTIC MODEL

Moving forward, establishing care gradients in a unified system, enhanced collaboration between psychiatrists and allied health professionals[10], and stronger policy advocacy will be essential. Psychiatrists must be equipped[7] and empowered to lead efforts in rehabilitation and community-based care, ensuring that all patients receive comprehensive, longitudinal, culture appropriate treatment.

By expanding the scope of psychiatry and reinforcing its leadership role in mental health care, the profession can regain its central position in shaping policies and delivering holistic care systems that address the diverse needs of patients.

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EMERGING SCENARIO

The role of artificial intelligence in psychiatry

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The artificial intelligence revolution is now transforming the healthcare industry and beginning to have a significant impact in various domains of healthcare, including psychiatry. Using artificial intelligence in psychiatry has both advantages and disadvantages. In this article, I have discussed the pros and cons of utilising artificial intelligence in psychiatric practice.

The list of possible advantages is given below:

Aid in the diagnostic process: Artificial intelligence can help to improve the diagnostic process and assessments. With the assistance of artificial intelligence, we can analyse 'various assessment data' that includes patient histories, corroborative information from family members, interviews, psychometric assessments, reports of various resources, studies of medical records, laboratory tests, and neuroimaging results. This can aid in diagnosing mental health disorders more effectively.

Precise Interpretation of imaging: Artificial intelligence has the capability to examine medical images like X-rays, CT scans, MRI scans, and EEG results. This can aid psychiatrists in identifying different psychiatric disorders and ruling out organic causes. It proves beneficial by delivering precise and prompt diagnoses while also reducing the chances of misinterpretations.

Role of chatbots and virtual therapists: Chatbots and virtual therapies provide round-the-clock support, assisting individuals dealing with mental health issues. Virtual therapists are capable of

- Offering 24/7 online assessment, therapy and support.
- Aiding in symptom monitoring using rating scales like BDI, GHQ, BPRS etc.
- Offering resources for self-help during crisis situations such as suicide risks (e.g. suicide help lines, contacts of NGO organisations etc).
- Providing positive coping strategies

Reducing burden to mental health care professionals: Virtual healthcare assistants can help reduce the burden on psychiatric teams by providing additional support, assistance and help relieve mental health professionals of certain routine tasks. A few examples are given below

- Interacting with patients 24/7.
- Assess and quantify the severity of symptoms using rating scales. E.g. by administering, HAM-D, GAD-7, MADRS etc
- Monitor progress regularly by repeating them periodically.eg repeating MMSE periodically for patients with cognitive difficulties
- Evaluating the therapeutic efficacy of medications
- Checking for medication side effects and monitoring side effects of medications like extra pyramidal symptoms using questionnaires such as Simpson Angus scale etc.
- Addressing their questions and concerns
- Assisting with appointment scheduling and reduce dropout rates
- Offer timely medication reminders and enhance patient compliance which is important for psychiatric patients. By doing so, they can help relieve healthcare providers of certain routine tasks.

These processes are typically time-consuming, and AI can streamline and effectively manage them, helping to improve efficiency in patient care.

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REDUCING STIGMA AND FEAR

Artificial intelligence can also help reduce stigma, as some individuals may prefer engaging with virtual healthcare assistants, thereby helping to reduce the stigma associated with seeking support for mental health issues. By sharing their symptoms with virtual healthcare assistants, through AI, individuals can do so without fear of judgment, particularly beneficial for those with low self-esteem and reduced confidence levels.

EFFECTIVE TRIAGE SYSTEM

Artificial intelligence can function as a triage system, whereby more intensive care is directed to patients in greatest need by qualified mental health professionals, while less intensive care is allocated to virtual assistants through artificial intelligence.

PSYCHOLOGICAL THERAPIES

In terms of offering psychological therapies, AI can administer cognitive behavioural therapy, behavioural therapies, relaxation training, deep breathing, mindfulness training and problem-solving therapies to assist patients in managing their mental health. There is a wide range of mental health apps driven by artificial intelligence that are available and are effectively used for therapy.

EARLY INTERVENTION

AI can identify specific patterns and markers that can predict the onset of mental health conditions like depression, anxiety, mood disorder and psychosis. By collecting data from various sources such as social media variables and electronic health records, AI can also alert healthcare providers to offer early intervention and help prevent more severe episodes of mental health conditions like depression, anxiety, or psychosis.

RISK MANAGEMENT

Many wearable devices and smartphone applications today are powered by artificial intelligence, enabling continuous monitoring of individuals' data. For example, in patients with dementia who are living alone such devices can be used to monitor the risk of falls, wandering etc.

HELP WITH LIFESTYLE CHANGES

They can assess lifestyle habits to create customized therapy strategies for individuals. AI can also monitor medication side effects by looking for features of metabolic syndrome, (weight, Pulse rate, Blood pressure, Lipid profile, waist circumference, activity levels etc) alerting patients and assisting mental patients in improving their lifestyles.

Artificial intelligence also has the potential to streamline administrative tasks, resource allocation and staff scheduling, ensuring that resources are deployed efficiently. They can help with inventory management and improve healthcare operations.

Access to resources in rural areas: In rural areas with limited access to resources, particularly in developing nations, there is a notable shortage of mental health specialists. In such situations, artificial intelligence can be leveraged to provide services to patients and improve access to psychiatric care.

RESEARCH

AI can play a significant role in supporting new research and new drug development in psychiatry by analysing vast amounts of biomedical data. It can help in identifying potential drug targets and discovering new therapeutic compounds.

Artificial intelligence brings many advantages, but it also comes with various challenges and possible downsides that need to be considered.

LACK THE HUMAN CONNECTION

AI applications such as chatbots or virtual therapists may lack the human connection and empathy that human providers can offer. These virtual assistants cannot fully replicate the understanding and compassion derived from human interactions. In mental health assessments, softer skills such as eye contact, rapport building, establishing therapeutic relationships, and keen observation of patients' emotions and behaviours are crucial. These elements may be lacking in virtual assessments conducted by AI-powered healthcare assistants, potentially compromising the therapeutic rapport patients have with their mental health providers. Unlike artificial intelligence, human beings possess real intelligence and emotions. Virtual assistants lack the spontaneity in interactions and the ability to experience and respond to emotions.

POSSIBILITY OF ERRORS

Artificial intelligence, being algorithm-based, can potentially introduce errors in diagnosis based on the data it processes. Psychiatry, as a specialty, requires intricate clinical judgment bearing in mind individual factors and cultural considerations which AI may struggle to accurately interpret.

DIFFICULTY IN HANDLING COMPLEX CASES

AI systems may not effectively handle complex cases or patients from diverse cultural backgrounds, particularly in psychiatric conditions that lack well-defined diagnostic criteria. Relying heavily on artificial intelligence may result in incorrect treatment plans or unnecessary interventions for patients. They may not be able to tailor their approach to match the cultural nuances of various patient groups, which are instrumental in fostering patient affinity and enhancing overall communication.

ETHICAL CONCERNS

Furthermore, ethical concerns surrounding privacy, data security, and consent are essential considerations in leveraging AI in mental health care. Protecting the confidentiality and responsibly managing sensitive mental health data is crucial. Establishing regulations is vital to uphold trust and safeguard patients' rights in an era marked by increasing reliance on online services and databases, thereby protecting patient privacy amidst potential risks such as data breaches, unauthorized monitoring, and security vulnerabilities in cloud devices storing personal health information.

LACK ACCOUNTABILITY

In the realm of artificial intelligence practice, there are also concerns regarding the legal implications that arise in cases of errors or potential harm to patients, raising questions about responsibility for such outcomes. There is a need for clear guidance to address liability and accountability in situations where technology malfunctions, as the current scenario often lacks defined measures to hold software developers accountable for losses incurred.

LOSS OF JOBS

Increased reliance on AI systems in psychiatric practice could bring about issues such as job displacement and disruptions within the mental health workforce.

Need for Adequate training requirements: Psychiatrists and other mental health professionals require support to enhance their knowledge and receive adequate training on how to effectively integrate tools like ChatGPT into their practice.

Overall, AI applications should be approached with caution in psychiatric care, aiming to 'complement human healthcare providers' rather than entirely replace them. AI is designed to 'augment human capabilities', not to compete with or wholly substitute human intelligence. Establishing a clear AI framework is vital. There is crucial need for collaboration among various stakeholders, including mental health professionals, healthcare administrators, technologists, entrepreneurs, ethicists, and others. This collective effort is imperative to fully grasp the potential of AI and collectively tackle the challenges associated with its application in the mental health domain.

In conclusion, while the use of AI in mental health care holds promise for improving diagnosis and treatment, there are important ethical considerations that must be addressed.

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ORIGINAL ARTICLE

A community based study in South India of the association between Common Mental Disorders(CMD) and Cognitive Impairment(CI) in urban elderly.

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Abstract:

Background: Unprecedented aging in India has brought with it a host of difficulties for the elderly, including urbanization, breakdown of the joint family system, economic distress, poor nutrition and significant unpreparedness to manage their increasing needs. This urgent need was addressed through a formal research proposal aimed to study the prevalence of CMD and CI in community living elderly, their associations and sociodemographic correlates. This detailed analysis thus provides a framework to stimulate policy decisions for elder care in the country. Materials and methods: A prospective cross-sectional study was conducted across six old age homes in Chennai, India where 273 community living elderly aged 65 and older were assessed using the Clinical Interview Scale-Revised and the Mini Mental State Examination (Hindi version). Results: Most of the subjects were female (71.1%), had at least ten years of education and were of high socio-economic status; 52% were positive for CMD and 14.28% had CI. There was a statistically significant association between CMD and CI (t=5.115, p=0.000, 95%CI 8.453-19.034). Conclusions: The prevalence of CI is in keeping with the published literature. However, the prevalence of CMD in this population was found to be higher than that published in literature from India and low- and middle-income countries (LAMIC). Older age, female gender, low educational attainment and middle socio-economic status were factors associated with CI. This study validates the extensively reported finding that CMD and CI are important in the public health implications of human ageing that health planners and policy makers need to focus on.

Keywords: *CMD, CI, Community Living Elderly*

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INTRODUCTION

A common mental health disorder, is defined as mental health comorbidities including depression, generalised anxiety disorder (GAD), panic disorder, phobias, social anxiety disorder, obsessive-compulsive disorder (OCD) and post-traumatic stress disorder (PTSD) in the community.[1]

Cognitive impairment is when a person has trouble remembering, learning new things, concentrating, or making decisions that affect their everyday life. Cognitive impairment ranges from mild to severe(2-5). With mild impairment, people may begin to notice changes in cognitive functions, but still be able to do their everyday activities. Severe levels of impairment can lead to losing the ability to understand the meaning or importance of something and the ability to talk or write, poor ability to carry out ADL, delusions and hallucinations and progressive inability to live independently. CMD and CI are prevalent among the elderly and contribute to disablement and impaired Quality of Life(QoL). The population living with dementia is expected to double by 2030 (6, 7). CMD are also present in the non-cognitively impaired community living elderly with multiple medical and neurological comorbidities, in those aged 65 and older (8, 9). The justification for this study was the inadequacy of data on the determinants of CMD and CI in community living elderly in India. It is set in Chennai, India with a population of 11.2 million (10).

Materials and Methods We approached 453 community living elders 65 and older, male and female residing in six elder care facilities in and around Chennai. Of the 453, 288 (63.58%) agreed to participate of which 273 (60.26%) met the inclusion criteria and were subsequently recruited. Participants were examined between September 2013 and December 2015 using a consecutive sampling technique. Those without a reliable informant namely those who had not lived with the subject for more than three months, or those with serious medical co-morbidities that precluded their full participation were excluded. The study had due ethical clearance from the Institutional Review Board of Voluntary Health Services (VHS) Hospital. Consenting participants were interviewed at the place they were residing using a two-stage interview design. Demographic characteristics including SE were assessed using the Standard of Living Index (SLI) (11). CMD was assessed using the Clinical Interview Scale-Revised(Cis R) (12) which has been translated and validated in the Indian setting. CI was assessed using the Mini Mental State Examination-Hindi version (13). We present here the demographic indicators of the population studied, the prevalence of CMD and CI, and thereof. Data was processed and analysed using SPSS v20 (IBM SPSS Inc., Chicago, IL, USA).

Participant flow diagram

SLI, the 10/66 Socio-demographic risk factor questionnaire, CiS R(≥11), MMSE-Hindi version(<24)(N=273)

↓

All subjects were then administered the NPI by the psychiatrist(N=273)

↓

All subjects(N=273) underwent a thorough physical examination on the 10/66 Dementia Research Group Physical and Neurological Examination Proforma. Those subjects who screened positive in Phase I(N=148) additionally underwent a comprehensive neuropsychiatric assessment using the same proforma.

Participants were also assessed with multiple other instruments for cognition including the Clinical Dementia Rating Scale(14) and the Addenbrooke's Cognitive Examination translated and validated for use in India(15) that is part of a larger study comparing the above mentioned epidemiological tools. Only the prevalence of CMD and CI, and the associations thereof, will be presented in this paper.

RESULTS

Two hundred seventy-three consenting subjects were assessed, with a mean age of 77.64 ± 7.70. Seventy one percent of our subjects were female of which 54.6% belonged to high SE, 43.58% had at least high school education, 74.7% suffered from at least one medical condition and 52.4% suffered from at least two medical conditions (Figure 1, Table 1).

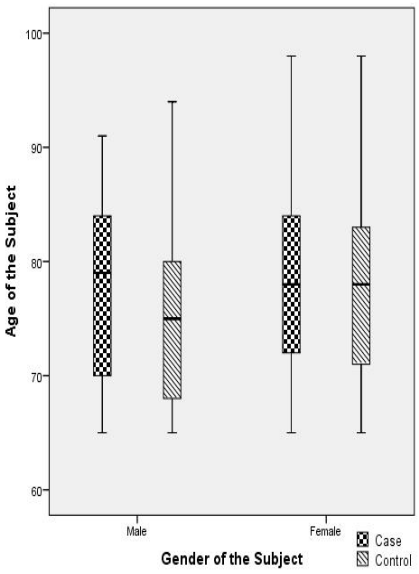

Figure 1: Sociodemographic details of the subjects

Mean (SD)	Cases (N=147)	Controls (N=126)	Chi²/T value
Age (Years)	78.50(7.54)	76.64(7.70)	0.083#
65-70	30	31	
71-75	26	28	
76-80	35	31	
81-85	29	23	
86-90	19	9	
91-95	6	3	
96-100	2	1	
Gender			30.235*
Male	22	57	
Female	125	69	
Education (Years)			28.83*
0-5	45	17	
6-10	44	21	
11-15	43	76	
>16	15	12	
SLI			1.178#
Low (0-14)	8	4	
Middle (15-27)	62	50	
High (28-67)	77	72	

Table 1: Group differences on sociodemographic variables

**-significance at p<0.05 *-2 tailed significance at p<0.01. #-Not significant.

The mean CiS-R score was 14.22±16.24, with a range of 0-76 (Table-2). The cut-off used for caseness(CMD) was 11(12). 52% of those surveyed were found to have a CMD at the time of evaluation. The mean MMSE score was 27.57±4.31, with a range of 9-31 (Table-2). The cut-off used for caseness (CI) was 23(13).14.28% of the community living elderly were cognitively impaired.

Mean (SD)	MMSE			CIS R		
	Cases N=39	Control N=234	Chi²/T value	Cases N=142	Control N=131	Chi²/T value
Age	77.08(7.53)	81.5(7.61)	0.047*	78.41(7.72)	76.82(7.52)	0.505***
65-70	5	56		30	31	
71-75	5	49		26	28	
76-80	11	55		32	34	
81-85	8	44		28	24	
86-90	7	21		17	11	
91-95	1	8		6	3	
96-100	2	1		3	0	
Gender			7.722*			28.81*
Male	4	75		21	58	
Female	35	159		121	73	
SLI			7.102*			0.059*
Low	3	9		7	5	

Mean (SD)	MMSE			CIS R		
	Cases N=39	Control N=234	Chi²/T value	Cases N=142	Control N=131	Chi²/T value
Medium	20	92		59	53	
High	16	133		76	73	
Education#			18.99*			20.25*
0-5	19	43		42	20	
6-10	9	56		41	24	
11-15	9	110		44	75	
>16	2	25		15	12	

Table-2: Group differences in rating instruments

*-Significant at p<0.01, ***-Not significant, # in years.

We compared the means of MMSE and CiS-R caseness using the independent samples t test. We found a significant association between MMSE score & CiS-R caseness indicating that people with CI were more likely to report CMD (Table-3).

Mean (SD)	MMSE			CIS R		
	Cases N=39	Control N=234	Chi²/T value	Cases N=142	Control N=131	Chi²/T value
Medium	20	92		59	53	
High	16	133		76	73	
Education#			18.99*			20.25*
0-5	19	43		42	20	
6-10	9	56		41	24	
11-15	9	110		44	75	
>16	2	25		15	12	

Table-2: Group differences in rating instruments

	T value	Sig. (2-tailed)	95% CI
Total score of CISR	5.115	.000	8.453 - 19.034
	4.878	.000	8.084 - 19.403

Table-3: MMSE and Cis-R

A one-way ANOVA was conducted to compare the effect of SE (as measured by the Standard of Living Index) and educational status on CMD and CI (Table-4).

		df	Mean Square	F	Sig
SLI and Mini Mental Sate Examination-Hindi version	Between groups(Combined) Within groups(Combined) Total	2 270 272	126.466 17.807	7.102	.001
Educational status and CiS R	Between groups(Combined) Within groups(Combined) Total	3 269 272	1499.927 249.922	6.002	001
Educational status and MMSE	Between groups(Combined) Within groups(Combined) Total	3 269 272	258.001 15.936	16.190	0.000

Table-4: Analysis of Variance-Between groups

SLI was significantly associated with CI [F (2,270) =7.102, p=0.001]. Post hoc comparisons using the Tukey HSD test revealed that the differences in the mean score for middle SE (M=26.72, SD=4.65, p=0.005) were significantly different from low SE at p<0.05 level (M=25.17, SD=4.97, p=0.03) (Table 5) indicating that the risks of developing CI were significantly greater for those from middle SE as compared to low SE. There was no significant association between SLI and CMD in our sample [F (2,270) =0.059, p=0.943].

Sociodemographic status				Mean Difference	Sig.	95% CI
MMSE	Tukey HSD	0-14	15-27 28-67	-1.557 -3.236*	.446 .030	-4.578 - 1.464 -6.220 - -.252
		15-27	0-14 28-67	1.557 -1.679*	.446 .005	-1.464 - 4.578 -2.923 - -0.436
		28-67	0-14 15-27	3.236* 1.679*	.030 .005	.251 - 6.220 .436 - 2 923

Table-5: Analysis of Variance-Within groups (SE)

Educational status was also significantly associated with both CMD [F (3,272) =6.002, p=0.001] and CI [F (3,272) =16.190, p=0.000]. Post hoc comparisons using the Tukey HSD test revealed that the differences in the mean score for CI for no formal/minimal educational status (0-5 years) [M=3.1, SD=0.71, p=0.000] were significantly different from those with at least six years of education at p<0.05[M=4.2, SD=0.63, p=0.000] (Table 6). Similarly, post hoc comparisons using the Tukey HSD test revealed that the differences in the mean score for CMD for no formal/minimal educational status (0-5 years) [M=10.026, SD=2.476, p=0.000] were significant at p<0.05 as compared to those with at least six years of education.

Educational Status				Mean Difference	Sig.	95% CI
CiS R	Tukey HSD	0-5	6-10	4.125	.457	-3.13 - 11.38
			11-15	10.026*	.000	3.63 - 16.43
		6-10	>16	8.075	.122	-1.35 - 17.50
			0-5	-4.125	.457	-11.38 - 3.13
		11-15	11-15	5.902	.076	-.40 - 12.20
			>16	3.950	.695	-5.41 - 13.31
		>16	0-5	-10.026*	.000	-16.43 - -3.63
			6-10	-5.902	.076	-12.20 - 0.40
			>16	-1.952	.938	-10.66 - 6.76
			0-5	-8.075	.122	-17.50 - 1.35
			6-10	-3.950	.695	-13.31 - 5.41
			11-15	1.952	.938	-6.76 -10.66

Educational Status				Mean Difference	Sig.	95% CI
MMSE	Tukey HSD	0-5	6-10	-3.097*	.000	-4.928 - -1.264
			11-15	-4.193*	.000	-5.809 - -2.576
			>16	-4.308*	.000	-6.688 - -1.929
		6-10	0-5	3.097*	.000	1.264 - 4.928
			11-15	-1.097	.285	-2.688 - -.496
			>16	-1.212	.547	-3.575 - 1.151
		11-15	0-5	4.193*	.000	2.577 - 5.809
			6-10	1.097	.285	-.496 - 2.688
			>16	-.116	.999	-2.316 - 2.084
		>16	0-5	4.308*	.000	1.929 - 6.688
			6-10	1.212	.547	-1.151 - 3.575
			11-15	.116	.999	-2.084 - 2.316

*. The mean difference is significant at the 0.05 level.

Table-6: Analysis of Variance-Within groups (Educational status)

Discussion

This study of CI and mental health in community living elderly is contemporary and coming as it does in a time and from a region of rapid urbanisation and demographic transition. Though a decade might not be significant in terms of time frames, significant trends in population aging and the predictions thereof strongly suggest the contrary (16-22).

The presence of CMD was associated with CI as evidenced by literature from the developed countries (8, 9, 23-25). The presence of a CMD in over half of all the elderly surveyed is a matter of urgent public health concern. The results of this study are in line with global research that suggests a considerable burden of CMD among the elderly (12, 26-28). Our findings on the prevalence of CI on the MMSE (14.28%) is in keeping with established evidence from India (3.4%-16.91%)(29-34). Our data suggest a significant direct association between CMD and CI using the CiS-R in this community living population (Table 3) which is in line with published literature.

Prevalence of CMD (52%) on the Cis R was found to be higher than prevalence rates reported from Indian studies thus far using Cis-R (33.3% to 46.5%) in those living in the community (12, 26, 27) and an epidemiological survey from Chile (28). It is noteworthy that these studies were not elderly specific. While our findings could potentially be explained by having assessed those living in old age homes (selection bias), we were unable to find any study from India that examined psychological morbidity in community living elderly using the CiS-R, an instrument that has been widely used in mental health epidemiology including the National Psychiatric Morbidity Surveys of Great Britain (35). The CiS-R (36) has also been translated and validated in Indian settings(12).

Our participants were aged 65 and older, in line with large scale epidemiological surveys from the developed world (8, 9, 23, 24, 37, 38). Increased years of formal education (at least 10 years on an average) and higher socio-economic status were found, both figures in variance with published studies from India and other LAMIC countries (16, 17, 19, 39-45) excepting for Ferri C et al. 2004 where consenting subjects had at least ten formal years of education (19). A single comparable study from India did not find a significant association between education and CI (46).

No clear positive association was demonstrated between low SE and CI in literature from developed countries (47). In contrast, a significant relationship between poverty, CMD and CI has been demonstrated in literature from the LAMI countries (12, 16, 17, 26, 31, 33, 34, 40, 44, 45, 47-53). CMD are more prevalent in people with low socio-economic status in India (26).

In this study, while CMD was not significantly associated with the SLI, CI was. People from middle socio-economic status were more likely to be cognitively impaired, when compared with those from lower socio-economic status. This too may be an effect of demographic transition in India with the diet and lifestyles of those belonging to the middle class being more likely to put them at risk for lifestyle diseases and dementia thereof (4, 54-56). This may of course be slightly at odds with understanding of the relationship between dietary practices and lifestyle diseases in the western world (57, 58).

We had approached old age homes that ranged from those for destitute homes to affluent senior citizen homes with hired caregivers for the elderly and believe our selection of sites was representative overall. However, as just under 65% of those approached participated (two-thirds), there could have been a responder bias inadvertently introduced. Another factor worthy of consideration is demographic transition in urban India, people moving up the social ladder with industrialisation and urbanisation and the current generation of the elderly having had more years of education than the elderly surveyed a decade earlier. Thus, while our data may reflect bias, they may equally represent the emerging reality of urban India(1, 4).

Interestingly, our findings are in keeping with epidemiological surveys from Malaysia (59) and Singapore (60). This too is in line with countries in South-East Asia having undergone rapid demographic transition two decades to three decades earlier than India (43, 61-66).

The socio demographic correlates of our study influencing CMD and CI and are in general, in line with established literature, namely older age, female gender, educational status, SE for CI and female gender, lower educational attainment for CMD, excepting for SE for CMD (33, 34, 67-72). That almost one-fifth of the elderly surveyed were cognitively impaired is also a matter of considerable public health concern (29-34). This finding is in line with international and Indian research on Mild Cognitive Impairment and Dementia.

In summary our study validates the widely held assumption that CMD and CI are important public health correlates of human aging that health planners/policy makers must focus on. Large scale, adequately powered studies that are sensitive to the impact of demographic transition on the elderly are therefore urgently required.

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CONFLICT OF INTEREST

Nil

AUTHOR'S CONTRIBUTIONS

This work was carried out in collaboration among all authors. All authors have read and approved the final manuscript.

CONSENT

As per the ICMR guidelines, the informed written consent has been obtained and preserved by the corresponding author.

ETHICAL APPROVAL

As per the National standards, the ethical approval letter/ certificate from local IEC has been obtained and preserved by the authors.

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ORIGINAL ARTICLE

Assessment of association between pregnancy induced hypertension and cognitive function: Before and after one month of delivery: Cohort study"

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Abstract:

Introduction:

Pre-eclampsia is a leading cause of morbidity and death in mother and baby. This also leads to endothelial dysfunction in large and small vessels, which leads to cognitive impairment. This is the first kind of study from India on the assessment of cognitive function in the Pregnancy-induced hypertension (PIH) group.

Materials and Method:

We recruited cases from the obstetric department's antenatal care. We applied Socio-demographic data and a Cognitive assessment battery (Trail Making Test (TMT) A and B, PGI memory scale, Porteus maze, and Digit Symbol Substitution Test (DSST)) to collect information on cognitive function. The data was collected from May 2021 to November 2021. Assessment was done during pregnancy and one month after Delivery. Data was assessed using SPSS software.

Results:

The TMT A and B values were 27.32 & 57.08 predelivery and 23.34 & 48.74 post-delivery. In PGI memory scale (pre and post-delivery values), Remote memory (6.76 & 6.81), recent memory (4.99 & 5.00), mental balance (6.26 &6.75), attention and concentration(7.42 & 8.27), delayed recall (6.29 &6.9), immediate recall(5.13 & 5.70), verbal retention-dissimilar word (9.52 & 10.18) and recognition (6.75 & 7.62) & DSST (88.0 & 91.31), verbal retention for similar words (5.19 &5.34 &)and visual (2.19 & 2.22) retention. The Maze Test-1 (17.29 & 13.06) Maze Test-2 (21.44 &

16.83). Before Delivery, cognitive impairment was present in the Pregnancy Hypertension (PIH) group in trail making, MAZE test, and certain areas of the PGI memory scale, which were statistically significant (<0.001) compared to the healthy control group. It continues even after one month of Delivery.

Conclusion:

This study has shown that there was an association between the pregnancy-induced hypertensive group and the healthy control group in certain domains of cognitive function before Delivery. The cognitive impairment persists even after one month of Delivery, which signifies microvascular damage persists for a longer duration.

Keywords: *cognitive function, pregnancy-induced hypertension, pre-eclampsia, antepartum, postpartum*

Introduction

According to WHO, Hypertension in pregnancy can significantly affect pregnant women and their babies, which accounts for 14% of maternal-related deaths worldwide. According to WHO, pre-eclampsia is diagnosed when the patient has a new onset of hypertension during pregnancy with diastolic blood pressure ≥ 90 mm Hg and proteinuria (> 0.3 g/24 hours). Eclampsia is diagnosed by the presence of generalized seizures, along with pre-eclampsia criteria. This is because the abnormal vascular response to the placenta leads to widespread endothelial dysfunction in the brain and other organs. In the brain, it can cause stroke, cerebral edema, and intracranial hemorrhage as major events. Sometimes, subclinical microvascular complications lead to changes in attention and concentration and memory problems during pregnancy and after delivery. Removal of the placenta remains the main line of treatment for this condition.[1]

Many pregnant women report changes in focusing attention, remembering things, confusion, and reading difficulties. Collectively, these symptoms are called the "baby brain" phenomenon or, "momnesia." Some studies say that this phenomenon is a myth and that it is due to generalized tiredness rather than actual changes in brain function.

The studies done to assess cognitive impairment by using validated neurocognitive tools have shown conflicting results, with some studies showing worsening cognitive performance, whereas others have shown no difference in cognitive performance when compared with women with normotensive pregnancies.[2,3,4] Radio imaging studies on the brain in PIH women have shown conflicting results again, with some studies reporting increased white matter lesions compared to normotensive pregnancy and some studies reporting no such difference.[4]

The above studies have shown a gap in understanding the association between pregnancy-induced hypertension and cognitive function. Some questions are being raised by the above literature 1) Is there any association between PIH and cognitive function? 2) How long does it persist after the delivery of the baby? In search of answers, we carried out this study. This is the first kind of study from India. The main aim of the study was to find whether there is any association between pregnancy-induced hypertension and cognitive function in the PIH group compared to a healthy control group. We used standard cognitive assessment tools to assess cognitive function.

The following were the aims of the study.

1. To assess the cognitive function during pregnancy in pregnancy-induced hypertension (PIH) group compared to normotensive group."
2. To assess the cognitive function after one-month Delivery of baby, in pregnancy in pregnancy-induced hypertension (PIH) group compared to normotensive group."

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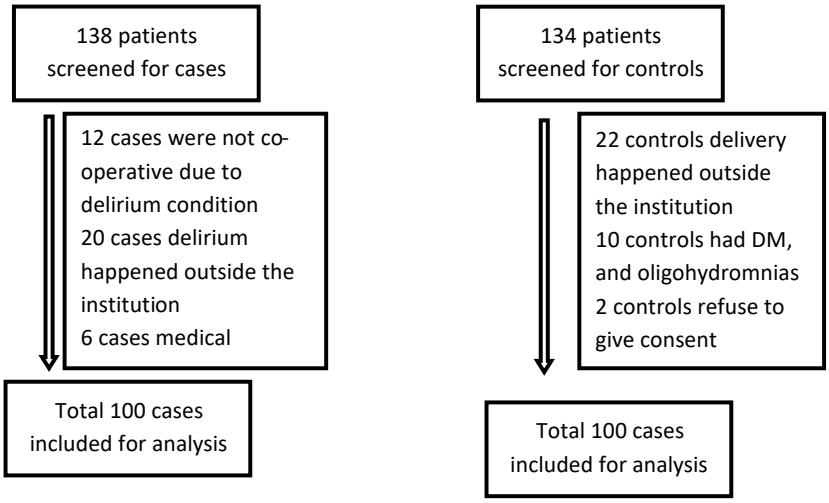
Materials and Methods

After obtaining institutional ethical committee clearance study was started. Informed consent was obtained from patients, and their anonymity was preserved. The data was collected between May 2021 to November 2021.

The method of sample selection was by a sample of convenience. The sample size was calculated using a formula with a power of 0.8 and a ratio of case-healthy control 1.12 probability of an event in case 0.4 and healthy control 0.6.

$$n\ (each\ group) = \frac{(p_0q_0 + p_1q_1)\left(z_{1-\alpha/2} + z_{1-\beta}\right)^2}{(p_1 - p_0)^2}$$

The sample size in the case was 78 and the healthy control was 88, with a total of 166.[1] So, we took a total of 100 patients in the case group (group A) and 100 patients in the healthy control group (Group B).



We recruited all cases (Group A) of pregnancy-induced hypertension (PIH) from the high-risk pregnancy units and age-matched healthy control group (Group B) from regular antenatal OPD dept. of Obstetrics and Gynaecology. We defined pregnancy-induced hypertension (PIH) as if they have pre-eclampsia or eclampsia. Preeclampsia means a pregnant woman has at least one of the criteria. (1) Systolic blood pressure (SBP) >140 mm Hg or diastolic blood pressure (DBP) >90 mm Hg at least 4 hours apart at 20 weeks or more of gestation. (2) new-onset proteinuria, as defined by a urine dipstick 1þ, proteinuria 0.300 g/24 h, or protein/creatinine ratio equivalent to 0.300 g/ 24 h. Eclampsia means epilepsy with pre-eclampsia.

Cognitive assessment was done twice by using the cognitive battery. The first assessment was done in Group A and Group B during pregnancy (7-9 months of pregnancy). The second assessment was done after one month of Delivery of the baby.

The following Tools were used to assess cognitive functions.

Trail Making Test (TMT)-Part-A and B: It's used to assess visual attention and task switching. It gives information about visual search speed, scanning, speed of processing, mental flexibility, working memory, and executive functioning. It has two parts: TMT-A (Root memory) and TMT-B (Executive functioning). Normal values have been established based on age and education. PGI MEMORY SCALE: It's used to assess short-term, and long-term memories. It contains ten subtests - 1)Remote memory, 2)Recent memory 3) Mental balance 4) Attention 5) Delayed recall 6)Immediate recall 7) Retention for similar pairs 8) Retention for dissimilar pairs 9)Visual retention 10) Recognition. Digit Symbol Substitution Test (DSST). It measures a range of cognitive operations. It assesses motor speed, attention, and visuo-perceptual function. It assesses cognitive dysfunction and changes in cognitive function. Adult Porteus Mazes: The Porteus Maze test measures executive functioning, specifically planning and foresight (performance intelligence), for ages three years and over. Inclusion criteria were Pregnancy-induced hypertension with or without pre-eclampsia. Exclusion criteria were patients with a pre-existing mental illness or cognitive impairment or patients with Intellectual Deficiencies. Previous history of Stroke or any other preexisting chronic medical condition was also excluded

STATISTICAL METHODS

The data was analyzed using SPSS -24 version software. To compare prenatal and postnatal data, we used paired t-tests. To assess data between the PIH group and the normotensive group, we used an unpaired t-test

	Mean-Before Delivery	SD	Mean-after Delivery	SD	P value**
TMT-A	27.32	8.391	23.34	2.362	<0.001*
TMT-B	57.08	16.971	48.74	5.993	<0.001*
MAZE TET-1	17.29	4.700	13.06	2.247	<0.001*
MAZE TET-2	21.44	6.007	16.83	4.360	<0.001*
PGI Memory Scale	60.44	5.016	64.52	3.386	0.314
• Remote memory	6.76	0.571	6.81	.465	0.222
• Recent memory	4.99	0.100	5.00	.000	0.317
• Mental balance	6.26	1.070	6.75	.809	<0.001*
• Attention and concentration	7.42	1.499	8.27	.983	<0.001*
• Delayed recall	6.29	1.131	6.90	1.133	<0.001*
• Immediate recall	5.13	.950	5.70	.870	<0.001*
• Verbal retention-similar word	5.19	.901	5.34	.443	0.158
• Verbal retention-dissimilar word	9.52	1.467	10.18	1.298	<0.001*
• Visual retention	2.19	1.089	2.22	.000	0.078
• Recognition	6.75	1.321	7.62	1.080	<0.001*
DSST	88.00	4.267	91.31	3.067	<0.001*

Outliers: Nil. * P value <0.05 means significant
** Paired "t" test was used to calculate "p" value

Table 1. Comparative analysis of cognitive function test in PIH group before and after Delivery (Group A)

RESULTS

The mean age of the PIH group (Group A) was 24.47and the healthy control group (Group B) was 24.84. In the PIH group, 41 % were from urban backgrounds, and 59% were from rural backgrounds, while in the healthy control group, 38% were from urban and 62% were from rural.

The data was presented in the following order. Cognitive function in Group A followed by cognitive function in Group B. Later comparison was done between Group A and Group B during pregnancy followed by after delivery of the baby.

Cognitive analysis of the PIH group (Group A) before and after one month of Delivery of the baby is as follows (Table 1). Some cognitive functions improved after Delivery, while others worsened. TMT A & B and MAZE test function improved after Delivery, while PGI memory and DSST continued to worsen after one month of Delivery. The TMT A and B show predelivery values are 27.32&57.08 and after-delivery values are 23.34 & 48.74 (Table 1). The difference was statistically significant. In the PGI memory scale, the following test worsens following Delivery. Remote memory (6.76 & 6.81), recent memory (4.99 & 5.00), mental balance (6.26 &6.75), attention and concentration (7.42 & 8.27), delayed recall (6.29 &6.9), immediate recall (5.13 & 5.70), verbal retention-dissimilar word (9.52 & 10.18) and recognition (6.75 & 7.62) & DSST (88.0 & 91.31), verbal retention for similar words (5.19 &5.34 &)and visual (2.19 & 2.22) retention (Table 1). The MAZE TET-1 (17.29 & 13.06) and MAZE TET-2 (21.44 & 16.83), there was a decreasing trend. PGI memory score and digit symbol substitution test continue to worsen even after Delivery, while trail making and maze test continue to improve (Table 1).

In the healthy control group (Group B)(Table 2), the PGI memory test and MAZE test show improved cognitive function tests, while trail-making and DSST show worsening cognitive function following Delivery. Except for the MAZE test, none of them were statistically significant. The TMT A (18.73 &18.85) and B (45.76 & 45.81) show no significant difference between pre and post-delivery (Table 2). In the PGI memory scale, the following test continues to normal following Delivery. Remote memory (6.65 & 6.72), recent memory (4.97 & 4.98), mental balance (6.26 &6.29), attention and concentration (7.20 & 7.59), delayed recall (5.68 &5.64), immediate recall (5.06 & 5.45), verbal retention-dissimilar word (8.18 & 8.29) and recognition (6.2 & 6.14) & DSST (89.22 & 89.24) Table 2). In verbal retention for similar words (4.51 & 4.44) and visual (2.09 & 1.53) retention (Table 2). In MAZE TEST-1 (13.13 & 11.76) and MAZE TEST-2 (14.9 & 13.36), there was a statistical difference between the pre and post-test (Table 2).

	Mean-Pre-delivery	SD		Mean-Post delivery	SD	P** value
TMT-A	18.73	2.681		18.85	2.472	0.964
TMT-B	45.76	3.610		45.81	3.776	0.465
MAZE TET-1	13.13	1.212		11.76	1.232	<0.001*
MAZE TET-2	14.90	1.744		13.36	1.396	<0.001*
PGI Memory Scale	59.19	3.675		59.21	3.548	0.692
• Remote memory	6.65	0.557		6.72	.362	0.317
• Recent memory	4.97	0.300		4.98	.141	0.655
• Mental balance	6.26	0.655		6.29	.640	0.059
• Attention and concentration	7.20	1.243		7.59	1.288	0.790
• Delayed recall	5.68	1.024		5.69	1.040	0.346
• Immediate recall	5.06	0.833		5.45	.859	0.585
• Verbal retention-similar word	4.51	0.785		4.58	.783	0.345
• Verbal retention-dissimilar word	8.18	1.8		8.29	1.641	0.375
• Visual retention	2.09	1.010		2.10	1.049	0.071
• Recognition	6.20	1.025		6.41	.779	0.499
DSST	87.22	2.464		89.24	2.539	0.713

Outliers: Nil, *P value <0.05 means significant
** Paired "t" test was used to calculate "p" value

Table 2. Comparative analysis cognitive function in Healthy control group before and after Delivery (Group B)

During pregnancy:

A comparison between the PIH group (Group A) and the healthy control group (Group B) (Table 3) during pregnancy showed an overall worsening of cognitive function in group A. In all the parameters of cognitive domains, the mean score was higher in the PIH group (Group A) compared to the healthy control group (Group B). In the trial-making and MAZE tests, the cognitive dysfunction was statistically very significant (<0.001). The following are the cognitive parameters that were statistically significant. Those are TMT-A (27.32 & 18.73), TMT-B (57.08 & 45.76) delayed recall (6.29 & 5.68), immediate recall (5.13 & 5.75), verbal retention-similar word (5.34 & 4.51), verbal retention-dissimilar word (9.52 & 8.18) & MAZE TET-1 (17.29 & 13.13) MAZE TET-2 (21.44 & 14.90) (Table 3). The following test did not get much affected by PIH. Remote memory (6.76 & 6.85), recent memory (4.99& 4.97), mental balance (6.26 & 6.34), attention and concentration (7.42 & 7.64) & DSST (88.00 & 89.22) (Table 3).

	During pregnancy			One month after Delivery		
	Pregnancy Induced Hypertension Group (Group A)	Healthy control group (Group B)	P Value	Pregnancy Induced Hypertension group	Healthy control group	P value **
TMT-A	27.32	18.73	<0.001	23.34	18.65	<0.001*
TMT-B	57.08	45.76	<0.001	48.74	45.51	<0.001*
MAZE TET-1	17.29	13.13	<0.001	13.06	11.76	0.258
MAZE TET-2	21.44	14.90	<0.001	16.83	13.36	<0.001*
PGI Memory Scale	60.44	59.19	0.046	64.52	59.21	<0.001*

	During pregnancy			One month after Delivery		
	Pregnancy Induced Hypertension Group (Group A)	Healthy control group (Group B)	P Value	Pregnancy Induced Hypertension group	Healthy control group	P value **
• Remote memory	6.76	6.65	0.261	6.81	6.72	<0.001*
• Recent memory	4.99	4.97	0.528	5.00	4.98	<0.001*
• Mental balance	6.26	6.26	0.524	6.75	6.29	<0.001*
• Attention and concentration	7.42	7.20	0.260	8.27	7.59	<0.001*
• Delayed recall	6.29	5.68	<0.001	6.90	5.69	<0.001*
• Immediate recall	5.13	5.06	<0.001	5.70	5.45	<0.001*
• Verbal retention-similar word	5.19	4.51	<0.001	5.34	4.58	<0.001*
• Verbal retention-dissimilar word	9.52	8.18	<0.001	10.18	8.29	<0.001*
• Visual retention	2.19	2.09	<0.001	2.22	2.10	<0.001*
• Recognition	6.75	6.20	<0.001	7.62	6.41	<0.001*
DSST	88.00	87.22	0.015	91.31	89.24	<0.001*

**Independent "t" test was used calculate the "p" value
Outliers: Nil, *P value <0.05 means significant

Table 3. Comparative analysis of cognitive function between PIH and Healthy control group before and after Delivery (group A and group B) (N=100)

AFTER ONE MONTH OF DELIVERY OF THE BABY

Comparison between the PIH group (Group A) and the healthy control group (Group B) showed statistical differences in all the areas except MAZE TET 1(Table 3). Though certain areas in cognitive domains improved following Delivery in the PIH group compared to the healthy control group, the PIH group had more cognitive dysfunction (Table 3).

DISCUSSION

This study has shown that cognitive impairment can happen during PIH (Group A) in pregnant patients compared to the healthy control group (Group B). Cognitive impairment continues to occur after one month of Delivery of a baby among these groups (Table 1&2). This study has shown that cognitive impairment will not affect all the domains of mental function.

The following were the significant findings from this study. First, there is a trend toward cognitive impairment in PIH (Group A) than the healthy control group (Group B). Second, women with PIH showed impairment in multiple domains of cognitive impairment, most prominently affecting frontal lobes like brain processing, executive functioning, verbal learning, and attention (Table 1).

The Trail making test and MAZE test were maximally affected during pregnancy (Group A) compared to the healthy control group. Trail-making showed impairment in visual attention, search speed, task switching, scanning, speed of processing, mental flexibility, and executive function (Table 1).

The study by Julie A found that impairment in Trail Making Test B. The changes observed were in the following domains. Cognitive speed and flexibility, executive function (d ¼ 1.96), verbal learning (d ¼ 1.93), visual memory (d ¼ 1.87), auditory attention (d ¼ 1.69).[4] Our study also showed changes in the Trail-making test suggesting this can be used as one of the important tools to assess cognitive function in PIH patients (Table 1).

The Porteus Maze test measures executive functioning (planning and foresight). This also affected maximally in our study. Following Delivery, there was an improvement in test performance in the PIH group, but it was still high compared to the healthy control group Table 1 & 2). This suggests PIH affects planning, foresight, and executive function.

In the PGI memory test, memory impairment was not that much affected during pregnancy compared to the Delivery in the PIH group (Table 1). However, retention and recognition were affected more. The study by Natalie Dayan et al. 2018 said that memory was not affected that much compared to the healthy control group.[5] In another recent study, cognitive functioning was studied before and after the Delivery of the baby in pre-eclamptic patients and healthy controls (Table 3). In this study, pregnant women had more changes in memory compared to non-pregnant healthy control patients. After the delivery of the baby, there were no much statistical differences in both groups in terms of memory and attention.

In DSST (measures attention), we found a worsening performance in pregnant women in both PIH and healthy control groups and it was statistically significant (Table 3). A similar finding was present even after the delivery of the baby. A meta-analysis by Malik Elharram et al. 2018 found that there was no significant difference between patients with and healthy control groups in DSST score.[1] Worsening of attention is an important finding in our study compared to pooled data analysis from Malik Elharram et al. 2018.

The underlying mechanism involved was micro-vascular and macro-vascular changes in the blood flow can cause structural and functional changes in the brain, leading to cognitive impairment directly or indirectly by altering white matter pathways.[6,7] This impairment was probably due to cerebral ischemia and edema in the clinical phase of the disease.[8] The memory deficits are permanent because radiological imaging has shown permanent damage in the white matter and loss of volume in the hippocampus and thalamus in eclamptic fit patients.[9] Some studies have shown lesions in temporal and frontal white matter, a decrease in cortical gray matter volume, and shrinkage in total brain volume in the PIH group.[10-13]

The other explanation for memory changes is due to hormonal system changes during pregnancy. Ali SA 2018 showed that hormonal changes affect cognitive performance.[14-16] They report that estrogen has a role in neuroprotective effects on degenerative disease or injury. The altering level of estrogen has led to changes in cognitive function.

The strength of this study was the assessment of cognitive function during pregnancy and one month after the delivery of the baby. We used standard tools to assess cognitive dysfunction. Sufficient sample size was used. We took the healthy control group to see if there was any difference in the trend in the healthy control (Group B) and case groups (Group A).

Limitations of this study were no long-term follow-up. We did not include other cardiovascular risk factors like obesity, smoking, elevated cholesterol levels, diabetes status, and severity of antenatal hypertension, which affects micro-vessel and macro vessels.

CONCLUSION

This study has shown that there was an association between the pregnancy-induced hypertensive group and the healthy control group in certain domains of cognitive function before Delivery. The cognitive impairment persists even after one month of Delivery, which signifies microvascular damage persists for a longer duration. It's because PIH leads to short-term and long-term cognitive impairment and effective management of PIH and subsequent preventive measures helps to prevent dementia and other cognitive impairments.

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Nil

CONFLICT OF INTEREST

Nil

AUTHOR'S CONTRIBUTIONS

Dr. Santosh Ramdurg has contributed to forming a research idea, data collection, analysis, and script writing. Dr S R Mudanur has contributed to forming a idea, collecting data, and writing scripts. Dr Mekhala Bhargava Swaraj has contributed to data collection. All the authors have approved the final script.

CONSENT

As per the ICMR guidelines, the informed written consent has been obtained and preserved by the corresponding author.

ETHICAL APPROVAL

As per the National standards, the ethical approval letter/ certificate from local IEC has been obtained and preserved by the authors.

FINANCIAL DISCLOSURE

Nil

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ORIGINAL ARTICLE

Factors Affecting Adherence to Oral Medications in Chronic Psychiatric Patients at a Tertiary Care Hospital in Western India: A Cross-Sectional Study

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Abstract:

Background: Adherence to Medications has been identified as an important factor in determining the course of psychiatric illness and future recovery. Despite this fact, lower adherence rates have been reported.

Aim: To determine the level of adherence to oral medications in chronic psychiatric patients and to assess factors affecting adherence.

Methods: A cross-sectional study was conducted on 225 patients diagnosed with and on treatment for Psychiatric Conditions for more than three months at the Outpatient Department of Psychiatry of a tertiary care hospital in Western India from September to October 2023. Data were collected using a Case Report Form and a standardized Adherence to Refills and Medications Score (ARMS) Questionnaire. Both bivariate and multivariate logistic regression were used. Variables with p-value < 0.05 were considered statistically significant.

Results: Majority of the study population (87.6%) was found to be non-adherent. Through univariate logistic regression, it was found that the female gender (OR: 2.425; 95% CI: 1.020 – 5.766), higher education of head score (OR: 2.410; 95% CI: 1.063 – 4.758), and lesser number of class of medications (OR: 2.315; 95% CI: 1.037 – 5.166) were significant predictors of adherence. Multivariate logistic regression showed that higher education of head score (AOR: 2.705; 95% CI: 1.144 – 6.398) and lower frequency of consumption of medications (AOR: 0.335; 95% CI: 0.135 – 0.829) were associated with better adherence.

Conclusion: The study showed that further improvements in adherence are required. Factors contributing to non-adherence should be assessed and intervened.

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INTRODUCTION

Despite the significant progress made in the development of psychopharmacological agents in treating psychiatric patients, adherence to the prescribed treatment remains a humongous problem. WHO says adherence among patients suffering from chronic diseases averages about 50% in developed countries and the problem is even greater in developing countries where there is a scarcity of health resources and disparities in access to said limited resources.[1] It also often is the single greatest determinant of the effectiveness of prescribed psychiatric medication in the clinical setting.[2]

Medication Adherence is defined by the WHO as "the degree to which the person's behaviour corresponds with the agreed recommendations from a health care provider." It includes taking the prescribed number of pills each day and the timing of doses.[3] Medication nonadherence rates are significant among psychiatric patients. A review article mentioned how non-adherence ranges between 28% - 52% for major depressive disorder, 20%-50% for bipolar disorder, 20% - 72% for schizophrenia, and about 57% for anxiety disorders.[4]

The factors influencing adherence range from "sociodemographic (age, gender, and education), clinical (diagnoses, drug treatment, and treatment duration), attitudinal (attitudes toward psychopharmacological medication and preferences regarding participation in decision-making) to the perception of control over health (health locus of control, self-efficacy, and psychological reactance)."[5] A complex interplay of all these variables amounts to the actual adherence of the patient to the prescribed medication. Because nonadherence as a clinical problem is multifactorial, an individualized approach to assessment and treatment, developed in the context of an ongoing physician-patient relationship, is optimal. When nonadherence is differentially diagnosed, causative factors that are assumed to be present in each patient should be the focus of therapy, thus individualized interventions are the way to go.[6]

This nonadherence to psychiatric medications or treatments in turn takes a significant toll on the patient. It greatly affects the course of psychiatric illness, relapse & rehospitalization, and future recovery. In addition, there can be a profound impact on the cost of care and the patient's long-term functioning, be it social, vocational, or academic. It is also linked to violence such as reported aggression and arrests[8], suicide[9], and increased mortality in patients nonadherent to drug therapy.[10]

As is evident from above, the alarming degree of the nonadherence problem in clinical practice, its potentially dire consequences, and the high costs associated with it make it a worthwhile topic to explore. And this is what this study aims to do: quantify the adherence levels and determine the factors influencing it at an outpatient clinic in Western India. Improved understanding of the magnitude and underlying reasons for nonadherence would help design relevant & effective interventions. The WHO Report also emphasizes that increasing the effectiveness of adherence interventions may have a far greater impact on the health of the population than any improvement in specific medical treatments

METHODS

Study Design, Period, and Area

An institutional-based cross-sectional study was undertaken at the Psychiatry Outpatient Department from September to October 2023. Patients willing to participate in the study, with ages more than 18 years, diagnosed with a Psychiatric Condition, and who were on medications for the same for more than 3 months by a qualified psychiatrist, were included in the study. Patients unwilling to participate and those aged less than 18 years, were excluded.

Sample Size Determination and Technique

We determined the sample size using the Daniel Sample Size Formula, based on the 16.5% prevalence[11] of Chronic Psychiatric Patients; with 95% CI and 5% marginal error. The sample size was determined to be 221.

Data Collection Procedures and Instruments

Data was collected using a pretested structured questionnaire through face-to-face interviews with four trained medical students after obtaining written informed consent. The following are the assessment instruments: -

1. Case Report Form
   It was developed by the investigator and contains information about the patient's sociodemographic characteristics (age, gender, locality, living status with spouse, socioeconomic status according to Modified Kuppuswamy Scale) and clinical variables (psychiatric diagnosis, duration of psychiatric medication, class of psychiatric medications prescribed, number of different drugs taken and their frequency, comorbid conditions, addictions, medication taken by self or assisted).
2. Adherence to Refills and Medications (ARMS) Questionnaire[12]
   It is a pre-formed standard questionnaire containing 12 questions. The range of possible scores through the scale is 12 to 48. Lower scores indicate better adherence. Scores were dichotomized as 12 (adherent) or >12 (nonadherent)

Data Analysis

The collected data were entered into Microsoft Excel 2019 and then exported into Statistical Package for Social Sciences (SPSS) version 29 for analysis. Ordinal logistic regression was used to test the associations between independent and dependent variables. Variables with p-value <0.05 were considered statistically significant. The strength of association was described by using OR and 95% CI. Variables at bivariate analysis p <0.2 were candidates for multivariate analysis.

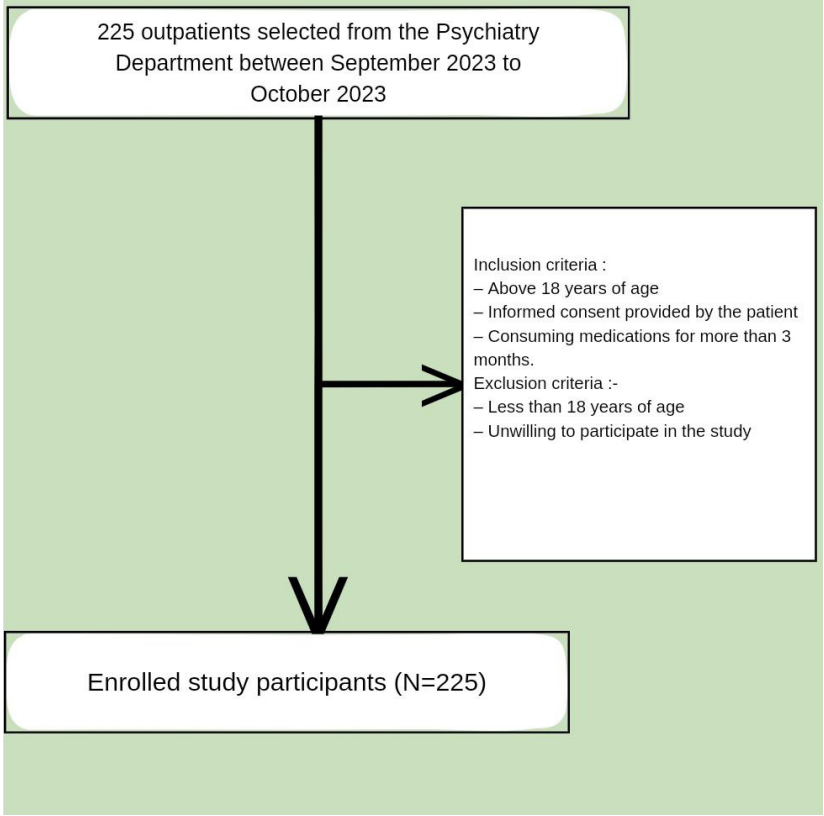

Figure 1 Schematic representation of the enrolment of subjects

RESULTS

Baseline Characteristics of Study Population

225 patients with Chronic Psychiatric Illness were approached for the study through a non-random convenience sampling method. The mean age of the respondents was 45.53 ± 13.61 (Range: 18-72 years). Of the study population, 105 (46.7) were males and 120 (53.3) were females. The majority belonged to Urban localities (185, 82.2) and the rest lived in rural areas. Eighty-four (37.3%) respondents had higher education (> 10th standard) as compared to the rest 62.7 % population. Lower socioeconomic status constituted 40.9 % of the study population while the rest (133, 59.1%) belonged to higher socioeconomic groups. A preponderance of patients consuming multiple classes of medications was found (137, 60.9%) over patients consuming medications of a single class (88, 39.1%).

Medication Adherence in Patients Using ARMS Score

Out of the study population (n=225), 28 (12.4%) were found to be adherent to oral medications (ARMS score = 12), and the majority, 197 (87.6%) were found to be non-adherent (ARMS score >12, range: 13-48)

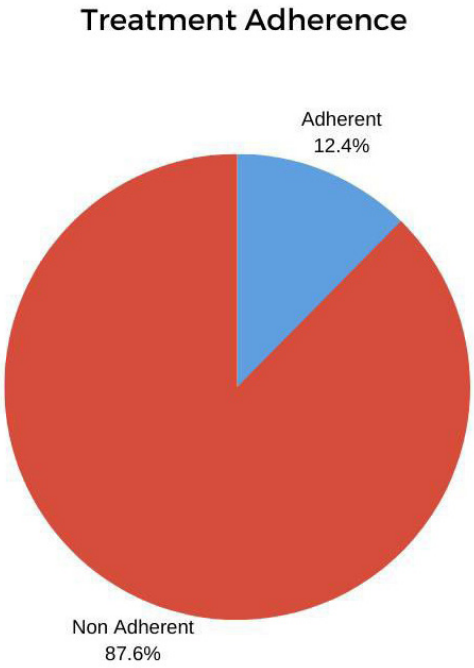

Figure 2 Magnitude of treatment adherence among study participants.

Factors Associated with Medication Adherence in Chronic Psychiatric Patients

The results of univariate analysis, as shown in **Table 1**, indicated that the patient's gender (OR: 2.425; 95% CI: 1.020 – 5.766), education of head score (OR: 2.410; 95% CI: 1.063 – 4.758), and the count of class of medications (OR: 2.315; 95% CI: 1.037 – 5.166) were significant predictors of adherence. The multivariate results, shown in **Table 2**, analysed with factors having significant p-value (<0.20) in the univariate model, indicated that having higher education of head score (AOR: 2.705; 95% CI: 1.144 – 6.398) and lower frequency of consumption of medications (AOR: 0.335; 95% CI: 0.135 – 0.829) were found to be significantly associated with better adherence. Age of patient, locality, comorbidity, addiction, and duration of consumption of medications had no statistically significant effect on adherence.

Characteristic	N(%)	Odds Ratio OR (95 % CI)	'p' value
Gender Male Female	 105 (46.7) 120 (53.3)	 1 2.045 (1.020 – 5.766)	 - 0.045 (p <0.05)
Living with Spouse Yes No	 150 (66.7) 75 (33.3)	 1 0.776 (0.325-1.855)	 - 0.569
Locality Urban Rural	 185 (82.2) 40 (17.8)	 1 0.150 (0.020-1.138)	 - 0.067
Education of Head Score <10th standard >10th standard	 141 (62.7) 84 (37.3)	 1 2.410 (1.063 – 4.578)	 - 0.048 (p <0.05)
Socioeconomic Status 1 to 3 3 to 5	 92 (40.9) 133 (59.1)	 1 0.556 (0.251 – 1.233)	 - 0.148

Characteristic	N(%)	Odds Ratio OR (95 % CI)	'p' value
Duration of Medication 3 months to 3 years >3 years	 166 (73.77) 59 (26.23)	 1 0.741 (0.285 – 1.928)	 - 0.539
Medication by Self Assisted	191 (84.1) 36 (15.9)	1 0.397 (0.90-1.755)	- 0.223
Comorbidity None Present	 191 (84.9) 34 (15.1)	 1 0.928 (0.300-2.865)	 - 0.896
Number of Medications 2 >2	 89 (39.6) 136 (60.4)	 1 0.725 (0.327 – 1.607)	 - 0.428
Addiction Absent Present	212 (94.2) 13 (5.8)	1 0.597 (0.071 – 4.568)	- 0.597
Frequency Once a day More than once a day	 47 (20.9) 178 (79.1)	 1 0.540 (0.290-1.007)	 - 0.053
Class of Medications Single Multiple	 88 (39.1) 137 (60.9)	 2.315 (1.037 – 5.166) 1	 0.040 (p<0.05) -
Diagnosis Neurotic disorder Psychotic disorder	 162 (72) 63 (28)	 1 0.521 (0.189 – 1.821)	 - 0.208
Age	45.53 ± 13.61	1.016 (0.987 – 1.046)	0.289

Table 1 Association of Sociodemographic characteristics of study population (n = 225) with Adherence to Medications (ARMS Score)

Characteristic	Adjusted OR (95% CI)	'p' value
Gender Male Female	 1 2.13 (0.189 – 1.176)	 - 0.107
Locality Urban Rural	 1 2.16 (0.189 - 1.176)	 - 0.143
Education of Head Score <3 >3	 1 2.705 (1.144 – 6.398)	 - 0.023 (p<0.05)
Frequency Once a day More than once a day	 1 0.335 (0.135 – 0.829)	 - 0.018 (p<0.05)
Class of Medications Single Multiple	 1.851 (0.788 – 4.349) 1	 0.158 -

Table 2 Final Multivariable model of association of various factors with Adherence (ARMS Score) among the study population (n=225)

DISCUSSION

The study was carried out to determine the levels of adherence in outpatients diagnosed with chronic psychiatric conditions, and to identify possible risk factors that might impact adherence. A total of 87.6% of the study population was found to be non-adherent according to the ARMS score. This contrasts with psychotropic medication non-adherence of 48%, 48%, 49%, and 57% in Africa, North America, Europe, and Asia, respectively (Semahegn et al., 2020). Various factors such as different healthcare systems, poor mental health awareness, inadequate mental health infrastructure, and wide treatment gap, might have contributed to the significantly lower adherence in our setting. Assessing medication adherence may lead to a better understanding of reasons for nonadherence in psychiatric patients and help give us the foundation for actions that may improve adherence.

The previous literature review suggested that medication adherence can be classified into four categories: patient-related, medication-related, illness-related, and external/environmental factors. The factors designed in this study are more focused on patient-related factors, including age, gender, locality, socioeconomic status, comorbidity, educational status, addiction, presence of insight, and number and duration of medications. It was found that females were 2.425 times more adherent than males (OR: 2.425; 95% CI: 1.020 – 5.766). This complies with four studies carried out in India where adherence was found to be better in females (Ansari et al[14], Rao et al[15], Chaudhari et al[16], Ramamurthy et al[17]) with only one study finding males to be more adherent to medications (Banerjee et al)[18] Education of Head Score was found to be statistically significant, with education higher than 10th standard depicting 2.41 times higher adherence than their counterparts. Similar findings of the correlation of lower educational status with non-adherence have been found in six studies carried out from 2005 to 2015 (Semahegn et al, 2020). The study further found that patients on a single class of medications are 2.31 times more adherent than those consuming medications of multiple classes. Additionally, with an increase in the dosing frequency, a reduction in adherence to medications has been found (AOR: 0.335; 95% CI: 0.135 – 0.829). A similar finding with dosing frequency has been noted in various systematic reviews (Coleman et al[19], 2012; Saini et al, 2009[20]).

Age is not found to be significant. However, through literature reviews, it has been found that older patients have greater adherence. This can imply that younger patients may have a more negative perception of medicine: they may think of them as more harmful and would want to exercise more personal control over their condition and its management. (Horne et al., 2013[21]). No significant effect of the presence of insight has been found on adherence in this study. In the studies carried out in the past, insight has been associated with adherence (Day et al., 2005[22])

Limitation

Since self-reports were administered for the assessment and measurement of adherence to medications, this may occasionally lead to unreliability and bias. This is due to self-reported measures being subject to recall bias, overestimation of adherence, and elicitation of responses that are socially acceptable, further leading to an unreliable ascertainment of medication adherence status. Secondly, the study was carried out for a limited duration i.e., 2 months with no longitudinal follow-up. Further, it is difficult to establish the cause-effect relationship due to the cross-sectional nature of the study. Lastly, a larger sample size can prove to be more extrapolative. Modifiable factors?

IMPLICATIONS

The study findings suggested a high degree of non-adherence, with 87.6 % of the study population reported as non-adherent. The results underline that necessary attention should be paid to addressing non-adherence among patients, especially in patients with lower education levels; those consuming multiple classes of medications; and those with more than a single dosing frequency. Strengthening the guidance and supervision of patient's adherence to medications is required.

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Conflict of interest

Nil

Author's contributions

This work was carried out in collaboration among all authors. All authors have read and approved the final manuscript.

Consent

As per the ICMR guidelines, the informed written consent has been obtained and preserved by the corresponding author.

Ethical approval

As per the National standards, the ethical approval letter/ certificate from local IEC has been obtained and preserved by the authors.

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ORIGINAL ARTICLE

ENCHANT - Enhancing Psychiatric History Taking: A Comprehensive Approach

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INTRODUCTION

Psychiatric history taking is a fundamental aspect of psychiatric evaluation, providing clinicians with crucial information to understand and address patients' mental health concerns effectively. ENCHANT explores the significance of a thorough psychiatric history, outlining key components and strategies to optimize the process, by adopting a systematic and holistic approach facilitating clinicians to better understand the complexities of each patient's condition, leading to more personalized and effective treatment interventions.

SOCIODEMOGRAPHIC DETAILS

It plays a significant role in psychiatry in understanding, assessment, treatment, and prevention of mental health disorders. Several sociodemographic factors are often overlooked but can significantly influence an individual's mental health and treatment outcomes. Commonly documented information includes the ID no., Name, Father's name, Age, Sex, Education, Occupation and Address of the patient for identification purposes and establishing rapport. Usually missed but equally important points include Religion, Spoken language, Socioeconomic status, Source of referral and ID marks, all of which aids in understanding the patient in a holistic, sociocultural perspective.

INFORMANT

Accumulating available information from the informant after obtaining consent from the patient is a crucial next step. Capability in assessing the adequacy and reliability of the informant is an important skill in psychiatric history taking, as it plays a vital role by providing additional context, corroborating or refuting patient's information, and offering insight into the patient's symptoms and functioning, particularly in situations where objective evidence of disease is lacking or unreliable, which is more common than not in psychiatric conditions.

ONSET, COURSE AND DURATION OF ILLNESS

The next critical step is to determine the appropriate onset, course and duration of the illness, as it helps in Diagnostic clarity ie., different psychiatric disorders often have distinct patterns of onset and course, Treatment planning and Prognostic consideration ie., conditions that have a stable course may have different treatment goals and outcomes compared to those with fluctuating or worsening symptoms, and to differentiate whether the decrease in symptoms observed is due to natural course of the illness or the treatment given. It may

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also help in risk assessment ie., it may also provide clues about potential risk factors or triggers for psychiatric emergencies, self-harm, or harm to others.

STRESSORS

The description of predisposing, precipitating and perpetuating stressors may be pivotal in many aspects as it can have a direct effect on physical as well as mental health, and indirect effect where stress may be expressed through health damaging behaviour. With evolving understanding on Psychoneuroimmunology and Psychoneuroendocrinology, the concept of stressors in psychiatric illnesses is further strengthened. Hence, there is a need to conceptualise stress unambiguously while history taking, which also helps in individualised non- pharmacological treatment strategies.

CHIEF COMPLAINTS AND HOPI

They provide a structured framework for understanding the patient's current symptoms, establishing rapport, guiding diagnosis and treatment planning, and monitoring progress throughout the therapeutic process.

Treatment History of current illness

Understanding the details of past treatment will lead to a better understanding of which treatments are viable alternatives and which to avoid. Fastidious review of prior medication trials provides valuable information to define reasonable treatment medication options and to rule out others.

PAST PSYCHIATRIC HISTORY

Most psychiatric disorders have a pattern of recurrence, and comorbidity is the rule rather than the exception. Some episodes of illness may have gone undiagnosed, especially milder forms of illness. Suicide and violence risk assessment is one of the vital information to be obtained and it has matured to offer an understanding that risk is a dynamic process influenced importantly by risk-enhancing and risk-reducing factors that has to be extensively evaluated. Establishing the patient's best functional baseline and the extent of recovery between episodes in case of episodic illness also provides a perspective on the impact of the problem(s) on the trajectory of the patient's life and helps to identify elements of a comprehensive treatment plan that optimizes fullest possible recovery.

PAST MEDICAL HISTORY

A well-developed past medical history archives both current and past major medical disorders, surgeries, hospitalizations and significant physical trauma, such as head injuries. In psychiatry, neurological and endocrine disorders are of particular interest because of the significant overlap in symptoms and signs with psychiatric syndromes. A thorough review of all current medications is essential because some medications used in other fields in medicine can create side effects that mimic psychiatric disorders and to identify potential drug–drug interactions before prescribing.

FAMILY HISTORY

Because many psychiatric illnesses have a genetic predisposition, if not cause, a careful review of family history is important to the assessment and can aid in diagnosis and establishing expected prognosis. Understanding that psychiatric disorders have a genetic component can help reduce stigma and promote empathy and understanding within families. It can also encourage family members to seek help and support each other in coping with mental health challenges.

PERSONAL HISTORY

Birth, Developmental and Childhood history

This reviews the stages of the patient's life from gestation to adolescence with an eye toward understanding the important exposures, relationships, and events that shaped the person's life story. It is also important in understanding the nature of the person's temperament and character and the degree to which the person has achieved developmentally appropriate role functions such as academic progress, work, peer and romantic relationships. Hence the gestational and birth history, developmental milestones and childhood development offer valuable information about early risk factors, neurodevelopmental trajectory, differential diagnosis, treatment planning, prognosis, and family dynamics.

Education and Occupation History

Education level can influence cognitive abilities, problem-solving skills, and access to resources. Occupation provides insights into daily functioning, social interactions, and stressors in the individual's life. The nature of one's job, work environment, job satisfaction, and level of occupational stress can impact mental well-being. High-stress occupations, job insecurity, or workplace conflicts may contribute to the development or exacerbation of psychiatric symptoms. Socioeconomic disparities can contribute to inequalities in mental health outcomes. Educational demands, career responsibilities, and occupational stressors can influence coping strategies and resilience. Individuals may develop adaptive or maladaptive coping mechanisms to deal

with academic or work-related stressors. Hence these are integral components of psychiatric assessment, providing valuable insights into cognitive abilities, socioeconomic status, stressors, coping strategies, and overall well-being.

Substance use History

Substance use can contribute to the development, exacerbation, or recurrence of mental health conditions. Many individuals with psychiatric disorders also struggle with substance use disorders, as dual diagnosis or comorbidity. Untreated substance use disorders can complicate the management of psychiatric symptoms and increase the risk of relapse. Conversely, untreated psychiatric disorders may contribute to substance use as a form of self-medication. It can also interfere with the effectiveness of psychiatric treatments. Understanding an individual's substance use history helps clinicians assess the severity of the problem and identify patterns of use. Addressing substance use in psychiatric care promotes patient-centered approaches to recovery and well-being.

Marital History

Marital history provides insights into the individual's past and current relationship dynamics, including patterns of communication, conflict resolution, intimacy, and support. Positive marital experiences characterized by emotional closeness, mutual respect, and effective communication can promote mental well-being, while marital discord, dissatisfaction, or conflict may contribute to stress, depression, or anxiety. It encompasses significant life transitions, such as marriage, divorce, widowhood, or remarriage, which impact mental health and adjustment. Understanding the context of these life changes is hence essential for providing appropriate support and intervention.

Sexual History

Sexual history can provide insights into potential risk factors for mental health issues, including sexual trauma, abuse, or exploitation. It also sheds light on the individual's experiences with relationships, intimacy, and sexual identity. Positive or negative experiences in romantic and sexual relationships can influence mental health and well-being. Issues related to sexual orientation, gender identity, sexual dysfunctions, or difficulties with intimacy may be relevant to psychiatric assessment and treatment planning. Addressing mental health concerns during pregnancy and the postpartum period improves maternal and infant outcomes.

Menstrual and Obstetric History

Understanding menstrual patterns and associated symptoms is crucial for identifying menstrual-related mood disorders, and hormonal influences on psychiatric symptoms. It also includes information about menopausal transition and associated symptoms such as hot flashes, mood changes, and sleep disturbances. Obstetric history is particularly relevant in perinatal mental health care, focusing on the mental health of individuals during pregnancy and the postpartum period. Addressing mental health concerns during pregnancy and the postpartum period improves maternal and infant outcomes. In summary, incorporating menstrual and obstetric histories into psychiatric assessments allows clinicians to consider hormonal influences, reproductive experiences, and gender-specific factors that may impact women's mental health and well-being.

Legal History

Legal history includes information about past encounters with law enforcement, involvement in legal proceedings, such as arrests, charges, convictions, or incarceration. Understanding the nature and circumstances of legal involvement helps clinicians assess risk factors, identify potential stressors, and address legal consequences that may impact mental health and well-being. In forensic psychiatry, legal history is central to assessing an individual's mental state at the time of the offense, competency to stand trial, criminal responsibility, and risk of future violence or recidivism.

PREMORBID PERSONALITY

Premorbid personality serves as a baseline for evaluating changes in behavior, mood, and functioning associated with the onset of psychiatric symptoms. Comparing current symptoms to premorbid personality traits helps clinicians identify deviations from the individual's typical patterns of behavior and functioning, aiding in diagnostic formulation and treatment planning. Premorbid personality characteristics may influence the onset, course, presentation of psychiatric symptoms and contribute to diagnostic considerations. Incorporating premorbid personality assessment into psychiatric evaluations enhances diagnostic accuracy, treatment planning, and therapeutic interventions tailored to the individual's unique personality profile and clinical presentation.

GENERAL PHYSICAL AND SYSTEMIC EXAMINATION

Physical examination allows clinicians to assess for signs of medical conditions that may impact mental health. Certain medical conditions, such as thyroid disorders, neurological disorders, endocrine disorders, infectious diseases, and cardiovascular diseases, can present with psychiatric symptoms or exacerbate existing mental

health issues. Identifying and addressing these medical conditions is essential for comprehensive psychiatric care. It helps monitor for medication-related adverse effects, such as weight gain, metabolic changes, cardiovascular effects, or movement disorders. Systemic examination also includes a neurological assessment, that may indicate underlying cognitive impairments, or brain injuries that can impact mental health and functioning. Incorporating physical health assessment into psychiatric evaluations enhances diagnostic accuracy, treatment planning, and overall health outcomes for individuals.

MENTAL STATUS EXAMINATION

It is a standardised format in which the clinician records the psychiatric signs and symptoms present at the time of the interview. It is a systematic collection of the observations and reported mental experiences that produce a picture of the patient's current mental state and functioning. MSE conducted in a structured and systematic manner, with findings documented to inform diagnostic impressions, treatment planning, and ongoing monitoring of the individual's mental health status, provides a comprehensive evaluation of the individual's mental state and functioning, guiding clinical decision-making and interventions in psychiatric care.

HIGHER MENTAL FUNCTION

Domains of cognitive function important to the initial assessment include level of alertness, orientation, attention/concentration, visual-spatial function, memory (registration and recall), calculation, receptive and declarative language functions, fund of knowledge, capacity to abstract, and executive functions including insight and judgment. Assessing and promoting higher mental functioning, apart from providing a clue in diagnosis, is important in cognitive rehabilitation, psychotherapy, and interventions aimed at enhancing cognitive skills and psychological resilience.

DIAGNOSTIC FORMULATION

It is a concise statement of the case, a discussion about alternative ideas about diagnosis, aetiology, treatment and prognosis and of the arguments for and against each alternative. A good formulation is based on the facts of the case and not on speculation. It is concerned with not only the disease concepts, but also with the understanding how the patient's lifelong experiences have influenced his personality and his ways of reacting to adversity'. Hence it is essentially 'an analysis and integration of information'.

CONCLUSION

The noble impulse to rapidly help the patient is only noble if well placed and well timed. Hence, clinicians need to see that the more complete the history is, the better the chance to direct that impulse for good. Good treatment demands the best possible history, and despite the unrelenting competing pressures, mental health clinicians should still aim high and we believe ENCHANT is a tool aimed in guiding us on the path of comprehensive psychiatric history taking.

Scan the QR code to get ENCHANT – An Enhanced Psychiatric History Taking Manual.

Feedbacks, Suggestions and Criticisms are welcome – e.palm2024@gmail.com

ENCHANT - **E**stablish rapport, **N**ote symptoms, **C**ollaborate with patient and Informant, **H**istory exploration, **A**ssessing Mental status, **N**ote risk factors, **T**ailor treatment approach based on patient's needs.

For the full article along with the complete performa, referred to Journal website (www.ijmhns.com)

ENCHANT PERFORMA

SOCIO DEMOGRAPHIC PROFILE

SOCIA DEMOGRAPHIC PROFILE: **DATE:**

ID no Name	Hospital documentation & identification purpose. Documentation, identification & helps to establish rapport with patients
Father's/Husband's Name	Identification becomes difficult with own name if there are two individuals with same name.
Age(in yrs)	To prepare interview style. Legal validity of information, to narrow down diagnosis in relation to age, for planning management, to evaluate prognosis.
Sex	1.Male ( ) 2.Female ( ) 3.Other ( ) To narrow down diagnosis in relation to sex, to evaluate prognosis
Religion	1.Hindu ( ) 2. Christian ( ) 3. Muslim ( ) 4. Other ( ) To understand the prevailing belief system, for planning management and support.
Mother tongue	Tamil speaking / other language It is preferable to conduct the interview in mother tongue of the patient.
Marital status	1.Single ( ) 2.Married ( ) 3.Seperated ( ) 4.Divorced ( ) 5.Widow ( ) For planning management - Eg: prescribing a teratogenic drug to a reproductive age female, to evaluate prognosis and social support of the patient.
Education	1. Illiterate ( ) 2.Primary class ( ) 3.Middle school ( ) 4.Higher school ( ) 5. Higher secondary school ( ) 6.Graduate ( ) 7.Post graduate ( ) 8.Specify … … … For planning management especially non- pharmacological, may give clue to the underlying intellectual level.
Occupation	1. Not working ( ) 2.Working ( ) 3.Specify For planning management - Eg: prescribing a sedative drug to a night shift worker To assess impact of illness on occupation
Socio economic status	Based on Modified Kuppuswamy scale. [1] 1.Upper ( ) 2. Upper middle ( ) 3. Lower middle ( ) 4. Upper Lower ( ) 5. Lower ( )
Source of referral	1.Self ( ) 2.Patient( ) 3.Other department ( ) 4.Others(Specify) Legal validity - Eg: case referred from magistrate for evaluation Discussion with the referral source prior to the first interview is helpful to add additional clarity to the purpose of the referral and to obtain nuanced background information. [3]
Identification marks	Traceable and permanent marks should be mentioned. Common moles should be avoided. Proper anatomical location should be mentioned. 1. 2. Legal identification (Eg: patient running away from hospital, uncooperative or unknown patients found alone or wandering in streets)
Address with phone number	For communication if required. To know how far from the patient is coming, so that to formulate the frequency of follow up

Table 1. Sociodemographic profile

INFORMANTS

To take the patient's consent before taking this collateral history unless the patient does not have capacity to consent. [2]

- **Limited Insight:** Patients may minimize or deny their symptoms due to stigma, fear, or lack of insight.
- **Memory Impairment:** Affects the accuracy of self-reported history.
- **Behavioural Observations:** Informants can offer valuable observations of the patient's behaviour, mood changes, and interactions over time, which may not be evident during brief clinical encounters.
- **Diagnostic Confirmation:** Informant history can help corroborate or refute the patient's self-reported symptoms, aiding in the diagnostic process.
- **Treatment Planning:** Understanding the patient's social support system, living environment, and interpersonal relationships through informant history.

S.no	Informants name	Relationship with patient [13]	How long informant is in touch with patient	Adequacy	Reliability
				• Information given is sufficient for forming a diagnosis or not.[5] • Intellectual and observational ability.[2] • Degree of concern regarding the patient. [2]	It refers to the likelihood that similar results will be obtained by different observers.[5] **Contact**- between the patient and informant **Closeness**- of relationship between the patient and informant **Continuity**- of the account given by informant **Consistency**- of the verbatim of the informant, with in the informant at different interview. **Corroborativeness**- between various sources of information **No motive to give wrong information**

Table 2 – Informant details

TOTAL DURATION OF ILLNESS

(calculated from the day of onset of first behavioural change to till now)

MODE OF ONSET

Onset is defined as the time span from the beginning of the first symptom to the time of developing a full blown diagnosable psychiatric syndrome.

1. Sudden – Sudden appearance of signs and symptoms within minutes to hour.
2. Acute - Rapid onset of signs and symptoms within hours to day.
3. Sub-acute – Onset of signs and symptoms within days to week.
4. Gradual - Onset of signs and symptoms within weeks to month.
5. Insidious - Onset of signs and symptoms develop over months to years so gradually, that it is difficult to ascertain when the onset exactly occurred.

COURSE OF ILLNESS

Course of an illness refers to the usual trajectory the

disease follows from the moment of exposure to causal agents until recovery or death. In mental disorders, where the cause of illness is not known exactly, course is described from the onset of first symptom.

1. **Continuous** - Characterised by uninterrupted change without breaks or with steps infinitely small and thus not detectable.[5] The symptoms of the illness never disappear completely throughout the course of the illness.

   1a. with Exacerbation –

   a. Waxing and waning course
   b. Progressive course
   c. Static course

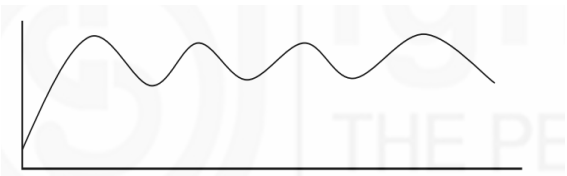

Fig. 1: Waxing and waning course

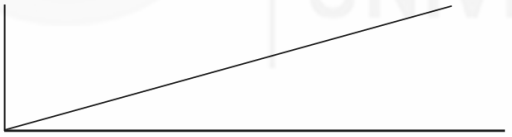

Fig. 2: Progressive course

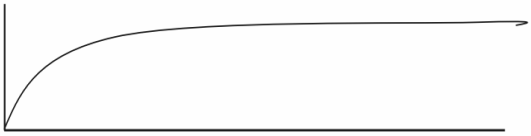

Fig. 3: Static course

Table 2 – Informant details

2. **Episodic** - An illness can be said episodic when it has an onset and an offset of signs and symptoms of the disease with periods of recovery in between at least for a period of 2 months.

   2a. Duration of current episode –

3. **Fluctuating**

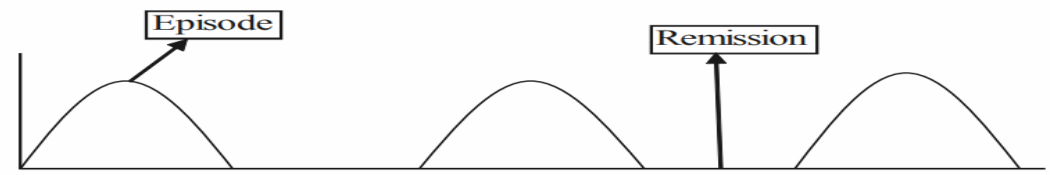

Fig. 4: Episodic course

PROGRESS OF ILLNESS

To what extend has the patient's symptomatology represented an evolution over time.[5]

- Improving- Improving from the date of onset
- Deteriorating-Condition is getting worse by time

STRESSORS: FACTORS IN ILLNESS [5]

- Predisposing factors- Factors operating from early life that determines a person's vulnerability to develop a disorder or likelihood that person will develop certain symptoms under given stress conditions.
- Precipitating factors- Events that occur shortly before the onset of a disorder and act as physical or psychosocial stressors and lead to the onset of disorder in a person who may be predisposed to develop the disorder
- Perpetuating factors- Factors due to which the disorder is maintained or aggravated.
  - Biological
  - Psychological
  - Social

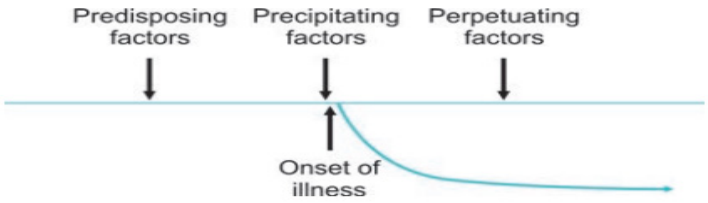

Fig. 5: Factors in Illness

CHIEF COMPLAINTS

Write in patients words in chronological order - with the earliest complaint first and recent most being last.[5]

Patient:	**Informant:**
1.	1.
2.	2.

HOPI (History of Present Illness)

When the patient was last asymptomatic should be clearly noted.[2]

Patient's report

It should take precedence over the other informants' report. If the patient has no complaints or he denies symptoms (due to absent insight), or is non communicative this fact should also be noted. [2]

Informant's report

Report of the collaterals including other health care providers, family, and other caregivers. [4]

1. Document complete relevant information from the day of onset of first behavioural change to till date in case of continuous illness.
2. Document complete relevant information from the day of onset of behavioural change in this episode to till date in case of episodic illness.
3. The essential questions include what (symptoms), how much (severity), how long, and associated factors. Identify why the patient is seeking help now.
4. Establish psycho pathology and diagnostic criteria.
5. Document the level of dysfunction (biological, psychological, social and occupational).
6. Document relevant negative history.

Limiting factors

Factors which limit the illness from an extensive progress and may include factors such as good social support or treatment during the course of illness.[5]

Modifying factors

Factors which modify natural or expected course of the illness. This includes factors such as use of substance by a patient with Schizophrenia which may lead to affective colouring of illness, use of antidepressants causing a manic switch in patient with depressive illness [(5)]

To summarize, HOPI should cover major headings under acronym of **ABCD**[5]

- ***A - Affect***
- ***B - Biological functions***
- ***C - Complaints in behaviour***
- ***D - Daily living activities***

TREATMENT HISTORY:

Duration of untreated illness

S.No	Who?	Voluntary / not	OP/ IP	Nature and Modality of Rx	Duration	Response	Reason for discontinuation
	Psychiatrist Psychologist Physician Neurologist Temple priest Faith healer Astrologer Traditional / alternate medicine practitioner			Pharmacological Psychological Faith healing Traditional / Herbal / alternate medicine methods Individual/ group therapy			

Table 3 – Pathway of treatment

S. no	Psychotropic Medication	Dose range	Duration	Compliance / Reason for poor compliance	Response	Adverse effects	Allergies

Table 4 – Psychotropic medication details

Drug compliance

Compliance is defined as the extent to which the patient's behaviour (in terms of taking medications, following diets or executing other lifestyle changes) coincides with medical recommendations.[5]

MEDICAL HISTORY

Medical conditions both past and present

- DM/ HT/ BA/ TB/ CAD / CVA/ Thyroid disorders/ Head injury/ Seizures / LOC/ Syphilis/ HIV/ OTHERS
- Any past surgeries

PAST PSYCHIATRY HISTORY

- Complete information of past episodes in case of episodic illness.
- Complete information of past symptoms of other psychiatric disorders, when they occurred, how long they lasted, and the frequency and severity of episodes. [4]
- Inter episode period of functioning.[5]
- Past treatment should be reviewed in detail.[4]

S.No	Who?	Voluntary / not	OP/ IP	Nature and Modality of Rx	Duration	Response	Reason for discontinuation
	Psychiatrist Psychologist Physician Neurologist Temple priest Faith healer Astrologer Traditional / alternate medicine practitioner			Pharmacological Psychological Faith healing Traditional / Herbal / alternate medicine methods Individual/ group therapy			

Table 5 – Pathway of treatment

S.No	Who?	Voluntary / not	OP/ IP	Nature and Modality of Rx	Duration	Response	Reason for discontinuation
	Psychiatrist Psychologist Physician Neurologist Temple priest Faith healer Astrologer Traditional / alternate medicine practitioner			Pharmacological Psychological Faith healing Traditional / Herbal / alternate medicine methods Individual/ group therapy			

Table 6 – Psychotropic Medication Details

Special consideration

- Past suicidal ideation
  - Intent and plan
  - Attempts including the nature of attempts
  - Perceived lethality of the attempts
  - Saving potential
  - Suicide notes or other death preparations
  - If the patient has not acted upon these urges, what has prevented him or her from acting on these thoughts
- Non suicidal self-injurious behaviour including history of cutting, burning, banging head, and biting oneself.
- Violence and homicidality history

A life chart provides a valuable display of the course of illness, episodic sequence, polarity (if any), severity, frequency, relationship to stressors, and response to treatment, if any.[2]

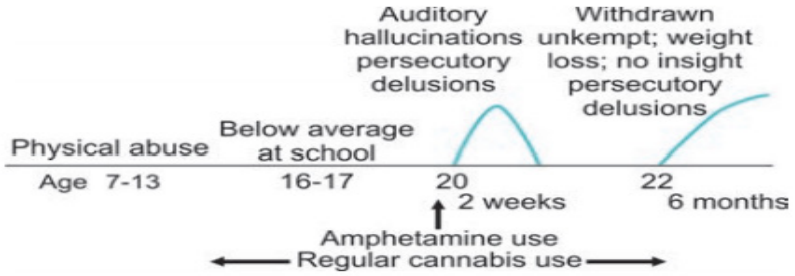

Fig 6: Example of Life chart

FAMILY HISTORY

Draw a pedigree chart of 'family of origin'. [2]

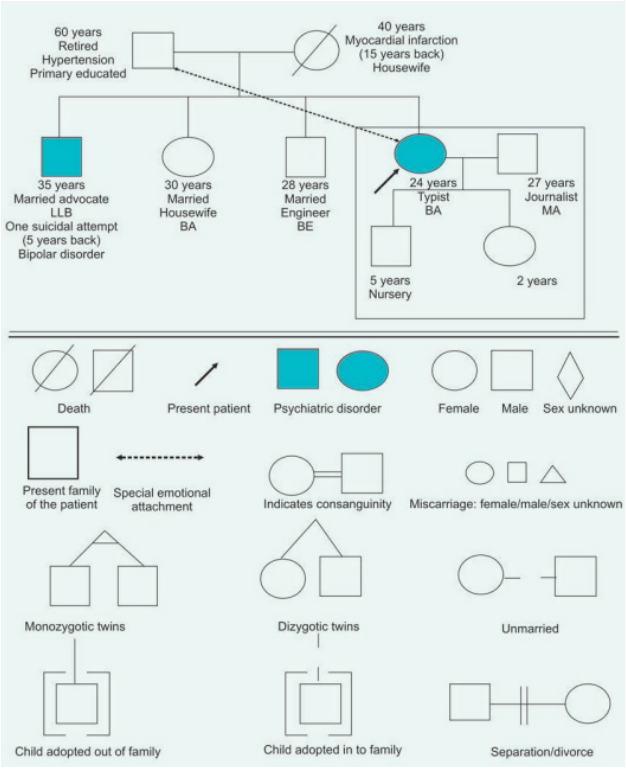

Fig. 7: Pedigree chart

Family type: nuclear, extended nuclear or joint family.[2]

Consanguinity: [8]

- 1st degree – parent
- 2nd degree – sibling/ grandparent/ grandchild
- 3rd degree – Uncle/ aunt/Niece/nephew/ Great-grandparent/ Great-grandchild
- 4th degree – First cousin/ Great great grandparent

Family history of psychiatric illness, substance use disorders, and lethality history or person whose whereabouts not known

Family history of Medical illnesses

Relationships amongst family members:

PERSONAL HISTORY

Antenatal	1. Generally good () 2. Exanthematous Lesions () 3. X-ray Exposure() 4. Attempted Abortion () 5. Any drug use () 6. Others Eg: Febrile illness (schizophrenia etiology- prenatal exposure to influenza epidemics, maternal starvation during pregnancy, Rhesus factor incompatibility, and an excess of winter births [(1)] Whether it was a planned or unplanned conception? [13]
Birth history	• Whether the delivery was full term, preterm or post term? • Place (home/ hospital/ other) and type of delivery (normal/ instrumental/ episiotomy/ caesarian section), • Any other complication during delivery such as abnormal presentation, cord around neck, prolapsed cord, multiple pregnancy or congenital anomaly noticed immediately after birth

Post natal	1. Jaundice 2. Cyanosis 3. Delayed Cry 4. Convulsions in period immediate after birth and early childhood. 5. Others - any injury at the time of birth 6. Birth weight 7. What was the mode of feeding after birth, any problems associated with feeding, age at weaning, recurrent infections, significant injury.[5]
Immunization	1. Complete ( ) 2. Incomplete ( ) up to age
Developmental mile stones	1. Neck holding… … … ….(3-6 months) 2. Sitting… … … …(4-7 months) 3. Crawls… … … …(8 months) 3. Tooth eruption… … ….(8-12 months) 4. Standing (unsupported)… … ….12-14 months) 5. Walking… …..(14-15 months) 6. First word … …..(13-15 months) 7. Three word sentences… …..(16-18months) 8. Bowel control… …..(24-48 months) 9. Bladder control… … …(60-72 months)
Temperament – psychological tendencies with intrinsic paths of development that reflect the personality traits.[6]	If the age is less than 16 years.[2] 1. Activity ( ) 2. Adaptability ( ) 3. Rhythmicity ( ) 4. Approach withdrawal ( ) 5. Threshold of responsiveness ( ) 6. Intensity of emotion ( ) 7. Quality of mood ( ) 8. Distract ability ( ) 9. Attention span ( )
Childhood[1]	1. Childhood home environment including members of the family [4] 2. Number and quality of friendships [4] 3. Childhood physical and sexual abuse should be carefully queried [4] 4. Neurotic traits (nail-biting, thumb sucking, food-fads, head banging, body rocking, stuttering, stammering, mannerisms, temper tantrums, bedwetting, phobias, night-terrors, sleep walking, etc.) [2] 5. Temper tantrums when present, extent and intensity.
Play [2]	What games were played at what stage, with whom and where. Relationships with peers, particularly the opposite sex, should be recorded. The evaluation of play history is more important in the younger patients.
Education	1. Started schooling at the age of 2. Studied up to 3. Reason for not continuing study [2] 4. Academic performance and extra-curricular activities 5. Any school refusal/ truancy 6. Any remarks from Educational institution 7. Learning disorders, behavioral problems at school [4] 8. Relationships with peers and teachers [2]
Occupation	1. Started working at the age of 2. Type of job [4] 3. Performance at job [4] 4. Any disciplinary action taken 5. Change in job & reason 6. Duration at each work place – chronological order of job held [2] 7. Reasons for leaving [5] 8. Current work status 9. Nature of relationships with supervisors and coworkers [1] and subordinates [2] 10. Job satisfactions and ambitions [2] 11. The patient's income, financial issues, and insurance coverage [1]

Substance use history [4]	1. Which substances have been used, including alcohol, drugs, medications (prescribed or not prescribed to the patient), gambling, binge eating 2. Routes of use (oral, snorting, or intravenous) 3. The frequency and amount of use(patients tend to minimize or deny use) 4. Tolerance, the need for increasing amounts of use 5. Withdrawal symptoms should be established to determine abuse vs dependence. 6. Impact of use on social interactions, work, school, legal consequences, and 7. Driving while intoxicated (DWI) 8. Any periods of sobriety, length of time and setting (religious, jail, legally mandated, inpatient detoxification, outpatient treatment, group therapy, or other settings including self-help groups, Alcoholics Anonymous (AA) or Narcotics Anonymous (NA), halfway houses, or group homes)
Menstrual history	1. Menarche at the age of 2. Cycles regular / irregular (Days/frequency – eg: 5/30 cycle) 3. The age of appearance of secondary sexual characteristics (2) 4. LMP 5. If attained menopause 6. Any other specific
Sexual history	1. First information about sex and its source 2. sexual orientation 3. sexual identification of self, 4. any specific taboo or belief, 5. masturbation habits, (fantasy and activity) [2] 6. premarital/extramarital sex, 7. exposure to high risk sexual behavior (protected/un protected), 8. History of childhood sexual abuse. [5] 9. H/S/O Deviant sexual behavior
Legal history	Any pending charges or lawsuits [4] Military history, where applicable, should be noted including rank achieved, combat exposure, disciplinary actions, and discharge status. [4] Availability of Advance directive and Nominated representative may also be enquired and noted

Table 7 – Personal History

Marital History

1. Draw a pedigree chart of 'family of pro creation'. [2]
2. The duration of marriage(s) and/or relationship(s) [2]
3. marriage arranged by parents with or without consent, or by self-choice with or without parental consent.[2]
4. number of marriages, divorces or separations.[2]
5. mode and frequency of sexual intercourse, sexual satisfaction.[2]
6. Current family structure. [4]
7. Relationship with family members. [4]
8. Specific questions about domestic violence and outcome of the victim. [4]

Obstetric history

1. Obstetric formula GPLA
2. How many children, what type of delivery, whether alive and healthy?
3. Any termination of pregnancies. If so, why? [2]
4. Any perinatal psychiatric issues

PRE MORBID PERSONALITY

Personality is the dynamic organization within the individual of those psycho-physical systems that determine his unique adjustment to his environment. [7]

1. Social relations:
   a. How were his relation to family (attachment, dependence);
   b. to friends, groups, societies, clubs
   c. to work and work-mates (leader or follower, aggressive or submissive, organizer, ambitious, adjustable, independent) [5]
2. Intellectual activities, hobbies and use of leisure

time [5] - energetic/ sedentary.[2]

3. Predominant mood - cheerful or despondent; worrying or placid; strung up or relaxed; optimistic or pessimistic; self-depreciative or satisfied?[2]
   a. Could he express feelings of love, anger, frustration or sadness
   b. Did he loses control over feelings, had he been violent? [5]
4. Character: [5]
   a. Attitude towards self – Self-confidence level; self-criticism; self-consciousness; self-centred/thoughtful of others; self-appraisal of abilities, achievements and failures.[2]
      - Strengths and abilities, shortcomings, ability to plan ahead, resilience in face of adversity, hopes and ambitions?
      - Was the level of aspiration high or low?
      - Was he self-critical and perfectionist or self-approving and complacent in relation to own behaviour and achievements?
      - Was he steadfast in face of difficulties or intolerant to frustration? [5]
   b. Attitude to Work & Responsibility:
      - Did he welcome responsibility or was worried by it
      - Made decisions easily or with difficulty?
      - Was he methodological or haphazard in his approach?
      - Was he flexible or rigid?
      - Was he cautious, foresightful and given to checking or impulsive?
      - Was he determined towards goal or used to get bored or discouraged easily?
   c. Interpersonal relationships:
      - Was he self-confident or shy and timid?
      - Was he insensitive or sensitive to criticism?
      - Was he trusting or suspicious and jealous?
      - Was he selfish and egotistical or unselfish and altruistic?
      - Was he emotionally controlled or irritable and quick tempered?
      - Was he tactful or outspoken?
      - Did he use to enjoys or avoids self-display?
      - Was he quiet and restrained or expressive and demonstrative in speech and gesture? Was he tolerant or intolerant to others?
      - Was he adaptable or unadaptable?
      - Did he use to prefer company or solitude?
      - Was he shy or used to make friends easily, were relationships close and lasting?
      - How he used to handle others' mistakes,
      - Did he always want to be centre of attention?
      - How was the relation with work-mates or superiors?
   d. Standards in moral, religious and health matters: tolerance of others' standards and beliefs.[2]
   e. Energy, initiative:
      - Was he energetic or sluggish?
      - Was output sustained or fitful?
      - Did he used to get easily fatigued?
      - Were there regular or irregular fluctuations in energy or work output?
5. Fantasy life: What was the frequency and content of day dreaming? Sexual and nonsexual fantasies, recurrent or favourite daydreams.[2]
6. Habits: Use of alcohol, drugs, tobacco; comment on food and sleep pattern.[2]

GENERAL PHYSICAL EXAMINATION

- Consciousness – State of awareness, with response to external stimuli. [3]
  - *A. Rate: Alert_____ Drowsy_____ Lethargic_____ Stupor_____ Coma_____ [14]
  - *B. Describe stimulus necessary to arouse patient, and record patient's response.[14]
- Pallor ( ), clubbing ( ), jaundice ( ), cyanosis ( ), generalized lymphadenopathy ( )
- Vitals: **PR.....** **BP.....** **RR.....** **TEMP.....**
- Alcohol - Signs of Liver failure (Alopecia, parotid swelling, spider naevi, foeter hepaticus), Tremors on outstretched hands, any bruises or abrasions.
- Nicotine – Nicotine stains on teeth
- Inj use – puncture marks on cubital fossa / wrist
- Others: self- inflicted cuts on forearm / other parts, tattoo marks, skin lesions
- Fullness of neck – Thyroid swelling – Moves with Deglutition/ protrusion of tongue

SYSTEMIC EXAMINATION

CVS: [9]

- Pulse of the patient - at least radial and femoral pulse.

- Comment on rate, rhythm, volume, character, arterial wall, radio-radial and radio-femoral delay.

- Blood pressure in right upper arm in both supine and erect position.
- Look for neck veins, any engorgement and jugular venous pressure.
- Conduct a thorough inspection, palpation and auscultation of precordium

RS: [9]

- Bare the chest of the patient
- Inspection (rate and character of respiration, chest wall movements);
- Palpation (position of trachea, swelling, tenderness, fremitus);
- Percussion (character of note, symmetry);
- Auscultation (breath sounds, added sounds, if any).

Abdomen: [9]

- Bare abdomen
- Inspection (shape, distention, movements, veins, umbilicus, visible peristalsis)
- Palpation (tenderness, rigidity, organomegaly, hernial orifices, genitalia)
- Percussion (character of note, shifting dullness, fluid thrill)
- Auscultation (peristaltic sounds, arterial bruits, succession splash).

CNS: [9]

- Motor system:
  - Strength, bulk, tone, co-ordination of all major muscles
  - Deep tendon and superficial reflexes
- Sensory system:
  - Pain, touch, temperature, position, vibration.
  - Cortical sensations
- Autonomic system
- Cerebellum
- Meningeal signs
- Handedness, spine, gait, fundus.

MENTAL STATE EXAMINATION

General Appearance And Behaviour

Behaviour – Sum total of the psyche that includes impulses, motivations, wishes, drives, instincts, and cravings, as expressed by a person's behaviour or motor activity. Also called conation. [4]

- General Physical Appearance [5]
  - Kempt
  - Overtly made up
  - Unkempt and untidy
  - Sickly
  - Perplexed
- Estimation of age[5]
  - Appropriate to age
  - Younger that stated age
  - Older than stated age
- Body built [4]
  - Emaciated
  - Thin built
  - Moderately built
  - Well built
  - Obese
- Touch with surroundings: [4]
  - Present: Patient is oriented; has normal perception of self in respect to surroundings.
  - Partial: Some aspect of his surroundings or their significance to the patient is lost.
  - Absent: Patient is unable to orient himself and behaves in a manner inappropriate to the situation.
- Eye contact with the examiner: [5]
  - Partial: Fleeting eye contact with the examiner.
  - Absent: Here, there is complete loss of eye contact with the examiner.

  Gaze Aversion ( ) Staring Vacantly ( ) Staring at the Examiner ( ) Hesitant Eye Contact ( ) Normal Eye Contact ( ) [2]
- Dress[5]
  - Appropriate: Dress is properly worn, clean and in conformity with the situation.
  - Shabby: Neglect or decreased care for dress occurs concurrently with neglect of other aspects of appearance.
  - Inappropriate: Dressing is said to be inappropriate when it is not done in conformity with the situation.
- Facial expression[5]
  - Depression - corners of mouth are turned down and there are vertical furrows on the brow
  - Anxious - horizontal creases on the forehead, widened palpebral fissures and dilated pupils.
  - Mania - elation, irritability and anger.

- Drugs with Parkinsonian side effects - Fixed wooden expression.

- Posture[5]
  - Depressed - hunched shoulders, with head and gaze inclined downwards.
  - Anxious - sit on the edge of the chair with hands gripping its sides. Anxious patients and those with agitated depression may be tremulous and restless, touching their jewellery or picking at their fingernails.
  - Mania - restless.
  - Catatonia - odd postures.

- Attitude towards examiner: [5]
  Attitude is a mental and neural state of readiness organized through experience; exerting a directive and dynamic influence upon the individual's response to all objects and situations with which it is related.
  - Co-operative: Helps the examiner conduct the interview smoothly.
  - Attentive: Patient pays attention to the interviewer.
  - Defensive: It is the kind of behaviour that turns the examiner's attention away from one's deficiencies, or behaviour that might cause him guilt or embarrassment.
  - Frank: This behaviour helps to conduct an open conversation that includes all the deficiencies without guilt or embarrassment.
  - Hostile: It is characterized by behaviour of covert aggression, so that it tends to create strong negative feelings or anger in the examiner or the patient himself shows anger towards the examiner.
  - Seductive: The patient tries attention-seeking behaviour that uses verbal or non-verbal seductive clues towards the examiner.
  - Guarded: Patient will restrict his information and weigh the information as per his/her ideas of importance.
  - Evasive: Patient attempts to escape from an argument and shifts topics.

- Rapport: It is a bidirectional empathetic relationship, which the examiner shares with the patient.
  - Easily established and maintained
  - Established with difficulty and maintained or not
  - Not possible even with difficulty

- Any hallucinatory behaviour - Behaviour suggestive of active hallucinations. It may be in the form of suddenly making postures of listening, looking intently at some point or talking in response to imaginary voices. [5]

- Tics - rapid, repetitive, coordinated and stereotyped movements, most of which can be mimicked and are usually reproduced faithfully by the individual.[11]

- Mannerism - Ingrained, habitual involuntary movement.[4] Unusual repeated performances of a goal directed motor action or the maintenance of an unusual modification of an adaptive posture. [5]

- Stereotypy - Continuous mechanical repetition of speech or physical activities.[4] A stereotyped movement is repetitive, non-goal directed action, which is carried out in a uniform way. [10]

- Grimace: It is a specific facial expression, which is non-goal directed & spontaneous. [5]

- Silly Smiling: Apparently spontaneous and childish laughter on little provocation. [5]

- Gestures- A mode of non-verbal communication in which information is conveyed by movements of hands, arms or parts of the body. [5]

PSYCHO MOTOR ACTIVITY

Motor manifestation of psychic activity [4]

Akinesia - Lack of physical movement, as in the extreme immobility

Bradykinesia - Slowness of motor activity, with a decrease in normal spontaneous movement.

Hyperkinesia: Abnormality in motor behaviour that can manifest itself as psychomotor agitation, hyperactivity.

- Retardation: Motor retardation implies slowness of the initiation, execution and completion of physical activity.
- Restless: purposeless movement of extremities, limbs; fiddling, stretching, shifting, cannot sit still, standing up and sitting again.
- Destructive: Breaking/ throwing or disrupting items nearby.
- Self-injurious: Behaviour characterized by doing self-harm or inflicting injuries on oneself. It is usually viewed as having a psychological meaning i.e. attention seeking.
- Odd posturing- Voluntary assumption of inappropriate or bizarre posture. The position may be maintained voluntarily or imposed by the examiner. The maintenance should be atleast for one minute.

- Rigidity- Assumption of a rigid posture against all attempts to move.

SPEECH

A conditioned motor reflex used as a means of articulatory and phonemic expression of language.[8]

- Spontaneous[2] - On his own / Response to questions when asked or spoken to.
- Relevant - Answer that is not responsive to the question.[1] There is relevance between the question and the answer given by the patient but the answer may not be correct. E.g. where is your home? – America. [5]
  Irrelevant - Grammatically correct meaning of speech but is unrelated to the question asked. E.g: where is your home? – the box is blue in colour.
- Coherent -communication that is disconnected, disorganized, or incomprehensible[4]
  Understandibility of the speech. [5]
- Reaction time - The time taken by the patient from listening the question to answering. [5]
  - Increased reaction time- Time taken is increased or response to stimulus is delayed.
  - Decreased reaction time- Time taken is decreased.
- Rate – the number of words spoken by a person per minute
  - Whether speech is present or absent (mutism)
  - If present, whether productivity is increased or decreased
  - Eg: Pressure of speech (>150 words in a minute is pressure of speech) or poverty of speech.
- Tone - The relative highness or lowness of a pitch / tone as perceived by the ear. [5]
  Prosody: Melodic intonation (changes in pitch and accentuation of syllable and words) and emotional valence of speech.
  - Monotonous- Speech without change in pitch or lack of modulation.
  - Audible- The examiner can listen to the voice of the patient.
  - Excessively loud- Intensity of speech is louder than required.
  - Abnormally soft- Intensity of speech is softer than required.
- Volume - Amount the patient speaks on a particular subject
- Deviations
  - Rhyming and punning- Rhyme is sameness of the sounds of the endings of two or more words. i.e. I am going… rowing… especially at the end of lines or verses; Punning is humorous use of words with similar meanings of a word with double meaning i.e. both me and my bike need fluid.
  - Slurring- A form of speech in which the words are pronounced with prolongation of syllables.
  - Stuttering/Stammering- The disorder of rhythm of speech in which the normal flow is interrupted by pauses, prolongations or repetition of sounds, or fragments of words i.e. syllables.
  - Whispering: Production of sound by using breath but not vocal cords.
  - Muttering- Speaking in a low voice, not meant to be heard (using lip movement).
  - Clang association- Association or speech directed by the sound of a word rather than its meaning; words have no logical connections.[3]
  - Stereotypy- Continuous mechanical repetition of speech or physical activities.[3]
  - Perseveration- Pathological repetition of the same response to different stimuli as in a repetition of a same verbal response to different questions. Persistent repetition of a specific word or concept in the process of speaking.[3]
- Verbal Fluency:

  Total animals: _____
  Total words: _____

MOOD

Pervasive and sustained feeling tone that is experienced internally and that, in the extreme, can markedly influence virtually all aspects of a person's behaviour and perception of the world.[4]

AFFECT

The outward expression of the immediate, cross-sectional experience of emotion at a given time.[2]

- Subjective
- Objective
- **Quality** - the label or valence of the affect
  - Dysphoric- An affect characterised by sustained emotional states such as sadness, anxiety or irritability. [5]
  - Euthymia - Normal range of mood, implying absence of depressed or elevated mood.[4]
  - Apathy - Dulled emotional tone associated with

detachment or indifference[4]
  - Elevated - Air of confidence and enjoyment; a mood more cheerful than normal but not necessarily pathological. [4]
  - Euphoria - Exaggerated feeling of well-being that is inappropriate to real events. [4]
  - Elation - Mood consisting of feelings of joy, euphoria, triumph, and intense self-satisfaction or optimism[4] with increased PMA
  - Exhaltation - Feeling of intense elation and grandeur. [4]
  - Ecstasy – Severe elevation of mood, intense sense of rapture or blissfulness. [4]
  - Irritable - State in which one is easily annoyed and provoked to anger. [4]
  - Anxious- Feeling of apprehension caused by anticipation of danger which may be internal or external.[5]

- Intensity - strength of the emotional expression. [5]
  - ***Shallow affect*** - When there is lack of depth in emotion. [5]
  - ***Blunted affect*** - Disturbance of affect manifested by a severe reduction in the intensity of externalized feeling tone. [4] Greatly diminished emotional response or expressionless face and a uniform voice, irrespective of the topic of conversation, patient is indifferent to distressing topics. [5]
  - ***Flat affect*** - Absence or near absence of any signs of affective expression. [4]

- **Mobility** - It is the ease and speed with which one moves from one type to another type of emotion. [5]
  - ***Appropriate*** - Emotional tone in harmony with the accompanying idea, thought, or speech.[1]
  - ***Constricted*** - Reduction in intensity of feeling tone that is less severe than that of blunted affect.[1] Reduced mobility of affect. [5]
  - ***Fixed*** - When affect is extremely constricted to one emotion it is called fixed or immobile.
  - ***Lability*** - Excessive emotional responsiveness characterized by unstable and rapidly changing emotions[4] rapid shift from one type to another emotion without persistence of any affect. [5]

- **Range** - variety of emotional expression noted in a session. [5]
  - Full Range - appropriately expressed many emotions depending on the context have a full or broad range of affect.
  - Restricted range - person shows only a fixed emotion or reduction in the range of emotional expression.

- **Reactivity**- The reactivity is the extent to which affect changes in response to enviormental stimuli. When patient does not respond to examiner's provocation in the form of joking, for instances, the affect is said to be non-reactive.

- **Appropriateness** - congruence or fit between the expressed quality of emotion and the content of speech, thought, expected degree of intensity and the overall situation.

- **Diurnal variation of affect** - The change in affect occuring with passage of the day.
  - Worse in morning
  - Worse in the evening
  - Worse at night

THOUGHT

- Form - Presence of logical connection between words and sentences formed
  Formal thought disorder: Disturbance in the form of thought rather than the content of thought.[4] Thinking characterized by
  - loosened associations
  - neologisms
  - Clang associations
  - Derailment
  - Neologism
  - Tangentiality

- Flow [10]
  - Tempo
    - Flight of ideas
    - Inhibition or Slowing of thinking
    - Circumstantiality
  - Continuity
    - Perseveration
    - Thought blocking

- Content
  - Depressive cognitions (Beck's triad)
  - Suicidal risk and death wishes: (Intentionality, Lethality)
  - Delusions:
    1. False- firm-fixed belief of morbid origin, not culturally shared
    2. Content - type
    3. Single/multiple
    4. Elaborated
    5. Systematized
    6. Primary/secondary

7. Mood congruity
8. Acting out
9. Affect associated with
10. Special types

- Possession: obsession, thought alienation [10]

PERCEPTION

conscious awareness of elements in the environment by the mental processing of sensory stimuli.[4]

- Which modality: vision, hearing, smell, taste, touch
- Any special variety – Functional hallucination, reflex hallucination, Extracampine hallucination, Autoscopy.
- Eg: auditory hallucination
  - Verbal / nonverbal
  - Continuous / intermittent
  - Single voice/ multiple voice
  - Familiar / stranger
  - Male/ female
  - Pleasant / unpleasant
  - 1st person / 2nd person / 3rd person
  - Content – threatening, commanding, derogatory, commenting
  - Pt's response to hallucination
  - Diurnal variation – Hypnogogic / hypnopompic
  - Mood congruent / incongruent

HIGHER MENTAL FUNCTION

- **Cognition** - Mental process of knowing and becoming aware[4]
- **Confusion** - Disturbances of consciousness manifested by a disordered orientation in relation to time, place, or person[4]

- **ATTENTION AND CONCENTRATION**
  - Attention - the aspect of consciousness that relates to the amount of effort exerted in focusing on certain aspects of an experience, activity, or task.[4]
  - Concentration is the ability to maintain attention to specific stimuli over an extended period. The ability to maintain focus on the task at hand [4]
    - Serial subtraction – in increasing difficulty
      * 20-1 → 20 to 0 in 15 secs
      * 40-3 → 40, 37, 34, 31, etc in 60 secs
      * 100-7 → 100, 93, 86, 79, etc in 120 secs
    - Reversal of days of week - Reversal of months of year
    - Digit span (Digit forwards/ backwards)[14] maximum of 2 trials [13]

Item	Check if correct
3-7	_____
2-4-9	_____
8-5-2-7	_____
2-9-6-8-3	_____
5-7-1-9-4-6	_____
8-1-5-9-3-6-2	_____
3-9-8-2-5-1-4-7	_____
7-2-8-5-4-6-7-3-9	_____

- **ORIENTATION** - State of awareness of oneself and one's surroundings in terms of time, place, and person.

  Disorientation - Confusion; impairment of awareness of time, place, & person[4]

  Confusion - Disturbances of consciousness manifested by a disordered orientation in relation to time, place, or person. [4]

  Time ( )/Place ( )/Person ( )

  Time: [14]

  1. Approximately what time of the day is it?
  2. Is it morning, afternoon, evening or night?
  3. Approximately how long is it since you had your breakfast/lunch tea/dinner? (OR) Approximately how long have I been talking to you?
  4. What is the day today?
  5. What is the date (month, month, and year) today?

  Place: [14]

  1. What place is this?
  2. Is this a school, office, hospital, restaurant etc?

  Person: [14]

  1. Orientation to self is tested by asking the identity of the patient.
  2. Inquiring about the identity of the patient's relatives or family members.

- **MEMORY:** Mental process that allows the individual to store information for last recall (9). Process whereby what is experienced or learned is established as a record in the CNS (Registration)

where it persists with available degree of permanence (Retention) and can be recollected or retrieved from storage at will (Recall). [4]

- **Immediate** - Reproduction, recognition and recall of perceived material within seconds after presentation,[3] Digit span test. [14]
- **Recent** - Recall of events over the past few days. [3] Ability to learn new material and to retrieve that material after an interval of minutes, hours or days. [14]

  1. Address Test. An address consisting of about 4-5 facts that is not known to the patient is slowly read to the patient after instructing him to attend to the examiner. He is engaged in conversation (to avoid rehearsal) and the response is noted verbatim. Recall is asked for after 3-5 minutes. [13]
  2. Asking the patient to recall events in the last 24 hours e.g., details of the time and amount in a meal, visitors to the hospital from an inpatient. Responses given by the patient should be noted of any cross-checked from reliable source. [13]

- **Remote** - Reproduction, recognition, or recall of experiences or information that was experienced in the distant past.[3] Four to Five facts may be asked that are relevant to the patients background and answers should be cross checked. [13]

  i) date of birth or age
  ii) number of children
  iii) names and number of family members
  iv) time since marriage of death or any family member
  v) Year of completing education.

- **INTELLIGENCE:** Capacity for learning and ability to recall, to integrate constructively, and to apply what one has learned; the capacity to understand and to think rationally. [4] It is the ability to think logically, act rationally and deal effectively with environment. [5]

  - **General fund of knowledge**[14]

  1. How many weeks are in a year?
  2. Why do people have lungs?
  3. Why are light coloured clothes cooler in the summer than dark coloured clothes?
  4. What causes rust?

  For literates[13]

  1. Name of Prime Minister
  2. 5 river, cities or states
  3. Capitals of countries
  4. Current events (major)

  For Illiterates[13]

  1. Seasons
  2. Crops of fruits growing particular seasons
  3. Prices of food grains or food items
  4. Prices of land

- **Arithmetic skill**[14]

  Describe the patient's adequacy in performance and types of errors made on the following types of calculations:

  1. Verbal rote examples:
     a. Addition (4 + 6)
     b. Subtraction (8 – 5)
     c. Multiplication (2 × 8)
     d. Division (56 ÷ 8)
  2. Verbal complex examples:
     a. Addition (14 + 17)
     b. Subtraction (43 – 38)
     c. Multiplication (21 × 5)
     d. Division (128 ÷ 8)

  The following questions may be asked. Time limits: Question 1 to 3 is 15 secs, Question 4 & 5 is 30 secs. [13]

  1. How much is 4 rupees and 5 Rupees?
  2. I borrowed 6 rupees from a friend and returned 2 rupees, how much do I still owe to him?
  3. If a man buys cloth for 12 rupees and gives a shopkeeper 20 rupees; how much change would he get back?
  4. How many pencils can you buy for 2 rupees if one pencil costs quarter of a rupee (on 25 paise)?
  5. If 18 boys are divided into groups of 6, how many groups will there be?

  Correct answers: 1)9, 2)4, 3)9, 4)8, 5)3

  - **Comprehension**[14]

    1. Patient's response to pointing commands: Ask patient to point to one, two, three, then four room objects or body parts in sequence. Record adequacy of performance.
    2. Patient's response to yes-no questions: (e.g., "Is it raining today?" or "Is Abdul Kalam still president?")

- **ABSTRACT THINKING:** Thinking characterized

by the ability to grasp the essentials of a whole, to break a whole into its parts, and to discern common properties. To think symbolically. [4]

- Similarities /Dissimilarities
  - Concrete thinking - Thinking characterized by actual things, events, and immediate experience rather than by abstraction[4]
    - Q: What is the similarity between a table and a chair?
    - A: Both are of wood.
  - Over abstraction - Thinking characterised by excessive manifestation of a concept beyond the point of relevance. The problem at hand looses its value and remain unsolved.
    - Q: What is the similarity between a table and a chair?
    - A: Number of electrons of an atom of a molecule in wood of chair and table are equal.
  - Similarities – other examples[13]
    - Orange - Banana (fruits)
    - Dog - Lion (animals)
    - Eye - ear (sense organs)
    - North - west (directions)
    - Table - chair (items of furniture)
  - Differences being an easier task are always presented before similarities - Other examples: [13]
    - Stone - Potato (not edible - edible/hard-soft)
    - Fly - Butterfly (small-large/not colourful-colourful)
    - Cinema - Radio (audio-visual-audio)
    - Iron - Silver (heavy-light-dull-bright)
    - Praise - Punishment (Positive-negative/ pleasant-unpleasant)
- Proverb testing
  - The patient is asked the following questions
    a. Whether he knows what a proverb is
    b. An example of a proverb and what is means

  If it is clear that the patient has the concept of a proverb the following may be asked

  1. Slow and steady wins the race
  2. A barking dog never bites
  3. As you sow, so shall you reap
  4. All that glitters is not gold or all that is white is not milk

  The response of patient is to be noted verbatim and judged to be correct/incorrect.

- **JUDGEMENT**: Mental act of comparing or evaluating choices within the framework of a given set of values for the purpose of electing a course of action. [4]
  - Personal - Judgment is assessed by inquiries about the patient's future plans. [13]
  - Social - Judgment is assessed by observing behaviour in social situations.[13]
  - Test - [13]
    1. Fire problem: If the house in which you are catches fire, what is the first thing you will do? (Correct answer – try to put if off with water)
    2. Letter problem: If when you are walking on the roadside you see a stamped and sealed envelope with an address on it which someone had dropped, what will you do? (Correct answer post it in a letter box, or give it to the post man)
- **INSIGHT:** Conscious recognition of one's own condition. In psychiatry, it refers to the conscious awareness and understanding of one's own psychodynamics and symptoms of maladaptive behaviour. [2]

  Grading of Insight: (3)

  - **Grade-1** Complete denial of illness.
  - **Grade-2** Slight awareness of being sick and needing help, but denying at the same time.
  - **Grade-3** Awareness of being sick, but it is wrongly attributed to external or physical **factors.**
  - **Grade-4** Awareness of being sick, but attributes to something unknown in self.
  - **Grade-5** Intellectual insight- awareness of being ill and that the symptoms/ failures in social adjustment are due to own particular irrational feelings/ thoughts; yet doesn't apply this knowledge to the current/ future experiences. Knowledge of the reality of a situation without the ability to use that knowledge successfully to effect an adaptive change in behaviour or to master the situation
  - **Grade-6** True emotional insight- it is different from intellectual insight in that the awareness leads to significant basic changes in the future behaviour

Series of questions asked to assess insight: [2]

- Is the patient aware of phenomena that others have observed (e.g. that he is unusually active and elated)?
- If so, does he recognize the phenomena as abnormal (for example, maintaining that his unusual activity and cheerfulness are due to normal high spirits)? [12]
- Do you believe that the experiences that you are having, are symptoms?
- Do you believe that these symptoms are attributable to illness (as opposed to, say, a physical illness or poison administered by enemies)?
- Do you believe that the illness is psychiatric?
- Do you believe that psychiatric treatment might benefit you?
- Will you be willing to accept advice from a doctor regarding your treatment? [5]

DIAGNOSTIC FORMULATION

Psychiatric diagnosis is essentially a way of grouping symptoms and signs into certain groups of "illness". The bio-psycho-social approach is essential to the formulation.

The summary should sift the information obtained to produce a brief outline of:[15]

- Introductory comments:
  - Present the salient socio-demographic features of the patient
  - e.g. 'Mrs. R is a 30-year-old married school teacher living with her husband and a 4-year-old son'
- Past history of psychiatric disorder, its treatment and outcome
  - e.g. 'Mrs. R had had similar symptoms soon after her son's birth; she was treated with antidepressant medication and became completely well in about two months'
- Positive medical history of significance
  - e.g. 'The patient was detected to be hypothyroid a year ago and is on treatment'
- Presenting problems:
  - State the main problems excluding irrelevant details
    e.g. 'Over the past two months she has become increasingly depressed, with loss of energy, self-reproaches and self-depreciating ideas'
  - Briefly mention how the patient's life has been affected by the problems
    e.g. 'She has not been going for work and has also been unable to do the housework or take care of her child'
  - Mention events closely related to the onset or exacerbation
    e.g. 'The onset of symptoms was preceded by a medical termination of pregnancy about which patient was very ambivalent'
  - Avoid long lists of minor or transient symptoms and negative findings except those that will help in the differential diagnosis.
- Mental status examination: Mention important findings only. Use labels for psychopathological findings at this stage,
  - E.g. use terms such as 'delusions of guilt', 'third person auditory hallucinations' etc. Details of these findings should have already been described during the detailed presentation prior to the formulation.

Example:

A _____ year old unmarried male driver by occupation with no significant past or family h/o psychiatric illness, presented with illness duration of 10 years which was insidious in onset ,continuous course, Precipitated by death of friend ,characterized by suspiciousness, delusion of reference, delusion of persecution, 3 rd person auditory hallucination, has suicidal ideation with significant socio occupational dysfunction. GPE- Tachycardia, MSE- Irritable, delusion of persecution, poor judgment with absent insight.

DIAGNOSIS

Mention whether confident diagnosis, provisional diagnosis, tentative diagnosis. If diagnosis is not clear, embark on a careful discussion of the possibilities in the order of likelihood,

Differential diagnosis: If there is little doubt about the diagnosis, say so and say why. Do not present an irrelevant differential diagnosis for the sake of giving one, [5] and discuss points in favour of and against each of them.

End the discussion with a conclusion on the most likely diagnosis. If that is not possible at all, mention the major possibilities.

According to ICD – 11 - _____

According to DSM 5 - _____

MANAGEMENT PLAN

Locus, Focus, Modus

a. **Immediate management plans**

Locus: Is the patient to be treated as an inpatient or outpatient? If as an inpatient, why?

Immediate Focus: Management of suicide risk/violence - specify management type/ justification/dosage/route/expected response/ side effects and their managements.

b. **Further investigations Focus:** In each case specify which procedure/tests you would organize and its justification

- Includes information from key relatives/ employer/teachers
- Review of past case records
- Laboratory investigations
- Psychometry

c. **Long-term management plans: Modus**

Biological	Medication - type/dosage/duration
Psychological	Psychotherapy - indications/type/focus
Social	Involvement of the family/rehabilitation measure

Prognosis: This should not be a general pronouncement, based merely on the type of disorder. Discuss pertaining to each patient.

- good e.g. acute onset; affective symptoms
- poor e.g. poor drug compliance in the past; poor social support

Prognosis can also be described as

- **Short term** e.g. Chances of recovery from the present episode is good with antidepressant treatment
- **Long term** e.g. Risk of relapse and recurrence is high because of the significant marital discord and patient's reluctance to take medicines on a long-term basis.

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CONSENT

As per the ICMR guidelines, the informed written consent has been obtained and preserved by the corresponding author.

ETHICAL APPROVAL

As per the National standards, the ethical approval letter/ certificate from local IEC has been obtained and preserved by the authors.

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