Indian Journal of Mental Health and Neurosciences

THE OFFICIAL PUBLICATION OF INDIAN PSYCHIATRIC SOCIETY - TAMIL NADU CHAPTER

ISSN 2581-9445 | Volume 8 Issue 2 | July 2025 | www.ijmhns.com

Published by BOHR Publishers

DOI: 10.54646/ijmhns

Indexed in DOAJ

https://doaj.org/toc/2581-9445

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 and other allied neuroscience disciplines

Indian Journal of Mental Health and Neurosciences (IJMHNS)

(AN OFFICIAL JOURNAL OF THE INDIAN PSYCHIATRIC SOCIETY - TAMIL NADU CHAPTER)

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Personal: INR 1,000 For India; $ 200 for other countries

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Indian Journal of Mental Health and Neurosciences
Volume 8, Issue 2, 2025, pp. 1–2
DOI: 10.54646/ijmhns.2025.07
www.ijmhns.com

EDITORIAL

Progress, Challenges, and Emerging Risks in Mental Health: The Good, bad and the ugly

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The Good

Let us begin on a positive note.

This year marks a significant milestone for IJMHNS. The *Indian Journal of Mental Health and Neurosciences (IJMHNS)*—the official publication of the Indian Psychiatric Society, Tamil Nadu Chapter—was born out of a long-cherished vision: to create a high-quality psychiatric journal from Tamil Nadu. In many ways, it stands as a fitting tribute to the doyens of psychiatry from our state—Professor Sharada Menon, Professor O. Somasundaram, Professor Venkoba Rao, Professor Murugappan, Dr. Muthazagan, and many other teachers who have shaped generations of practitioners.

The seeds of this journal were sown by pioneers such as Dr. Srinivasan (Coimbatore), Dr. G. K. Kannan (Chennai), Dr. Jaykumar Menon (Chennai), Dr. Sharon Joe Daniel (Chennai), and Dr. Kamlesh Kumar Sahu (PGI Chandigarh), among others. Since the release of its first issue in 2018, IJMHNS has consistently published high-quality scientific work, with only brief disruptions during the COVID-19 period.

However, with regulatory bodies such as the National Medical Commission (NMC) and UGC increasingly emphasizing indexed publications for academic advancement, attracting submissions became a growing challenge. This led us to our next goal: indexing IJMHNS in a reputed database.

We chose DOAJ as our target, given its credibility and wide acceptance. Achieving this required a complete overhaul of our processes. We introduced an open-access framework, standardized disclosures, redesigned submission systems (OJS), and revamped the journal website. Additional features such as visitor analytics were incorporated, and all published articles were assigned DOI numbers.

After sustained effort, we are proud to share that in December 2025, IJMHNS was successfully indexed in DOAJ.

This achievement would not have been possible without the unwavering support of our authors, peer reviewers, editorial team, and our publishing partners at Bohr Publishers. I extend my sincere gratitude to each one of them.

Yet, this is not the destination—only a milestone. We remain committed to enhancing the journal's quality. As part of this, we are developing guidelines for the use of Artificial Intelligence in research and scientific writing. Given that the academic community is still navigating the opportunities and challenges of AI, we aim to align with evolving best practices.

Looking ahead, we plan to pursue indexing in other reputed databases such as IndMed, PubMed Central, and Scopus. Achieving this will require sustained efforts to strengthen the research culture and capacity within our field in Tamil Nadu.

The Bad

The field of psychiatry and mental health in India has undergone a profound shift since the enactment of the Mental Healthcare Act, 2017. While the legislation was undoubtedly well-intentioned, it has fallen short in addressing the ground realities of mental healthcare delivery in our country.

By prioritizing legal frameworks, without first establishing the necessary infrastructure and systemic support, the Act has created significant challenges in implementation. One unintended consequence has been the increased burden placed on family members of persons with mental illness. Their struggles and rights often remain overlooked, even as psychiatrists are expected to balance the welfare of both patients and caregivers under increasingly complex conditions.

Another concern lies in the broad categorization of diverse professionals under the umbrella of "Mental Health Professionals," often without adequately accounting for differences in training, roles, and responsibilities. Traditionally, the psychiatrist functioned as the team leader—responsible for overseeing both the physical and mental health of the patient. This integrated approach reflects the fundamental principle of holistic care, aptly captured in the Tamil adage: "சுவர் இருந்தால் தான் சித்திரம் வரைய முடியும்"—only when the wall stands firm can a painting be created.

Neglecting this principle can have serious consequences. There have been troubling instances where patients—particularly children—receive 'therapy' for years without adequate medical evaluation. In some cases, conditions such as childhood psychotic disorders or Wilson's disease go undiagnosed until symptoms become severe. Such delays not only prolong suffering but also complicate eventual treatment.

Concerns are further compounded by growing demands for independent outpatient services by certain professional groups, without sufficient integration into a medically supervised framework. At the same time, resistance to broader regulatory integration—such as inclusion under the National Commission of Allied Health Professionals—raises questions about the future cohesion of mental healthcare delivery.

Mental health care, by its very nature, demands a collaborative, multidisciplinary approach. However, such collaboration must be guided by clarity in roles, accountability, and a shared commitment to patient welfare.

The Ugly

If living with mental illness is a challenge, aging with it in today's society can be doubly burdensome.

Recently, I encountered an elderly patient with bipolar disorder who returned after a long gap in follow-up, presenting with anxiety and depression. Living alone, he had fallen victim to an online scam and lost over ₹90 lakhs—his entire life savings.

This is not an isolated incident. Increasingly, vulnerable individuals—including those with mental illness—are being targeted by sophisticated scams such as the so-called "digital arrest" fraud. These scams prey on those who are elderly, socially isolated, financially stable, and psychologically susceptible to fear and coercion.

Our patients are particularly at risk.

As mental health professionals, we must recognize this emerging threat. It is imperative that we proactively counsel patients and their caregivers about such risks, equipping them with awareness and preventive strategies.

Indian Journal of Mental Health and Neurosciences
Volume 8, Issue 2, 2025, pp. 3–5
DOI: 10.54646/ijmhns.2025.08
www.ijmhns.com

PRESIDENTIAL ADDRESS

Evolving legal standards in Tamil Nadu's healthcare, data protection, and public safety

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Received: 23 February 2026; **Accepted:** 02 March 2026; **Published:** 25 March 2026

Keywords: legislation and jurisprudence, data protection

Overview

This presidential address summarizes the key legal frameworks, standards, and recent developments impacting healthcare, data protection, and public safety in Tamil Nadu. It covers clinical establishment regulations, mental health standards, digital data protection, and public safety measures such as CCTV requirements.

Key legislations and regulations

Tamil Nadu Clinical Establishments Regulation Rules (TNCEA), 2018

- **Objective:** Registration and regulation of clinical establishments based on minimum standards.
- **Scope:** Infrastructure, equipment, human resources, record-keeping, and treatment protocols.
- **Establishments covered:** General hospitals, clinics, nursing homes, and diagnostic centers (excluding Armed Forces establishments).
- **Registration renewal:** Every 5 years; apply 90 days before expiry.
- **Competent authority:** District committee chaired by the Joint Director of Medical and Rural Health Services.

Mental Healthcare Act (MHCA), 2017 and State Mental Health Authority (SMHA)

- **Objective:** Protect rights and regulate care for persons with mental illness.
- **Mental Health Establishments (MHEs)** include allopathic and AYUSH establishments for mental healthcare (excludes family residences).
- **Audit:** Every 3 years for compliance with minimum standards.
- **Competent authority:** District Mental Health Review Board, chaired by a retired district judge.

Digital Personal Data Protection Act (DPDP), 2023

Key definitions

- **Data fiduciary:** Determines purpose and means of processing personal data.
- **Data principal:** Individual to whom the data relates.
- **Data processor:** Processes data on behalf of the data fiduciary.
- **Sensitive personal data:** Includes health, biometric, and financial information.

Obligations

- Erase data upon withdrawal of consent unless retention is required by law.

ISSN: 2581-9445 (online)

- Obtain verifiable consent for processing data of children and persons with disabilities.
- Right to correction, completion, updating, and erasure of personal data.

Tamil Nadu urban local bodies (installation of CCTV units in public buildings) rules, 2012

- **Requirement:** CCTV in public buildings (including hospitals/clinics with $\geq$500 m^2 floor area).
- **Installation rate:** One unit per 300 m^2 of floor area.
- **Purpose:** Surveillance of public movement in corridors, reception, and common areas.

Minimum standards: clinical vs. mental health establishments

Refer to **Table 1** for additional information.

Staffing requirements

Clinical establishments: TNCEA

- One qualified doctor per 30 beds.
- On-call doctor for up to 30 beds at night; 24/7 duty doctor for 30 beds.

De-addiction centers TNSMHA

- **Comprehensive centers:** A psychiatrist examines all inpatients daily; an MBBS doctor is on call 24/7.
- **Rehabilitation centers:** A psychiatrist visits weekly; MBBS doctor examines patients daily.
- **Support staff:** Psychologist (1/50 beds), Social Worker (1/50 beds), Attendant (1/20 beds/shift), only female attendants for female patients.

Equipment requirements

Comprehensive de-addiction centers

- Vital signs monitors, ECG, pulse oximeters
- Emergency drugs and equipment (crash cart, oxygen, suction, Ambu-bags)
- Diagnostic and infection control supplies
- Comfort and safety equipment (bedrails, wheelchairs)

Rehabilitation centers for SUD

- Basic monitoring (BP apparatus, stethoscopes)
- Emergency drugs and IV supplies
- Weighing scales, wheelchairs

Medical record maintenance

Refer to **Table 2** for additional information.

Computerization: Efforts mandated by both IMC and NMC to digitize records for quick retrieval and security, with a 3-year deadline for full digitization under NMC 2023.

Penalties

TNCEA

- Contravention: Fine ₹5,000–₹50,000.
- Willful disobedience/withholding info: Up to ₹30,000.

TABLE 1 | Comparison of requirements as per Tamil Nadu Clinical Establishments Regulation Rules (TNCEA) and State Mental Health Authority (SMHA) rules.

Area	TNCEA (clinical)	TNSMHA (de-addiction centers)
Wards	Spacious, ventilated, fans for every two beds	1 m between cots, lockers, pest control, ventilation
Clothing/linen	Daily linen change	Separate linen, toiletry kit, nursing station
Cleaning	Daily swabbing with antiseptic	Daily cleaning
Water/food	Potable and hot water, food safety	Safe water, certified food, proper serving
Toilets	Clean with water	Adequate toilets/bathrooms, and water ensured
Waste disposal	Pollution control board guidelines	Safe biomedical waste disposal
Fire safety	ISI-marked equipment, evacuation provisions	Not specified
Medical records	Admission/discharge, case sheets, referrals	Multiple registers (admission, drugs, injuries, etc.)
CCTV	Not specified	Required in entrances, exits, common areas

TABLE 2 | Mandatory data retention periods.

Regulation	Retention period	Requirements
IMC	3 years	Indoor patient records
TNCEA	10 years	All clinical records OP and IP
State Mental Health Authority (SMHA)	5 years (case sheets)	Multiple registers (see above)

MHCA/SMHA

- Unregistered MHE: ₹5,000, ₹50,000 (1st), ₹50,000 (2nd), ₹25 lakh (subsequent).
- MHP working in unregistered facilities: Up to ₹25,000.
- Violating Act/Rules: Up to 6 months imprisonment or a ₹10,000 fine for the 1st, up to 2 years or ₹50,000 and ₹5 lakh (subsequent).

Data protection and digital health sensitive personal data it rules, 2011

Health, biometric, financial, and medical records are classified as sensitive.

Rights under DPDP, 2023

- Correction, completion, updating, and erasure of personal data.
- Right to nominate another individual for data rights in case of incapacity or death.

Digital health ecosystem

- **Ayushman Bharat Digital Mission (ABDM):** Connects digital health solutions nationwide, and registration is voluntary.
- **National Health Authority (NHA):** Oversees digital infrastructure, privacy, interoperability, and regulatory oversight.

Display requirements

- **TNCEA:** The registration certificate must be displayed prominently.
- **MHCA:** Contact details of the concerned board to be displayed.
- **IMC:** The physician's registration number must be displayed in the clinic and on all documents.

CCTV in healthcare

- Mandatory for public buildings with $\geq$500 m^2 floor area.
- One unit per 300 m^2; must cover corridors, reception, and public movement areas.
- For teaching hospitals, livestreaming and surveillance are required for monitoring education and patient care facilities.

Proposed and supporting frameworks (DISHA draft, 2018)

- Aims to standardize digital health data privacy, security, and reliability.
- Proposes the National Electronic Health Authority (NeHA) for enforcement.

National Healthcare Providers Registry (NHPR)

Repository of registered healthcare professionals and facilities across all systems of medicine.

This Presidential address was delivered on 13 July, 2025 at the Lions convention center, Yercaud, Salem, Tamil Nadu.

Indian Journal of Mental Health and Neurosciences
Volume 8, Issue 2, 2025, pp. 6–11
DOI: 10.54646/ijmhns.2025.09
www.ijmhns.com

CASE SERIES

Prisoners acquitted on the grounds of unsoundness of mind and admitted in a mental health establishment – a case series

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Received: 18 December 2025; **Accepted:** 21 January 2026; **Published:** 25 March 2026

Background: Individuals acquitted on grounds of unsoundness of mind and admitted in a mental healthcare facility as per section 335 of the Criminal Procedure Code (CrPC) represent a unique intersection of psychiatric morbidity and legal oversight. This study details the nature of criminal offence, the psychiatric illness, and related factors in such individuals resulting in prolonged stay in psychiatric establishments after legal acquittal.

Material and Methods: This retrospective case series examined medico-legal records of five individuals admitted to a tertiary psychiatric facility between 2015 and 2022. Data were extracted on sociodemographic characteristics, psychiatric diagnoses, nature of offences, legal proceedings, and duration of stay in the mental health establishment.

Results: All individuals were diagnosed with Schizophrenia and had committed serious offences—primarily homicide—during active psychotic episodes. None had received adequate psychiatric treatment just before the offense. There were delays in rendering the individual fit to stand trial due to chronic severe mental illness, which contributed to a prolonged hospital stay, often exceeding 5 years. Discharge and reunion with family members could not be achieved in these patients due to long-standing mental illness.

Conclusion: This case series highlights the complex clinical and legal journeys of individuals acquitted on grounds of unsoundness of mind. Prolonged inpatient stay remains common, often due to chronicity of illness and limited family support, emphasizing the need for regular psychiatric treatment, developing structured discharge protocols, expanding community-based rehabilitation options, and improving legal awareness among caregivers.

Keywords: forensic psychiatry, unsoundness of mind, section 84 IPC, section 335 criminal procedure code, schizophrenia, legal acquittal, mental health law India, criminal responsibility

Introduction

Severe mental illnesses, when left untreated, have been consistently linked to episodes of violent behavior, as evidenced by a growing body of psychiatric and forensic literature (1). In criminal jurisprudence, the *insanity defense* serves as a legal safeguard for individuals with mental illness who lack the capacity to form *mens rea*, the guilty intent required for criminal responsibility. In such cases, the law recognizes that the individual may not be held criminally liable (2). Over the years, the courts have acquitted individuals with severe mental illness on the grounds of unsoundness of mind.

The concept of the insanity defense and its post-acquittal protocol vary across nations. In India, the decision of not guilty by reason of unsoundness of mind is based on McNaughten's Rule under Section 84 Indian Penal Code according to which "Nothing is an offense which is done by a person who, at the time of doing it, by reason of unsoundness

ISSN: 2581-9445 (online)

of mind, is incapable of knowing the nature of the act, or that he is doing what is either wrong or contrary to law."

In India, the success rate of insanity pleas remains relatively low, with studies indicating an acquittal rate of approximately 17.6% (3). In the United States, verdicts of not guilty by reason of insanity account for 26% (4). What happens to such acquitted individuals with mental illness is an important area to be explored. This procedural framework has evolved, most recently with the enactment of the Bharatiya Nagarik Suraksha Sanhita, 2023 (BNSS) code under Section 374(1)(a) of the BNSS, which replaces the Criminal Procedure (formerly Section 335 (1)(a) of Criminal Procedure Code (CrPC)), individuals acquitted on grounds of insanity are to be placed in a mental health establishment, reflecting the dual imperative of public protection and ensuring prompt psychiatric care (5).

This study explores the life events of mentally ill offenders—from the onset of criminal behavior to court proceedings and post-acquittal outcomes. It examines the psychiatric diagnoses involved, the nature of the offenses committed, the behavior related to the offenses, the legal proceedings the individuals underwent, the legal provisions mentioned in favor of acquittal, the duration of stay in a mental health establishment, and the aftermath of acquittal.

By analyzing these dimensions, the study aims to contribute to a nuanced understanding of how mental illness is related to criminal liability and to inform future reforms in forensic psychiatry, psychiatric care, and legal policy in India.

Materials and methods

A detailed perusal of the inpatient records and judgment copies of five acquitted patients, who were detained for safe custody at the Institute of Mental Health, Kilpauk, was conducted. The sociodemographic profiles, nature of the crimes, victims' relationships with the accused, legal proceedings, factors favoring an unsoundness defense, and the laws cited for their acquittal and placement into a mental health establishment were studied.

Results

Out of the five patients, all of them were males and belonged to a rural background. Their sociodemographic details are tabulated in **Table 1**. The nature of the offense was serious crimes like murder, attempt to murder, and setting fire to property. The victims were mostly close relatives or caretakers of the patient.

The duration of illness at the time of the alleged crime ranged from 6 months to 23 years. The time gap between filing an First Information Report (FIR) and the acquittal of the cases was between 1 and 11 years. The findings are tabulated in **Table 2**. The crime scene details suggested no specific motive for the act, and there were no deliberate efforts to escape from the scene. Findings are tabulated in **Table 3**. None of them was on adequate psychiatric treatment just before the incident. Section 84 IPC was quoted in the judgments to acquit the patients on grounds of unsoundness. Details of legal proceedings are mentioned in **Table 4**.

Discussion

All the individuals in this case series hailed from rural backgrounds. Except for one individual, all others were school dropouts and were not regular in their job. This was consistent with prior studies on forensic psychiatric populations in India (6). Most were unmarried or experiencing marital discord, which resulted in poor social support. Illiteracy and unemployment status might have contributed to the financial constraints, irregular access to mental healthcare and even delayed recognition of psychiatric symptoms. (7). Similar demographic patterns were observed in studies done previously, underscoring the intersection of social disadvantage and psychiatric morbidity in criminal contexts (6).

Nature of offense and psychiatric diagnosis

Schizophrenia was the most common diagnosis, aligning with findings from previous studies across India and globally (8). The uneducated background might correlate with the neurodevelopmental problems, as in Schizophrenia. The duration of illness before the incident is quite long, ranging from months to years. One of the five individuals was subjected to a psychiatric evaluation and diagnosed with mental illness after being suggested by the Magistrate. However, he had symptoms for almost a year before the incident. This signified that the major reason for violence was untreated and undertreated psychosis. Many studies have established that regular antipsychotic use was associated with less risk of violence (9). All individuals were charged with serious offenses, predominantly homicide, committed during active psychotic episodes (10, 11). The presence of florid psychotic symptoms at the time of the offense was evident in all cases. This severe psychosis had contributed to the lack of mens rea and supported the legal determination of unsoundness of mind under Section 84 IPC (12). All of the victims were close relatives or caretakers of the patients (13). The fact that close caregivers were the victims of violent acts again created ambivalence and negative emotions, like fear of taking the individual back into the community. Comparable diagnostic profiles have been reported in prior studies, reinforcing the need for early psychiatric intervention in high-risk individuals (13).

TABLE 1 | Sociodemographic details.

	Observation	Case 1	Case 2	Case 3	Case 4	Case 5
1	Gender	Male	Male	Male	Male	Male
2	Education	12th Standard passed, Diploma in handloom technology	6th standard	Has not gone to formal schooling	5th standard	5th standard
3	Residence	Rural	Rural	Rural	Rural	Rural
4	Marital status	Unmarried	Married and separated for 1 year before the incident	Unmarried	Married	Unmarried
5	Occupation	Inconsistent Labor	Inconsistent Labor	Unemployed	Daily wage worker	Unemployed
6	Family members visiting the patient at the mental health establishment	A relative visited once in 2023	None after inpatient admission	None after inpatient admission	His son visited him once at the time of admission	His brother visited him once at the time of admission

TABLE 2 | Details of the offense.

	Observation	Case 1	Case 2	Case 3	Case 4	Case 5
1	Nature of the offense	Murder	• Setting fire to a property • Murder	• Attempt to murder • Murder, Criminal intimidation, use of obscene language in public	Murder	Murder
2	Criminal charges	302 IPC	• 436 IPC • 302 IPC	• 307 IPC • 302 IPC, 506A IPC, 294B IPC	302 IPC	302 IPC
3	Victim's relation to the accused	Mother	• Neighbor • Father	• Employer • Step mother	Close relative (employer)	Mother
4	Age of the accused during the time of offense	47 years	48 years	32 years	44 years	33 years
5	Duration of illness at the time of offense	23 years	15 years	12 years	6 months (presumed)	5 years
6	Diagnosis	Schizophrenia	Schizophrenia	Schizophrenia	Schizophrenia	Schizophrenia
7	Duration between First Information Report (FIR) and acquittal	5 years 7 months	11 years	5 years	5 years 4 months	1 year
8	Diagnosis/formal assessment made before the incident	Yes	Yes	Yes	No	Yes

Legal proceedings and fitness to stand trial

A significant delay was observed between the time of arrest and the declaration of fitness to stand trial, often exceeding 6 months. This delay was attributed to the time required for symptom stabilization on psychiatric medications, necessitating periodic assessments (14). In one patient, he was never found fit to stand trial during the entire assessment period of 3 years, as he continued to have severe psychotic symptoms despite medications. Before the acquittal, these patients were subjected to repeated periodic assessments by the visitors committee and the same was communicated to the Court. Very few studies have explored the time interval between arrest and acquittal.

Post-acquittal proceedings and rehabilitation

Despite being acquitted on grounds of unsoundness, all individuals remained in the mental health establishment for extended periods, some exceeding 5 years. This stay was directed by the Court as per the CrPC section 335. According to this section, the directions for persons acquitted on grounds of unsoundness of mind are explained. As per subsection (a) the Magistrate or Court orders

TABLE 3 | Behavior pertinent to the incident.

	Observation	Case 1	Case 2	Case 3	Case 4	Case 5
1	Motive for the act	No	No	No	No	No
2	Attempts to alter evidence at the crime scene	No. The accused remained at the crime scene with the weapon for an hour	No. He remained near the crime scene	No. He wandered in the nearby area till he was arrested	The accused remained standing in the same place with bloodstained weapon till he was witnessed by two people. However, he later left the place and hid the weapon in a nearby area, which he had confessed himself during the enquiry	No. He remained in the same place, witnessed by multiple people
3	Efforts to escape from the crime scene	Stayed in the place until he had been witnessed by others	Found in the nearby area	Did not escape	Did not escape. Was found nearby	Was found nearby
4	Florid symptoms within 7 days before the incident	Went missing a week before the incident	Frequent aggression and fights	Uncontrolled anger outbursts and shouting obscene words	Anger outbursts towards his relative to the level of threatening to chop off 3 days before the incident	Frequent aggression and fights
5	Inconsistent speech and behavior	Present during the incident and trial	Present during the incident and trial	Present during the incident and trial	Present during the trial	Present during the incident and trial

TABLE 4 | Legal proceedings.

	Observation	Case 1	Case 2	Case 3	Case 4	Case 5
1	Unsoundness of mind	Mentioned	Mentioned	Mentioned	Mentioned	Mentioned
2	Number of times he appeared before the Visitor's committee	Twice	10 times	4 times	Twice	Twice
3	Number of times he was found fit to stand trial	Twice	Never	Twice	Once	Once
4	Sections quoted for acquittal	84 IPC	Chapter XXV CrPC	84 IPC	84 IPC	84 IPC
5	Sections quoted after the acquittal	335 CrPC	335 CrPC	335 CrPC	335 CrPC	335 CrPC
6	Total duration of illness at the time of acquittal	28 years	26 years	17 years	6 years	6 years
7	Family members' willingness to discharge the patient	No	No	No	No	No

such person to be detained in safe custody in such place and manner as the Magistrate or Court thinks fit; or (b) order such person to be delivered to any relative or friend of such person upon the application of such relative or friend and on his giving security to the satisfaction of the Magistrate shall be properly taken care of and prevented from doing injury to himself or to any other person and will produce for the individual for the inspection whenever the State Government directs (15).

In Canada, such an acquittal is termed Not Criminal by Reason of Mental Disorder (NCRMD). After the verdict, the individual is placed in a mental health hospital and then brought to the review board in 45 days. The Board then decides whether the individual can be granted either a full release or released with conditions or detention in hospital. This decision is reviewed every year to determine if changes are needed (16).

In the United States, the release of the individual is determined by periodic reviews by the Court. In the United States, the average duration of hospitalization for those not found guilty by reason of insanity was between 3 and 5 years (4). In the famous 1982 case of United States v. John W. Hinckley Jr, after being acquitted, he stayed in the mental health institution for 34 years before being granted full release in 2016 under strict, court-monitored conditions (17).

In the United Kingdom, murder acquittees are subjected to an indefinite hospital stay with a restricted order. The State tribunal holds the authority to grant conditional release and can recall the patient at any time if the mental health deteriorates or conditions are breached (18).

In Australia, the mental health review tribunal imposes a custody or supervision order based on the principles of public safety and the need for treatment (19). In Japan, the Medical Treatment and Supervision Act was enacted in 2005, to supervise those found Not Guilty by Reason of Insanity with a history of committing serious crimes and plan for reintegration into the community based on periodic review and regular treatment (20).

In our study, all of them were retained in the mental health institute, as family members were not willing to take them back into the community. The Stigma, chronicity of psychiatric illness, and poor family support further impeded discharge planning (21). These challenges mirror those documented in studies by Somasundaram O (10).

Implications for Mental Health and Legal Systems

This case series examines the process undergone by individuals with severe mental illness when involved in criminal offenses. It gives an insight into the prolonged inpatient stay in mental health establishments due to both chronic illness and a criminal background (22). Early identification, regular treatment and follow-ups, psychoeducation about the nature, course of illness, and need for long-term treatment, culturally sensitive rehabilitation models, and legal literacy among families are essential to uphold the rights of individuals acquitted on grounds of unsoundness. The findings advocate for a multidisciplinary approach involving psychiatrists, legal professionals, and social workers to ensure the speedy processing of legal procedures for such individuals (23).

Limitations

As this study is a case series from a single institution, it may not accurately reflect the overall number of patients acquitted and their alleged offenses statewide.

Future implications

This study highlights the need for larger-scale research on prisoners who are acquitted on the grounds of unsoundness. Future research should focus on developing structured discharge protocols, expanding community-based rehabilitation options, and improving legal awareness among caregivers. Further studies involving the families of these patients are also important to explore the hesitation in re-establishing relationships and the practical challenges they face in caregiving and reintegration.

Conclusion

This case series highlights the complexities in the lives of individuals acquitted on grounds of unsoundness of mind and placed in a mental health establishment. Despite legal exoneration, prolonged inpatient stay remains in such individuals, often due to chronicity of illness and limited family support. The findings emphasize the need for services that provide timely assessments, regular legal reviews, and culturally sensitive reintegration strategies.

Strengthening collaboration between mental health professionals, legal authorities, and social services is essential to uphold the rights and dignity of this vulnerable population and to promote humane, rights-based approaches in forensic mental health care.

Acknowledgments

The authors gratefully acknowledge the support of the Institute of Mental Health, Kilpauk, Chennai, for providing access to medico-legal records and facilitating this study. We extend our sincere thanks to the administrative authorities who permitted the review of case files and ensured compliance with the procedural requirements.

We also wish to acknowledge the contributions of the medical records staff and the Visitors' Committee members, whose meticulous documentation and assessments made this analysis possible. The authors are indebted to colleagues in the Department of Psychiatry for their

valuable discussions and guidance during the preparation of this manuscript.

Financial support and sponsorship

No financial support was received for this study.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Indian Journal of Mental Health and Neurosciences
Volume 8, Issue 2, 2025, pp. 12–17
DOI: 10.54646/ijmhns.2025.10
www.ijmhns.com

ORIGINAL RESEARCH

Impact of cannabis use in patients with schizophrenia- a cross sectional comparative study

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Received: 20 December 2025; **Accepted:** 20 January 2026; **Published:** 26 March 2026

Background: Cannabis has become one of the key substances attracting increasing attention in recent times, particularly for its association with psychotic disorders. Neurological soft signs (NSS) are subtle motor and sensory integration abnormalities observed in schizophrenia, reflecting underlying neurodevelopmental dysfunction. Cannabis use is increasingly prevalent in schizophrenia and may influence the clinical and neurobiological phenotype, including NSS.

Aim: To compare NSS and psychopathology in schizophrenia patients with and without cannabis use.

Materials and methods: A comparative cross-sectional study was conducted among 60 male patients diagnosed with schizophrenia (DSM-5 criteria), divided equally into two groups: those with (n = 30) and without (n = 30) cannabis use. Cannabis use of more than 2 years' duration was confirmed using the Cannabis Use Disorder Identification Test–Revised (CUDIT-R) and the Severity of Dependence Scale (SDS). The Neurological Evaluation Scale (NES), Scale for the Assessment of Positive Symptoms (SAPS), Scale for the Assessment of Negative Symptoms (SANS), and Brief Psychiatric Rating Scale (BPRS) were administered. Statistical analysis was performed using SPSS v26.0.

Results: Cannabis users showed significantly lower scores in the NES domain "sequencing of complex motor acts" ($p = 0.042$), suggesting better motor coordination. No significant differences were observed in total NSS or other subdomains. Cannabis users had significantly higher SAPS ($p = 0.036$) and BPRS scores ($p = 0.014$) and lower SANS scores ($p = 0.010$), indicating greater positive symptoms, overall psychopathology, and lesser negative symptoms. Among users, the mean CUDIT-R score was 6.26 ± 7.32, and the SDS score was 3.16 ± 3.52. Half of the users initiated cannabis between ages 16 and 20, and 43.4% used it weekly.

Conclusion: Schizophrenia patients with cannabis use exhibited milder deficits in certain NSS domains and a higher positive symptom burden. These findings suggest a distinct clinical profile and possible neurodevelopmental variation, underlining the importance of screening for cannabis use.

Keywords: schizophrenia, cannabis, neurological soft signs, psychopathology, substance use

Introduction

Schizophrenia is a chronic, debilitating psychiatric disorder that significantly impairs cognition, behavior, and functioning (1). It presents with a wide array of symptoms, including hallucinations, delusions, disorganized speech and behavior, and negative symptoms. The etiology of schizophrenia is multifactorial, with genetic, neurobiological, and environmental factors contributing to its onset and progression (2). While clinical features have been extensively studied, recent focus has shifted toward more subtle neurological abnormalities known as neurological soft signs (NSS), which may precede or coexist with the illness.

Neurological soft signs (NSS) are minor, non-localizing neurological abnormalities without evidence of structural

ISSN: 2581-9445 (online)

lesions. They manifest as impairments in sensory integration, motor coordination, and sequencing of complex motor acts (3). Prior research has identified NSS as potential biological markers, or endophenotypes, of schizophrenia, supported by findings of their presence in unaffected first-degree relatives and in prodromal phases of illness (4, 5).

Substance use, particularly cannabis, is another important factor in the etiopathogenesis of schizophrenia. Epidemiological studies have consistently shown that cannabis use, especially during adolescence, increases vulnerability to psychosis and schizophrenia (6, 7). Moreover, cannabis use has been associated with earlier onset of schizophrenia (8, 9).

Despite evidence linking both NSS and cannabis use independently to schizophrenia, their interaction remains insufficiently explored. Cannabis users with schizophrenia may exhibit a distinct neurobiological profile, with some studies suggesting fewer cognitive deficits but more prominent NSS, possibly due to the neurodevelopmental impact of cannabis exposure (10, 11). Conversely, some findings indicate that cannabis may preserve certain cognitive functions, complicating its relationship with NSS (12). Kuepper et al. (12) reported higher NSS in schizophrenia patients who used cannabis, while Murray et al. (13) found that cannabis use could exacerbate NSS-related cognitive impairments. These findings suggest a complex interplay between cannabis use and neurodevelopmental abnormalities in schizophrenia that warrants further investigation.

In this context, the present study aims to compare NSS and psychopathology in schizophrenia patients with and without cannabis use. This exploration is expected to contribute to a better understanding of the differential neurodevelopmental trajectories and clinical presentations in schizophrenia influenced by cannabis use.

Materials and methods

This hospital-based comparative cross-sectional study was conducted at a tertiary mental health care institution in South India among 60 patients diagnosed with schizophrenia as per DSM-5 criteria. Participants were recruited from inpatient and outpatient services using consecutive sampling and divided into Group A (with cannabis use) and Group B (without cannabis use). Inclusion criteria for both groups included age between 18 and 60 years, a DSM-5 diagnosis of schizophrenia, and willingness to participate, while additional criteria included cannabis use for more than 2 years for Group A and illness duration greater than 2 years for Group B. Patients with current intoxication, dependence on substances other than nicotine, or a history of neurological illness or significant head injury were excluded. Data were collected using a semi-structured proforma for sociodemographic, clinical, and substance use details; NSS were assessed using the Neurological Evaluation Scale (NES), while symptom severity was evaluated using the Brief Psychiatric Rating Scale (BPRS), the Scale for the Assessment of Positive Symptoms (SAPS), and the Scale for the Assessment of Negative Symptoms (SANS). Cannabis-related problems and dependence were assessed in the cannabis-using group using the Cannabis Use Disorder Identification Test–Revised (CUDIT-R) and the Severity of Dependence Scale (SDS). All instruments used had established validity and reliability. Following written informed consent, participants underwent detailed clinical interviews, and cannabis use history was corroborated by patient and informant reports. The study was approved by the Institutional Ethics Committee and Scientific Committee. Data were analyzed using IBM SPSS Statistics version 26, employing appropriate descriptive and inferential statistical methods.

TABLE 1 | Socio-demographic characteristics of the study participants (N = 60).

Variable	Category	Frequency	Percentage (%)
Age	≤25 years	11	18.3
	26–35 years	29	48.3
	36–45 years	13	21.7
	>45 years	7	11.7
Gender	Male	60	100.0
	Female	0	0.0
Educational Status	Primary school	3	5.0
	Middle school	19	31.6
	High school	15	25.0
	Higher secondary/Diploma	13	21.7
	Graduate/Postgraduate	10	16.7
Occupation	Unemployed	41	68.3
	Unskilled worker	12	20.0
	Others	7	11.7
Marital Status	Married	12	20.0
	Unmarried	48	80.0
Religion	Hindu	46	76.6
	Muslim	7	11.7
	Christian	7	11.7
Habitat	Urban	19	31.7
	Rural	41	68.3
Social Support	Weak	4	6.7
	Moderate	26	43.3
	Strong	30	50.0
Living Arrangement	With family	57	95.0
	Alone	3	5.0

TABLE 2 | Clinical and cannabis use characteristics of the study participants (N = 60).

Variable	Category	Frequency	Percentage (%)
Age of Onset of Schizophrenia	≤20 years	24	40.0
	21–25 years	18	30.0
	26–30 years	13	21.7
	>30 years	5	8.3
History of Antipsychotic Treatment	Atypical	51	85.0
	Typical	2	3.3
	Both Typical and Atypical	7	11.7
Duration of Illness	≤3 years	10	16.7
	4–6 years	16	26.7
	7–9 years	12	20.0
	≥10 years	22	36.6
Family History of Schizophrenia	Positive	22	36.7
	Negative	38	63.3
History of Tobacco Use	Yes	34	56.7
	No	26	43.3
Age of Onset of Cannabis Use (*n = 30*)	≤15 years	6	20.0
	16–20 years	15	50.0
	>20 years	9	30.0
Duration of Cannabis Use (*n = 30*)	≤5 years	13	43.3
	6–10 years	11	36.7
	>10 years	6	20.0
Frequency of Cannabis Use (*n = 30*)	Weekly	13	43.4
	Monthly	10	33.3
	Occasionally	7	23.3

Results

Among the participants, nearly half were aged between 26 and 35 years, and all 60 participants were male. Most participants had below higher secondary education, comprising those educated up to middle school or high school, while about two-fifths had higher secondary education or above. About two-thirds of were unemployed, and socioeconomic distribution showed that 63.3% belonged to the lower or lower-middle class. Rural residents comprised two-thirds of the study participants (**Table 1**).

Age of onset of schizophrenia was ≤20 years in 40%, and illness duration was less than 10 years in nearly two-thirds of participants, while just over one-third had a duration of 10 years or more. A positive family history of schizophrenia was reported by 36.7% of participants. Tobacco use was present in nearly half of the study population. Among cannabis users (n = 30), 50% initiated use at ages 16–20 years, 20% at ≤15 years, and 30% after 20 years. The duration of cannabis use was 10 years or less in about four-fifths of users, while one-fifth had more than 10 years of use; in terms of frequency, nearly half reported weekly use (**Table 2**).

Mean scores of assessment tools were NES: 21.46 ± 5.69, Brief BPRS: 41.93 ± 6.29, SAPS: 35.85 ± 16.00, SANS: 34.46 ± 21.48, CUDIT-R: 6.26 ± 7.32, and SDS: 3.16 ± 3.52. A chi-square test assessing the association between family history of schizophrenia and cannabis use revealed no statistically significant difference between the groups ($\chi = 0.287$, $p = 0.592$). Cannabis users were significantly younger than non-users (mean age = 29.33 ± 6.45 vs. 36.46 ± 9.60; $Z = -3.042$, $p = 0.002$). Duration of illness was also significantly shorter in users (6.86 ± 4.83 years) compared to non-users (11.40 ± 7.15 years; $p = 0.011$). However, no significant differences were observed in age at onset of schizophrenia (22.40 vs. 25.06 years; $p = 0.304$) or mean antipsychotic dosage (411.93 mg vs. 453.00 mg; $p = 0.355$).

Total NES scores were lower among cannabis users (mean = 20.36 ± 4.36) than non-users (22.56 ± 6.66), but the difference was not statistically significant ($p = 0.205$). Similarly, no significant differences were found in subdomains of sensory integration (2.01 vs. 2.80; $p = 0.157$) or motor coordination (2.50 vs. 2.16; $p = 0.445$). However, the sequencing of complex motor acts subscale showed significantly lower scores in cannabis users (5.03 ± 2.45) compared to non-users (6.73 ± 2.31; $p = 0.005$), indicating a specific difference in this domain. Total SANS scores were significantly lower in cannabis users (26.83 ± 20.29) than non-users (42.10 ± 20.16; $Z = -3.150$, $p < 0.001$). Affective flattening/blunting was significantly lower in users (6.13 ± 9.71) than non-users (15.30 ± 10.89; $p < 0.001$). Alogia scores were also significantly lower in users (2.56 ± 5.17) compared to non-users (5.80 ± 5.16; $p = 0.005$). No significant differences were observed in avolition-apathy (8.96 vs. 10.70; $p = 0.108$), anhedonia-asociality (8.00 vs. 9.96; $p = 0.106$), or attentional impairment (1.36 vs. 1.70; $p = 0.836$). Total SAPS scores were significantly higher among cannabis users (42.40 ± 15.01) than non-users (29.30 ± 14.38; $Z = 3.061$, $p = 0.002$). Delusions (13.80 vs. 10.03; $p = 0.031$), bizarre behavior (8.90 vs. 5.33; $p = 0.002$), and positive formal thought disorder (7.63 vs. 4.16; $p = 0.012$) were significantly higher among users. Hallucination scores (12.06 vs. 9.10) did not show statistical significance ($p = 0.180$). BPRS total scores were significantly higher in cannabis users (43.86 ± 6.10) compared to non-users (40.00 ± 5.95; $Z = 2.673$, $p = 0.007$), indicating greater psychiatric symptom severity in the user group (**Table 3**).

Discussion

The majority of participants in this study were aged 26–35 years, aligning with global data showing that schizophrenia

TABLE 3 | Association of cannabis use with clinical and demographic variables.

Variable	Cannabis users (n = 30) mean ± SD or n (%)	Cannabis non-users (n = 30) mean ± SD or n (%)	Test used/Z-value	p-value
Family History of Schizophrenia	12 (40%) Positive 18 (60%) Negative	10 (33.3%) Positive 20 (66.7%) Negative	Chi-square = 0.287	0.592
Age (years)	29.33 ± 6.45	36.46 ± 9.60	Z = −3.042	0.002*
Age of Onset of Schizophrenia	22.40 ± 3.54	25.06 ± 7.70	Z = −1.027	0.304
Duration of Illness (years)	6.86 ± 4.56	11.40 ± 8.05	Z = −2.515	0.011*
Neuroleptic Dosage (mg/day)	411.93 ± 340.13	453.00 ± 366.01	Z = −0.923	0.355
NES – Total Score	20.36 ± 4.36	22.56 ± 6.66	Z = −1.267	0.205
Sensory Integration	2.01 ± 1.05	2.80 ± 1.71	Z = −1.415	0.157
Motor Coordination	2.50 ± 1.52	2.16 ± 1.53	Z = 0.763	0.445
Sequencing of Complex Motor Acts	5.03 ± 2.45	6.73 ± 2.31	Z = −2.769	0.005*
SANS – Total Score	26.83 ± 20.29	42.10 ± 20.16	Z = −3.150	<0.001*
Affective Flattening/Blunting	6.13 ± 9.71	15.30 ± 10.89	Z = −3.833	<0.001*
Alogia	2.56 ± 5.17	5.80 ± 5.16	Z = −2.756	0.005*
Avolition – Apathy	8.96 ± 2.97	10.70 ± 3.72	Z = −1.606	0.108
Anhedonia – Asociality	8.00 ± 4.94	9.96 ± 4.90	Z = −1.613	0.106
Attentional Impairment	1.36 ± 2.18	1.70 ± 4.58	Z = 0.206	0.836
SAPS – Total Score	42.40 ± 15.01	29.30 ± 14.38	Z = 3.061	0.002*
Hallucinations	12.06 ± 5.10	9.10 ± 7.88	Z = 1.339	0.180
Delusions	13.80 ± 5.62	10.03 ± 6.14	Z = 2.152	0.031*
Bizarre Behavior	8.90 ± 4.43	5.33 ± 3.77	Z = 3.018	0.002*
Positive Formal Thought Disorder	7.63 ± 5.71	4.16 ± 5.55	Z = 2.488	0.012*
BPRS – Total Score	43.86 ± 6.10	40.00 ± 5.95	Z = 2.673	0.007*

*$p < 0.05$, statistically significant

often emerges in early adulthood. This is consistent with large meta-analyses indicating that the median age of onset is around 24 years for males and 28 years for females, reflecting a vulnerable neurodevelopmental period for psychosis onset (14–16). Although the all-male sample limits generalizability, it is in line with findings that men are diagnosed more frequently, exhibit earlier onset, and display more severe positive symptoms (17, 18). Gender differences in symptom expression and substance use patterns have been highlighted in recent studies, emphasizing the need for inclusive research (19).

Half of the sample reported cannabis use, which was significantly associated with younger age, earlier illness onset, shorter illness duration, and greater severity of positive symptoms. This supports existing evidence that cannabis use is a risk factor for earlier and more severe psychotic presentations (20–22). It also echoes findings that cannabis may precipitate psychotic relapse and worsen clinical outcomes in patients with schizophrenia (23). The observed mean CUDIT-R and SDS scores reflected a broad spectrum from recreational to problematic use.

Interestingly, no significant association was found between cannabis use and family history of schizophrenia in this sample, although a numerically higher proportion of users reported a positive history. While some studies suggest cannabis use interacts with genetic vulnerability to increase risk (24), others propose that this relationship is complex and may not be apparent in cross-sectional samples due to sample size or unmeasured genetic factors such as polygenic risk scores (25).

Cannabis users were significantly younger than non-users and also had an earlier age at illness onset. This is consistent with research showing that cannabis is more prevalent among younger individuals and those from socioeconomically disadvantaged backgrounds (9, 26). The shorter illness duration among users may reflect earlier cannabis exposure or accelerated onset of schizophrenia following use.

Cannabis users had lower total NES scores, although not significantly so. However, they performed better in the "sequencing of complex motor acts" domain, which may reflect preserved or enhanced executive functioning in certain cannabis-using individuals. Prior studies suggest that cannabis may have differential effects on cerebellar and prefrontal systems that mediate complex motor and cognitive tasks (27, 28).

Negative symptoms, as assessed by SANS, were significantly less severe in cannabis users. This paradoxical finding supports earlier reports that cannabis may transiently reduce negative symptoms such as anhedonia or affective flattening, possibly due to its dopaminergic effects (29, 30). However, this potential benefit is likely short-term,

with chronic use often resulting in long-term cognitive and motivational impairments.

Conversely, cannabis use was associated with significantly higher SAPS scores, particularly in delusions, bizarre behavior, and formal thought disorder. These results corroborate a growing body of evidence linking cannabis to exacerbation of positive symptoms via dopaminergic sensitization mechanisms (31, 32). Similarly, BPRS scores were also higher among cannabis users, indicating greater overall psychiatric symptom burden. Recent studies have associated cannabis use with heightened severity of not only psychotic features but also affective and behavioral dysregulation (33, 34). Taken together, these findings underscore cannabis as a potential aggravator of schizophrenia symptoms, particularly in the domains of positive symptoms and general psychopathology.

Conclusion

This study highlights the impact of cannabis use on schizophrenia in the Indian context, suggesting that substance exposure may contribute to clinical and neurodevelopmental heterogeneity. Cannabis use was associated with more severe positive symptoms but fewer negative symptoms and relatively better performance on certain motor sequencing tasks, indicating complex neurobiological interactions. These findings raise the possibility that cannabis-associated schizophrenia may represent a distinct clinical subtype or lie along a continuum shaped by environmental influences.

Limitations

This study included only male participants, limiting generalizability across genders, and was conducted at a single center with a demographically skewed sample, potentially affecting external validity. Although the sample size was statistically adequate, a larger and more diverse cohort would enhance generalizability. The cross-sectional design restricts causal inference, and reliance on self-reported cannabis use introduces the risk of recall and social desirability biases. Additionally, absence of biological verification [e.g., tetrahydrocannabinol (THC) assays] limits the objectivity of substance use data.

Future directions

Future research should include female participants to explore gender-specific associations and adopt longitudinal designs to clarify causal links and the trajectory of NSS. Incorporating biological confirmation of cannabis use and quantifying potency across different consumption methods will improve reliability. Neuroimaging studies could further elucidate the structural and functional brain changes associated with cannabis use in schizophrenia.

Data availability statement

Data available on reasonable request from the corresponding author.

Ethics statement

Approved by Institutional Ethics Committee. Written informed consent was obtained from all participants.

Competing interests

The authors declare no competing interests.

Funding

No financial support was received for this study.

Acknowledgments

The authors gratefully acknowledge the support of the Institute of Mental Health, Kilpauk, Chennai, for providing access to medico-legal records and facilitating this study. We extend our sincere thanks to the administrative authorities who permitted the collection of data from patients and ensured compliance with the procedural requirements. The authors are indebted to colleagues in the Department of Psychiatry for their valuable discussions and guidance during the preparation of this manuscript.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Indian Journal of Mental Health and Neurosciences
Volume 8, Issue 2, 2025, pp. 18–31
DOI: 10.54646/ijmhns.2025.11
www.ijmhns.com

ORIGINAL RESEARCH

A study of the prevalence and correlates of suicidal ideation and psychiatric morbidity among undergraduate medical students in Tamil Nadu, India

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Received: 02 January 2026; **Accepted:** 19 January 2026; **Published:** 26 March 2026

Background: Understanding the risk factors for psychiatric morbidity and suicidal ideation among medical undergraduates is gaining importance given the increasing trend in suicides among this population. This study aimed to analyze the prevalence of suicidal ideation, depression, and anxiety among medical undergraduates and to compare their socio-demographic, familial, and behavioral characteristics to identify potential risk factors.

Methods: We performed a cross-sectional online survey among 500 consenting medical undergraduates in Tamil Nadu, South India. Ethical approval was obtained. We used a semi-structured proforma to obtain the socio-demographic, family relationships, and lifestyle information of our participants. The beck depression inventory and the hospital anxiety depression scale were used to quantify depression and anxiety among our students. We performed univariate and multivariate logistic regression analyses and computer-based predictive modelling using Classification and Regression Tree (CART) analysis on our data.

Results: We found a prevalence of 20.2% for suicidal ideation, 35.8% for depression, and 53% for anxiety among our students. Significantly increased odds of having suicidal ideation were observed among students who were from disharmonious families (odds ratio [OR] = 10.80; CI: 9.30–30.15; p = 0.008), had poor satisfaction with maternal love (OR = 2.21; CI: 0.79–3.34; p = 0.03), frequently visited shopping malls (p = 0.05; OR = 5.71; CI: 0.88–17.12) and never exercised (OR = 1.95, CI: 0.81–2.74; p = 0.03). Significantly lower odds of suicidal ideation were observed among students who consumed food with friends in restaurants on weekends (OR = 0.08; CI: 0.01–0.045; p = 0.005). We observed lower odds of anxiety and depression among students who visited religious places (OR = 0.49; CI: 0.04–3.13; p = 0.05) and places of sightseeing (OR = 0.45; CI: 0.07–2.94; p = 0.05), respectively. Among students who reported difficulty in decision-making, CART analysis predicted 36.1% of suicidal ideation, 74.6% of depression, and 80.5% of anxiety. Increased fatiguability, feelings of unattractiveness, and feelings of being punished predicted depression among 49.2% of our students. Ideas of guilt and blaming oneself predicted anxiety among 66.5 and 68.4% of our students, respectively.

Conclusions: One-fifth of medical graduates reported suicidal ideation, one-third experienced depression, and half had anxiety, with risk factors including poor relationships with family and classmates, female gender, academic stress, substance use, and lack of exercise. CART analysis identified depression as the strongest predictor of anxiety and suicidal ideation, with decision-making difficulties and fatigue being significant contributors. CART has demonstrated high accuracy, highlighting its value in clinical research.

Keywords: medical students, depression, anxiety, suicidal ideation, risk factors, prevalence

ISSN: 2581-9445 (online)

Key messages

1. **Mental Health Risks:** Medical graduates face significant mental health challenges, with depression, anxiety, and suicidal ideation prevalent, especially among those who lack exercise, experience academic pressure, or have poor family and social relationships.
2. **Protective Factors:** Engaging in activities like exercising, weekend restaurant food consumption with friends, visiting religious places, and sightseeing can help reduce the risk of suicide, anxiety, and depression, offering simple strategies to improve well-being.
3. **Predictive Insights:** Depression is a strong predictor of both anxiety and suicidal ideation. Decision-making difficulties, increased fatiguability, and feelings of unattractiveness are easily identifiable risk factors for depression.

Introduction

During the past 5 years, not less than 122 medical students have died by suicide, 64 in undergraduate and 58 in postgraduate courses, while 1270 students dropped out (1). In India, 125 medical students, 105 postgraduate residents, and 128 doctors committed suicide between 2010 and 2019 (2). These statistics warrant an urgent need for detailed research into the risk factors associated with suicidal ideation, depression, and anxiety among medical graduates in India.

Suicide is a continuous behavior that includes suicidal ideation followed by plans, attempts, and the act of suicide itself (3). Past research has documented that suicidal ideation is a significant predictor of suicide plans, attempts, and completed suicides (4). According to a national comorbidity survey by Kessler et al. in the United States, 34% of lifetime suicide ideators made a suicide plan, and 72% of them attempted suicide, whereas 26% of suicide ideators attempted suicide without making any prior plans (5).

Depression is defined as the mental state of low mood and aversion to activity. It can manifest as sadness, inability to concentrate, feelings of hopelessness, and an increase or decrease in appetite and sleep (6). Anxiety is an unpleasant emotional state of inner turmoil or feelings of dread over anticipated events, often accompanied by nervous behavior such as pacing, somatic illness, and rumination (7). Anxiety and depression are the most common mental health problems affecting students (8). Depression is the fourth leading and rapidly growing cause of morbidity and accounts for about half of the mental disorders behind suicide attempts (9, 10). Anxiety directly affects the vulnerability to stress and inversely affects the emotional stability of medical students (11). Student distress may adversely influence professional development and academic performance and can also continue into his/her practice, affecting patients, given the correlation between physician distress and a decrease in the quality of healthcare provided on the part of the physician (12, 13).

In a systematic review focused on medical schools in English-speaking countries, Hope et al. (14) have reported a prevalence of 7.7–65.5% for anxiety, 6.0–66.5% for depression, and 12.2–96.7% for psychological distress. Rotenstein et al.'s meta-analysis of studies from 47 countries found that 11.1% of medical students had suicidal ideation and 27.2% had depression (15). A cross-sectional study among medical students in Western Nepal reported a lifetime prevalence of suicidal ideation of 18.4% and suicidal ideation in the past year at 10.7%. Given the importance of depression, anxiety, and their consequences, including suicide, it is important to assess their unfolding during a medical student's undergraduate period to intervene early and alleviate the psychological distress. Past research has identified several risk factors associated with suicidal ideation, depression, and anxiety among medical students. These include poor performance in college, being posted in clinical rotations, a history of substance abuse, parental neglect, being a female student, poor self-image, sleep problems, and mental health problems (5, 16, 17). An investigation into suicidal ideation and its correlates may assist in the prevention of future suicide attempts, both planned and unplanned (18, 19). Despite an increasing interest in this area, to our knowledge, there is a paucity of Indian research analyzing suicidal ideation, depression, and anxiety concurrently among medical students.

Therefore, this study aimed to perform a comprehensive analysis of the prevalence of suicidal ideation, depression, and anxiety among medical students and also to compare the socio-demographic, familial, and behavioral characteristics associated with them. This would enable us to identify the potential risk factors associated with suicidal ideation and to uncover subtle effect pathways leading to suicide attempts or suicide.

Methods

This cross-sectional study was performed in the psychiatry department of a tertiary care medical institution in Southern India for a 6-month period from January 2023 to June 2023. Ethical approval was obtained from our Institutional Ethics Committee. We contacted the deans of 29 medical colleges and provided them with information about our research and requested them to permit their undergraduate students to participate in our study. We also organized online meetings via video conferencing with the faculty advisors and student mentors of the respective medical colleges, elaborating on the pressing need and benefits of this research, and sent them the informed consent forms with a request for onward transmission to their students. We also sought to overcome some of the mental barriers by using informal

consultation and assurance of anonymity and confidentiality. We recruited 746 willing and consenting students by this method. The semi-structured proforma and mental health rating scales were individually mailed to all our consenting participants. Two hundred and 46 students did not complete the survey. Based on previous research work by Rotenstein et al. (15), the prevalence of suicidal ideation was taken as p = 11.1%, precision d = 3%, and a confidence level of 95%; we arrived at a sample size of 421 participants for our study. Expecting a non-response rate of around 20%, we rounded off our sample size to 500.

Kessler et al. have reported that about 90% of unplanned and 60% of planned first suicide attempts occurred within 1 year of having a suicidal ideation (5). Based on this research finding, we assessed suicidal ideation among our participants with the question "Did you have thoughts about killing yourself in the past year?" and asked them to choose the statement that best described them—"I don't have any thoughts of killing myself"; "I have such thoughts, but I would not carry them out"; "I would kill myself if I had the chance." Smoking and drinking behavior were assessed with the questions "Do you smoke any tobacco products or other substances?" and "Do you consume alcoholic drinks?" The frequency of consumption of junk food was assessed with the question "How often do you consume junk/outside/ordered food?" The frequency of performing physical exercise was obtained with the question—"How often do you exercise or take part in sports (>30 minutes)?"

Materials

Semi-structured proforma

We used a self-designed, semi-structured proforma to obtain information regarding the socio-demographic characteristics like age, gender, monthly family income, monthly living expenses, number of friends, and relationship with classmates. We also obtained information regarding family relationships, parental marital status, satisfaction with paternal and maternal love, family history of psychiatric illness, history of psychiatric illness, and history of using substances. Information regarding consumption of junk food, frequency of physical exercise, academic pressure, and leisure activities was also obtained.

Beck's depression inventory (BDI)

Beck's depression inventory (BDI) is a 21-question inventory created by Aaron T. Beck and is one of the most widely used psychometric tests for measuring the severity of depression. It uses a 4-point Likert scale, with each question scored from 0 to 3. The total score ranges from 0 to 63, with scores <11 considered normal. 11–16 indicates a mild mood disturbance, while 17–20 indicates borderline clinical depression. Scores of 21–30 signify moderate depression, and >30 is indicative of severe depression (20).

Hospital anxiety depression scale (HADS)

The Hospital Anxiety Depression Scale (HADS) is a 14-item scale developed by Zigmond and Snaith and has seven questions related to anxiety alternating with seven questions related to depression, with a score ranging between 0 and 21 for the anxiety and depression subscales. A score of ≤7 corresponds to "no depression or anxiety," a score of 8–10 is a minor depression/anxiety, and a score of >10 is a moderate to severe depression/anxiety (21).

Statistical analysis

We used the Statistical Package for the Social Sciences software (SPSS Version 24.0, IBM SPSS, IBM Corp., Armonk, NY, USA) to perform univariate logistic analyses to examine the correlation and identify potential risk factors for suicidal ideation, depression, and anxiety. Variables that were found to be significant were included in a forward stepwise multivariate logistic regression. Additionally, the independent variables were analyzed by using a classification and regression tree (CART) analysis and recursive partition algorithms called RPART (22), which examines all possible predictors, finds the most optimal split, and automatically creates two homogenous subgroups that are most different in terms of the dependent variable. This process of binary splitting continues until it can no longer divide any further. CART analysis exhaustively searches all independent variables, thereby enabling us to explore complex relationships that may exist among multiple risk factors. We took a value of $p < 0.05$ to be statistically significant.

Results

Table 1 summarizes the details of psychiatric morbidity, the socio-demographic profile, and family factors associated with suicidal ideation. The mean age of our sample was 21.9 ± 2.8 years. 57.4% (n = 287) of our study participants were female. The mean monthly family income of our participants was Rs. 66,550 ± 30,192. Their mean monthly expenditure was Rs. 5890 ± 2683. 30% (n = 150) of the respondents stated that they had a neutral family relationship. While 4.2% (n = 21) of our students had a disharmonious family, 65.8% (n = 329) had a harmonious family relationship. 18.2% (n = 91) of the respondents' parents frequently quarreled, 2.2% (n = 11) were separated, and 1.2% (n = 6) were divorced. 12.2% (n = 61) of subjects had a history of psychiatric illness in their family.

TABLE 1 | Psychiatric morbidity and socio-demographic profile, family relationships.

Demographic variables	Sample	Suicidal ideation	Depression	Anxiety
	Cr[a]% (n)	Pr[a]% (n)	Pr[a]% (n)	Pr[a]% (n)
	100 (500)	**20.2 (101)**	**35.8 (179)**	**53.0 (265)**
Gender				
Male	42.6 (213)	14.6 (31)	32.9 (70)	49.8 (106)
Female	57.4 (287)	24.4 (70)	38.0 (109)	55.4 (159)
Age				
17–18	8.6 (43)	18.6 (8)	32.6 (14)	41.9 (18)
19–20	57 (285)	19.3 (55)	35.1 (100)	53.0 (151)
21–22	30 (150)	24.0 (36)	40.0 (60)	58.7 (88)
23–24	3.6 (18)	11.1 (2)	27.8 (5)	33.3 (6)
25 and above	0.8 (4)	0	0	50.0 (2)
Monthly family income in Rs.				
20,000–50,000	25.6 (128)	18.8 (24)	35.2 (45)	50.8 (65)
50,001–75,000	18.6 (93)	22.6 (21)	43.0 (40)	54.8 (51)
75,001–1,00,000	19.8 (99)	19.2 (19)	32.3 (32)	51.5 (51)
above 1 lakh	36 (180)	20.6 (37)	34.4 (62)	54.4 (98)
Monthly living expense in Rs.				
less than 5000	25 (125)	17.6 (22)	31.2 (39)	48.0 (60)
5000–7500	35.4 (177)	26.0 (46)	39.0 (69)	59.9 (106)
7501–10,000	18.6 (93)	18.3 (17)	35.5 (33)	49.5 (46)
above 10,000	21 (105)	15.2 (16)	36.2 (38)	50.5 (53)
Family relationship				
Very harmonious	24.6 (123)	8.9 (11)	17.9 (22)	37.4 (46)
Harmonious	41.2 (206)	20.4 (42)	37.4 (77)	55.3 (114)
Neutral	30 (150)	26.0 (39)	44.7 (67)	58.7 (88)
Disharmonious	3.2 (16)	37.5 (6)	68.8 (11)	87.5 (14)
Highly disharmonious	1 (5)	60.0 (3)	40.0 (2)	60.0 (3)
Parental relationship				
Harmony	78.4 (392)	15.8 (62)	30.4 (119)	48.2 (189)
Frequent quarrel	18.2 (91)	35.2 (32)	57.1 (52)	69.2 (63)
Separation	2.2 (11)	45.5 (5)	72.7 (8)	100.0 (11)
Divorce	1.2 (6)	33.3 (2)	0	33.3 (2)
Family history of psychiatric illness				
No	87.8 (439)	19.4 (85)	34.6 (152)	53.1 (233)
Yes	12.2 (61)	26.2 (16)	44.3 (27)	52.5 (32)
Satisfaction with paternal love				
1 – very dissatisfied	2.8 (14)	28.6 (4)	21.4 (3)	42.9 (6)
2 – somewhat dissatisfied	3.4 (17)	58.8 (10)	70.6 (12)	70.6 (12)
3 – neutral	12.4 (62)	29.0 (18)	56.5 (35)	71.0 (44)
4 – somewhat satisfied	22 (110)	21.8 (24)	40.9 (45)	66.4 (73)
5 – fully satisfied	59.4 (297)	15.2 (45)	28.3 (84)	44.8 (133)
Satisfaction with maternal love				
1 – very dissatisfied	1 (5)	40.0 (2)	40.0 (2)	60.0 (3)
2 – somewhat dissatisfied	2 (10)	50.0 (5)	80.0 (8)	80.0 (8)
3 – neutral	6.8 (34)	41.2 (14)	61.8 (21)	70.6 (24)
4 – somewhat satisfied	19.4 (97)	32.0 (31)	46.4 (45)	62.9 (61)
5 – fully satisfied	70.8 (354)	13.8 (49)	29.1 (103)	47.7 (169)

*Cr – Constituent ratio; Pr – Prevalence ratio.

70.8% (n = 354) and 59.4% (n = 297) of students expressed complete satisfaction with their maternal love and paternal love, respectively.

Table 2 shows the psychiatric morbidity and behavioral characteristics of our sample. 20.2% (n = 101) of students reported instances of suicidal ideation within the past 12 months, of which 2.8% (n = 14) expressed an intent to carry them out. The prevalence of suicidal ideation among males and females was 14.6% (n = 31) and 24.4% (n = 70), respectively. On the BDI, mild mood disturbances were seen in 23% (n = 115), borderline clinical depression in 11.4% (n = 57), moderate depression in 16.6% (n = 83), and severe depression in 7.8% (n = 39) of the students. On the HADS, 21% (n = 105) of the students had mild anxiety, and 32% (n = 160) of the students had moderate to severe anxiety.

Table 3 shows that 35.2% (n = 176) of the students had a good relationship with their classmates. While 21.6% (n = 108) had 1–3 friends, 2.4% (n = 12) of our students had no friends. 44% (n = 220) were able to manage well with their academic schedule, whereas 9.2% (n = 46) felt severely overwhelmed and 30% (n = 150) felt moderately overwhelmed. 39.2% (n = 196) of our participants frequently visited restaurants. While 51.2% (n = 256) of our study subjects consumed outside food on weekends, 15.4% (n = 77) consumed it daily. 26.8% (n = 134) of our sample performed physical exercise daily, 22.2% (n = 111) exercised weekly, 40.4% (n = 202) exercised rarely, and 10.6% (n = 53) never exercised. 17.6% of our students (n = 88) consumed alcohol, 7.8% (n = 39) smoked tobacco, and 7% (n = 35) gave us a history of psychiatric treatment in the past.

The univariate analysis of various factors associated with suicidal ideation, depression, and anxiety is presented in **Table 4**. We found that female undergraduates had a significantly higher chance (odds ratio [OR] = 1.68; CI: 0.84–2.10; $p < 0.05$) of having suicidal ideation. Suicidal ideation was significantly higher in students who said that their parents had frequent quarrels (OR = 2.08; CI: 0.93–2.53; $p < 0.005$), those who were dissatisfied with their paternal love (OR = 3.12; CI: 0.82–5.94; $p < 0.05$) and those who were not fully satisfied with their maternal love (OR = 2.21; CI: 0.79–3.34; $p < 0.05$). Students who never performed physical exercise (OR = 1.95; CI: 0.81–2.74; $p < 0.05$) and those who gave a history of psychiatric treatment (OR = 2.31; CI: 0.83–3.42; $p < 0.05$) had significantly higher suicidal ideation. We also observed significantly higher depression in students with frequent parental quarrels (OR = 1.84; CI: 1.01–2.55; $p < 0.01$) and less than full satisfaction with their paternal love (OR = 1.72; CI: 0.89–1.62; $p < 0.05$). Individuals who had few friends (<3) (OR = 1.74; CI: 0.89–2.62; $p < 0.01$) and students who felt overwhelmed by academic pressure (OR = 1.99; CI: 0.95–3.39; $p < 0.05$) had greater odds of being depressed. Children of parents who had separated were found to have significantly higher (OR = 1.93; CI: 1.20–2.65; $p < 0.001$) anxiety.

We performed a multivariate logistic regression analysis in an effort to identify the significant variables that are associated with suicidal ideation, depression, and anxiety. **Table 5** shows a summary of this analysis. We observed that children from highly disharmonious families had significantly higher odds (OR = 10.80; CI: 9.30–30.15; $p < 0.01$) of having suicidal ideation. Students with anxiety had a significantly higher suicidal ideation (OR = 10.4; CI: 1.88–57.19; $p < 0.01$) and depression (OR = 9.16; CI: 7.88–16.31; $p < 0.001$). Similarly, participants who reported having suicidal ideation had significantly higher odds of being depressed (OR = 4.09; CI: 3.72–9.54; $p < 0.001$) and of being anxious (OR = 3.45; CI: 2.90–7.37; $p < 0.005$). Participants who had anxiety disorder (OR = 8.88; CI: 7.19–16.55; $p < 0.001$) and those who had a history of psychiatric treatment (OR = 3.12; CI: 2.93–5.20; $p = 0.04$) also had a significantly higher chance of depression. Students who often visited shopping malls (OR = 5.71; CI: 0.88–17.12; $p = 0.05$) and spent Rs. 5000–7500 per month (OR = 3.03; CI: 2.53–4.80; $p = 0.05$) had a significantly higher chance of suicidal ideation.

We performed predictive modeling using a computer-based CART. **Figure 1** represents the important correlates of suicidal ideation among our student participants. 73.3% of individuals with suicidal ideation had depression. Amongst these depressed subjects, 60.4% of individuals had expressed less than full satisfaction with the maternal love they received. Among the 26.7% of students who were not depressed but suicidal, 23.8% had expressed that they cried more than usual, and 18.8% revealed that they had lost more than 4 kg of their weight. We also observed that 15.8% of individuals belonging to this group had difficulty in making decisions and 11.8% had around 10 friends.

Figure 2 depicts the risk factors for depression shown by our predictive model. Among the 179 depressed students, 63.1% reported difficulty in making decisions. 53.1% of the students also felt unattractive, and 50.8% reported having feelings of being punished. In addition, 49.2% of these students also reported feeling too tired to do anything.

TABLE 2 | Psychiatric morbidity.

Suicidal ideation	Depression - Beck's depression inventory	Anxiety - hospital anxiety depression scale (HADS)
20.2% (n = 101)	**35.8% (n = 179)**	**53.0% (n = 265)**
No suicidal ideation 79.8 (399)	Normal 40.2 (201)	Normal 47 (235)
Suicidal ideation 17.4 (87)	Mild mood disturbance 23 (115)	Borderline abnormal 21 (105)
Suicidal plan 2.8 (14)	Borderline clinical depression 11.4 (57)	Abnormal (case) 32 (160)
	Moderate depression 16.6 (83)	
	Severe depression 7.8 (39)	

TABLE 3 | Behavioral characteristics.

Behavioral variables	Sample Cr[a]% (n)	Suicidal ideation Pr[a]% (n)	Depression Pr[a]% (n)	Anxiety Pr[a]% (n)
	100 (500)	**20.2 (101)**	**35.8 (179)**	**53.0 (265)**
Relationship with classmates				
1 – very poor	2.8 (14)	50.0 (7)	57.1 (8)	78.6 (11)
2 – poor	7.2 (36)	30.6 (11)	66.7 (24)	86.1 (31)
3 – neutral	28.2 (141)	24.1 (34)	46.1 (65)	61.0 (86)
4 – good	35.2 (176)	19.3 (34)	15.3 (27)	50.0 (88)
5 – very good	26.6 (133)	11.3 (15)	18.8 (25)	36.8 (49)
Number of good friends				
0	2.4 (12)	33.3 (4)	41.7 (5)	75.0 (9)
1–3	21.6 (108)	25.9 (28)	53.7 (58)	69.4 (75)
4–6	40 (200)	22.0 (44)	36.5 (73)	55.5 (111)
7–9	18.4 (92)	16.3 (15)	25.0 (23)	42.4 (39)
10 and above	17.6 (88)	11.4 (10)	22.7 (20)	35.2 (31)
Places visited often				
Gym	19.4 (97)	11.3 (11)	28.9 (28)	41.2 (400
Shop	11 (55)	27.3 (15)	30.9 (17)	56.4 (31)
Religious	16.2 (81)	16.0 (13)	32.1 (26)	45.7 (37)
Food	39.2 (196)	23.0 (45)	41.8 (82)	59.7 (117)
Sightseeing	14.2 (71)	23.9 (17)	36.6 (26)	56.3 (40)
Smoking				
Daily	1.2 (6)	33.3 (2)	66.7 (4)	66.7 (4)
Weekly	0.8 (4)	50.0 (2)	50.0 (2)	75.0 (3)
Monthly	0.2 (1)	100.0 (1)	0.0	100.0 (1)
Rarely	5.6 (28)	28.6 (8)	28.6 (8)	57.1 (16)
Never	92.2 (461)	19.1 (88)	35.8 (165)	52.3 (241)
Drinking				
Daily	0.2 (1)	100.0 (1)	100.0 (1)	100.0 (1)
Weekly	1.4 (7)	42.9 (3)	57.1 (4)	71.4 (5)
Monthly	2.6 (13)	23.1 (3)	46.2 (6)	46.2 (6)
Rarely	13.4 (67)	31.3 (21)	35.8 (24)	59.7 (40)
Never	82.4 (412)	17.7 (73)	35.0 (144)	51.7 (213)
Exercise				
Daily	26.8 (134)	11.2 (15)	27.6 (37)	41.0 (55)
Weekly	22.2 (111)	20.7 (23)	32.4 (36)	53.2 (59)
Rarely	40.4 (202)	21.8 (44)	39.1 (79)	56.9 (115)
Never	10.6 (53)	35.8 (19)	50.9 (27)	67.9 (36)
Junk food				
Daily	15.4 (77)	20.8 (16)	35.1 (27)	54.5 (42)
Weekends	51.2 (256)	19.1 (49)	37.9 (97)	55.5 (142)
Fortnightly	10.4 (52)	26.9 (14)	44.2 (23)	59.6 (31)
Monthly	13 (65)	15.4 (10)	26.2 (17)	46.2 (30)
Rarely	10 (50)	24.0 (12)	30.0 (15)	40.0 (20)
Pressure of studies				
1 – none	4.8 (24)	12.5 (3)	25.0 (6)	29.2 (7)
2 – low	12 (60)	21.7 (13)	25.0 (15)	38.3 (23)
3 – able to cope	44 (220)	15.0 (33)	25.5 (56)	44.1 (97)
4 – high	30 (150)	26.7 (40)	48.0 (72)	68.0 (102)
5 - overwhelming	9.2 (46)	26.1 (12)	65.2 (30)	78.3 (36)
History of psychiatric treatment				
Yes	7 (35)	42.9 (15)	60.0 (21)	65.7 (23)
No	93 (465)	18.5 (86)	34.0 (158)	52.0 (242)

TABLE 4 | Univariate analyses of factors associated with suicidal ideation, depression, and anxiety.

Variables for suicidal ideation	Odds ratio (OR)	95% CI	p-value
Male	0.60	0.48–1.21	0.03
Female	1.68	0.84–2.10	0.03
Very harmonious family relationship	0.38	0.31–1.17	0.004
Parents with harmonious relationship	0.44	**0.40–0.98**	0.001
Parents with frequent quarrels	2.08	0.93–2.53	0.004
Dissatisfied with paternal love	3.12	0.82–5.94	0.02
Full satisfaction with paternal love	0.55	0.47–1.12	0.007
Not fully Satisfaction with maternal love	2.21	0.79–3.34	0.03
Fully satisfied with maternal love	0.39	**0.38–0.92**	0.001
Good Relationship with classmates	0.48	0.38–1.23	0.02
Frequently visit gym	0.51	0.36–1.38	0.05
Never consume alcohol	0.56	0.45–1.20	0.02
Physical exercise daily	0.48	0.38–1.22	0.01
Never exercised	1.95	0.81–2.74	0.03
Able to manage academic pressure	0.62	0.49–1.22	0.04
Positive History of psychiatric treatment	2.32	0.83–3.42	0.02
No history of psychiatric treatment	0.43	0.34–1.21	0.01
Variables for Depression			
Very harmonious family relationship	0.43	**0.36–0.99**	0.001
Parents with harmonious relationship	0.55	**0.41–0.98**	0.007
Parents with frequent quarrel	1.84	**1.01–2.55**	0.01
Not fully Satisfied with paternal love	1.72	0.89–2.62	0.05
Fully Satisfied with paternal love	0.60	0.49–1.03	0.008
Fully satisfied with maternal love	0.56	**0.44–0.98**	0.004
Good Relationship with classmates	0.33	**0.32–0.80**	0.001
1–3 friends	1.74	0.98–2.34	0.01
More than 10 friends	0.59	0.42–1.23	0.05
Able to manage academic pressure	0.58	0.48–1.02	0.005
Overwhelmed by academic pressure	1.99	0.95–3.39	0.03
Variables for anxiety			
Very harmonious family relationship	0.64	0.46–1.06	0.04
Parental separation	1.93	1.20–2.65	0.001
Fully Satisfied with paternal love	0.69	0.48–1.01	0.05
Good Relationship with classmates	0.63	0.45–1.02	0.03
More than 10 friends	0.62	0.42–1.10	0.05

Figure 3 represents the important correlates and predictors of anxiety in our sample. Among the 265 individuals who were suffering from anxiety, 58.5% were found to be depressed. Of these, 22.6% reported having experienced sadness most of the time, although 14.7% of them had around 10 friends. Among this group of graduates, we observed that 10.2% of students had feelings of guilt. Among the 155 individuals with depressive symptoms, our model showed that 35.9% were suicidal, 21.5% had a poor appetite, 18.9% had difficulty in decision-making, and around 17% of students had self-blame even though all of these individuals did not express feeling sad on most days.

Our model showed a sensitivity of 85%, a specificity of 45%, a negative predictive value of 85%, and a positive predictive value of 45%.

Discussion

"Put on your own oxygen mask before assisting others."

- Randy Pausch

In India, the process of gaining admission into medical colleges is very rigorous and challenging, often demanding exceptional dedication and hard work on the part of the

TABLE 5 | Multivariate logistic regression analysis.

Multivariate factors	Standard error (SE)	p-value	OR	95% CI
Suicidal ideation				
Monthly living expense Rs. 5001–7500	0.289	0.04	3.03	2.53–4.80
Highly disharmonious family relationship	3.448	0.008	10.80	9.30–30.15
Satisfaction with maternal love	0.479	0.01	0.29	0.11–0.75
Junk food weekends	0.917	0.005	0.08	0.01–0.45
Places visited often - shopping	0.955	0.05	5.71	0.88–17.12
Anxiety	0.871	0.007	10.37	1.88–27.19
Depression				
Relationship with classmates	0.145	0.03	0.73	0.65–4.01
Number of good friends	0.198	0.02	0.63	0.10–4.16
Places visited often - sightseeing (beach)	0.423	0.05	0.45	0.07–2.94
History of psychiatric treatment	0.549	0.04	3.12	2.93–5.20
Anxiety	0.308	0.001	9.16	7.88–16.31
Suicidal intent	0.340	0.001	4.09	3.72–9.54
Anxiety				
Relationship with classmates	0.139	0.05	0.76	0.17–3.61
Places visited often - religious	0.363	0.05	0.49	0.04–3.13
Depression	0.298	0.001	8.88	7.19–16.55
Suicidal intent	0.395	0.002	3.45	2.90–7.37

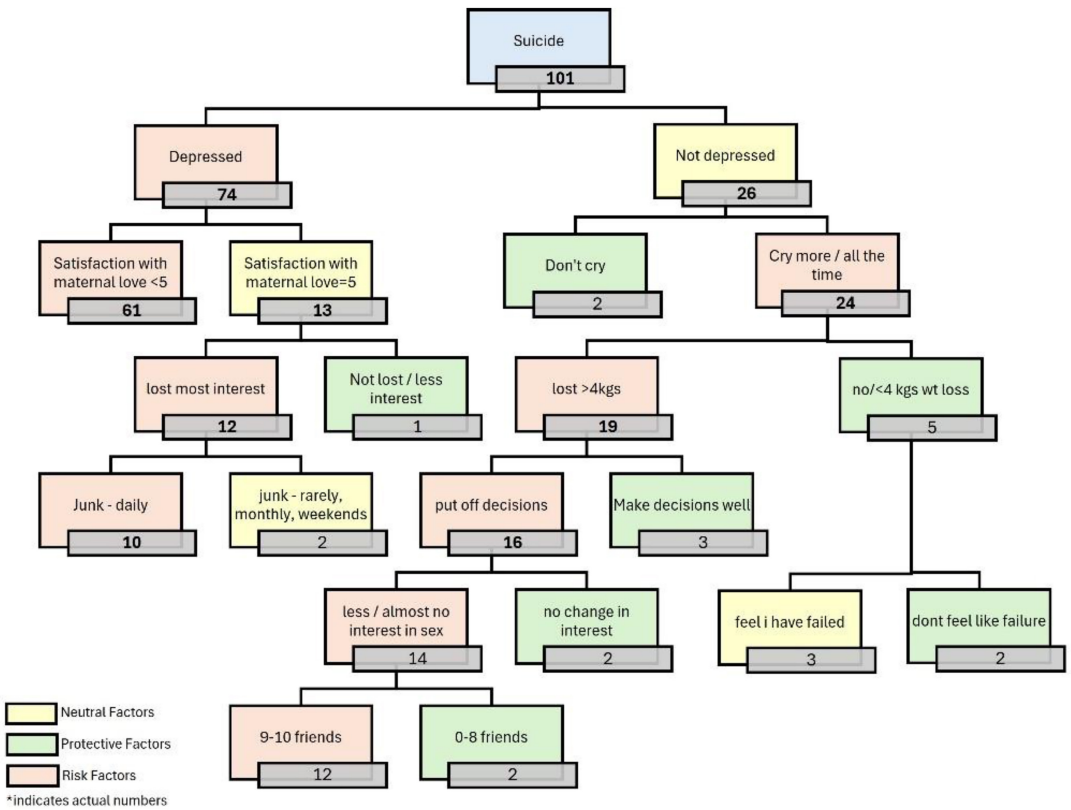

FIGURE 1 | Classification and regression tree (CART) analysis of variables affecting suicidal ideation.

students. It marks the beginning of an arduous career path often influenced by personal ambition or familial pressure while taking on the role of future healers. Students can also have an identity crisis as they transition from being top achievers to competing among equally skilled peers. Medical training presents the students with continuous

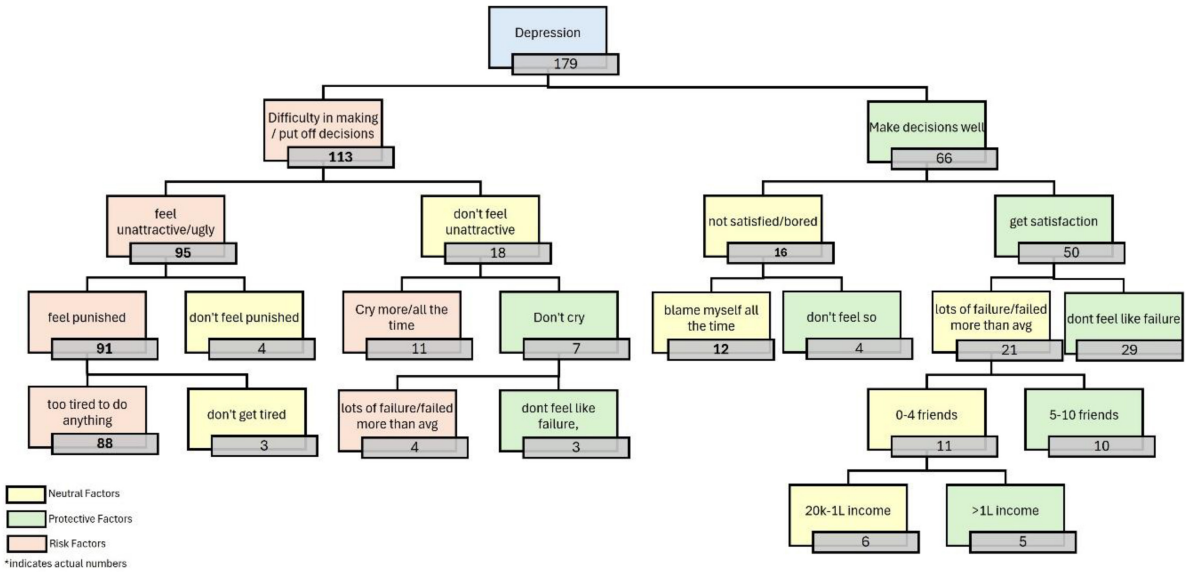

FIGURE 2 | CART analysis of variables affecting depression.

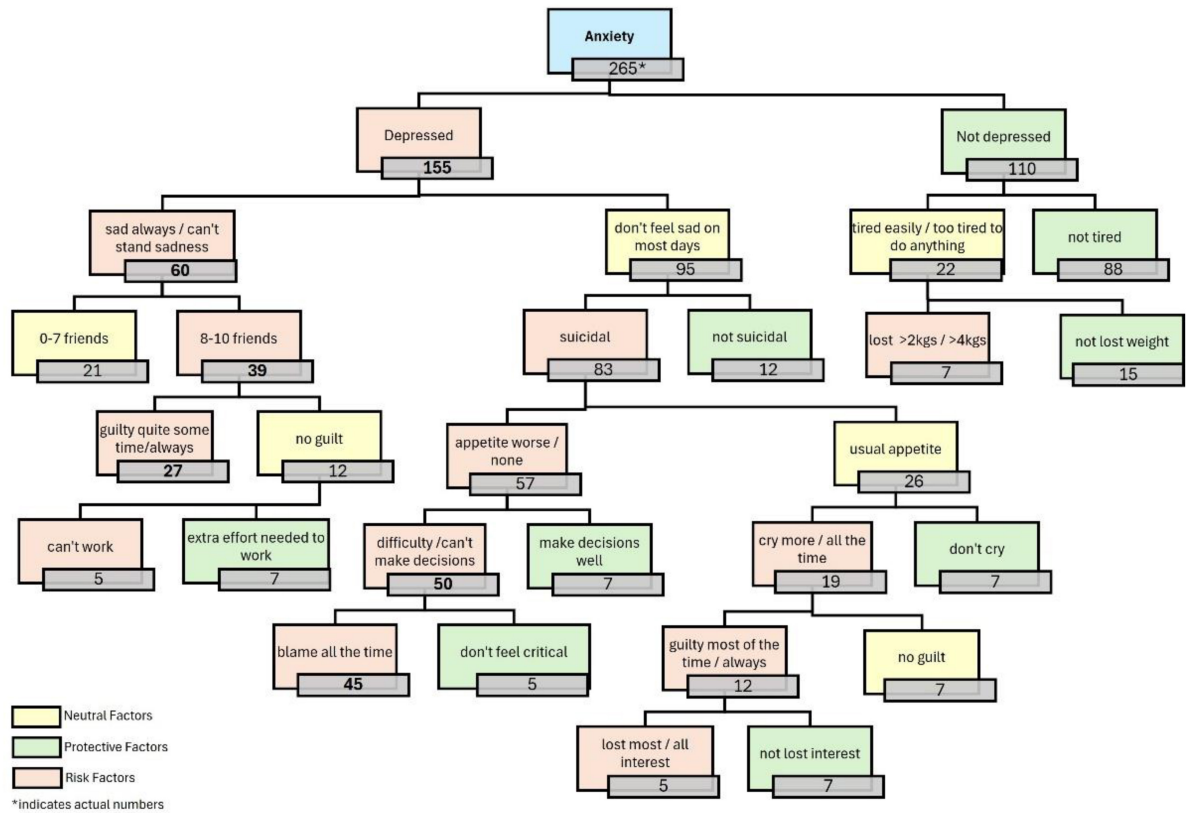

FIGURE 3 | CART analysis of variables affecting anxiety.

tests of endurance and personal sacrifice, including intense competition, emotional and interpersonal conflicts, heavy workload, limited personal time, and lack of adequate support systems, thereby creating a fertile breeding ground conducive to the development of mental health problems. While many do survive, a few may tragically succumb. Past research has clearly documented the universally higher prevalence and rising trend of mental health problems among medical students when compared to the general population. Indian research evidence broadly divides the risk factors for the above into academic (examination failure, excessive clinical work, and burnout) and non-academic (relationship and family issues) factors. There is a paucity of Indian research focusing on the subtle and not-so-obvious

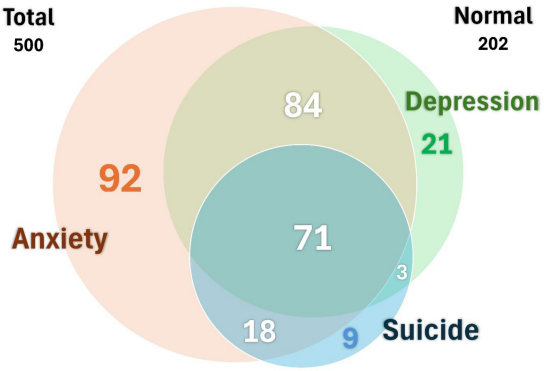

FIGURE 4 | Prevalence of suicidal ideation, anxiety, and depression among undergraduates in Tamil Nadu.

risk factors and behavioral traits that may be helpful in the early recognition and management of mental health problems. Computer-based information systems (CBIS) is one of the newest analytical methods that has been used in medical research and has proved to be a valid, sensitive, and reliable method (23–25). To our knowledge, there are very few Indian studies that have employed this newest analytical tool to discover previously unknown patterns and relationships in data sets. In our study, we have used computer-based predictive modeling in an attempt to uncover and understand hitherto unrecognized risk factors and protective factors and their effect pathways that lead to suicide, depression, and anxiety.

We found a prevalence rate of 20.2% for suicidal ideation, 35.8% for depression, and 53% for anxiety among our subjects. We observed that 14.2% of our students had concurrent anxiety, depression, and suicidal ideation, as summarized in **Figure 4**. This is significant because the presence of two or more of these comorbid conditions can lead to a drastic deterioration in the mental well-being of a student. The complex interplay between these mental health variables and their bearing on the student's psychological well-being is succinctly captured in **Figure 5**.

Sarkar et al., in their systematic review using data from 44 Indian studies, reported that the pooled prevalence rate of depression was 39.2% (26). Kumar et al., in their study from Mysore, South India, have reported a prevalence rate of 37.3% for depression and 50.6% for anxiety (27). Another cross-sectional study by Garg et al. among medical students of Northern India has reported lifetime rates of suicidal ideation, plans, and attempts as 20.3, 10.3, and 2.3%, respectively (28). Our prevalence rates are consistent with these Indian studies. Despite the cultural diversity of the Indian student population and the fact that we included students only from Tamil Nadu, our study found a surprising consistency with the results of the above-mentioned Indian studies.

Jahrami et al., in their umbrella review using 32 meta-analyses, revealed a pooled prevalence rate of 8.9% for suicidal ideation and 32.5% for depression and anxiety (29). Overall, one-third of our medical graduates were found to be depressed, a figure that is very similar to international reports. In contrast, we found that close to half of our students are having anxiety, and slightly less than a quarter of our graduates are having suicidal ideation. These higher levels of anxiety and suicidal ideation among Indian medical students could be explained by the higher levels of competitiveness to gain medical admissions, the intensive medical curriculum without appropriate learning resources, high levels of expectations from the students' families, and the lack of adequate mental health support systems for the students.

Consistent with the reports of Sarkar et al. (26), our female respondents had reported higher scores of depression, anxiety, and suicidal ideation when compared to their male counterparts. We observed that females had two times higher odds of having suicidal ideation than males. This predisposition of female medical graduates to depression may be due to the interaction of multiple factors like genetically determined vulnerability, effects of fluctuating hormonal levels on brain systems, gender-specific victimization, and internalization coping style.

We observed that the odds of having suicidal ideation were higher among students whose parents had frequent quarrels and also among graduates who said they were not fully satisfied with either maternal or paternal love. The family as a functional unit has attracted the attention of researchers to determine the role of dysfunctional parent and family experiences in the causation of behavioral problems. Johnson et al. (30) in a longitudinal study, have reported that maladaptive parental behavior in the form of constant parental quarreling and deprivation of child needs like love, attention, praise, and money was found to substantially mediate the development of psychiatric disorders during adolescence or early adulthood. Our findings are consistent with these studies.

Friends can be an important source of social, emotional and financial support to buffer the impact of potential external stressors. This could explain our observation that as the quality of relationship with one's classmates improved, there was also a decrease in anxiety, depression and suicidal ideation. Zhao et al., in their study looking at family, social relationships and coping styles amongst Chinese medical undergraduates observed that students who had bad relationships with their classmates or friends showed higher depression and anxiety scores (31). An interesting observation was that one-third of the students with few or no friends had suicidal ideation, a figure which was significantly higher than the overall prevalence of 20.2%. Poor social interactions can make students prone to poor mental resilience and contribute to negative attitudes while close, personal and enduring relationships foster a sense of security and connectedness. Therefore, medical students should be encouraged to join college clubs/groups to improve their overall mental health, thereby preventing suicide.

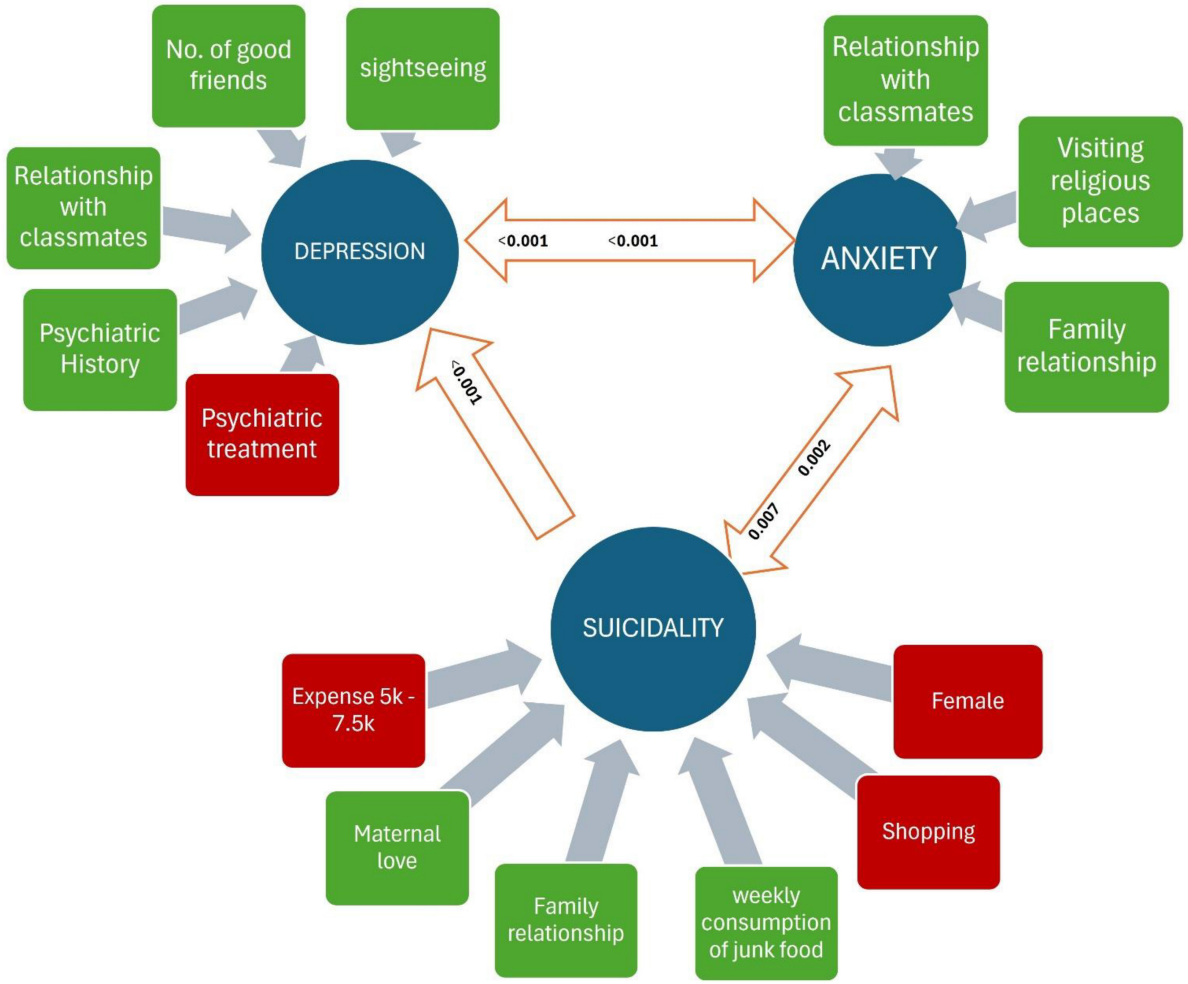

FIGURE 5 | Interrelationship of variables affecting suicidal ideation, depression, and anxiety in medical students.

About one-fifth of our students had reported consuming alcohol, and slightly less than one-tenth had used tobacco. Our findings are similar to the results of a systematic review by Roncero et al., who have reported 24% alcohol consumption and 17.2% tobacco use among medical students (32). Pradeep Kumar et al. have made a similar observation of higher substance use among professional college students, especially medical students (17.15–60.26%), compared to general college students (31.3–31.8%) (33). For many medical graduates, alcohol consumption and smoking tobacco may be a maladaptive way of coping with academic pressure and heavy clinical workload, while for others it is part of a prevailing medical student culture. Both these substances are legal, easily available, and associated with considerable underreporting. In keeping with past literature, our study has demonstrated that students who gave a history of weekly consumption of alcohol had significantly higher suicidal ideation (42.9%) when compared to those who never consumed alcohol (17.7%). Therefore, focusing on medical college-specific cultural factors that drive students to increase their consumption of psychoactive substances may be an important point of early intervention in improving their mental health and preventing future suicides.

Our multivariate analysis revealed approximately five times higher suicidal ideation among graduates who reported visiting shopping malls often. In contrast, students who went to religious places often had significantly lower anxiety, while students who went sightseeing had significantly lower depression. Shopping behavior has been linked with impulsivity and sensation seeking. Some individuals may take to shopping as a means of relieving themselves from negative emotions and experiences. Greenberg et al. have similarly observed that adolescents with problematic shopping had 3.43-fold higher odds of endorsing self-injurious behavior (34). Students who frequently visited religious places were found to have lower odds of anxiety. In a review of 35 studies on religion, spirituality and mental health, Koenig et al. have reported lower fear and anxiety among the more religious (35). In a cross-sectional study done on 285 Iranian medical students for association(s) between religiosity, anxiety, and depression, Vasegh et al. have found a significant negative association between religious beliefs and anxiety (36). Religious beliefs

such as greater faith in God, secure religious attachment, and intrinsic religious motivation can increase the sense of control, enhance feelings of security, and boost confidence. In the light of the research evidence presented above, and in the backdrop of 81% religiosity of the Indian population (37), spirituality can play an important role in improving the mental health of our medical graduates.

We also observed lower odds of depression among graduates reporting regular sightseeing (visiting beaches, parks, and other places of nature). Over the past four decades, countries have trialed a wide range of public health programs aimed at increase participation in outdoor activities, including visits to parks (38). Previous research by Toda et al. have established that travel, even in the form of short trips, can bring about a reduction in perceived stress and can improve positive mental health (39). In particular, exposure to nature provides a significant and varied set of mental health benefits (40). Our research findings are in line with these reports. Therefore, encouraging graduate students to embark on nature trips and outdoor excursions would greatly improve their mental health and well-being. Our surprising finding of significantly lower suicidal ideation among students consuming junk food weekly, a finding that is contrary to previous research by Jacob et al. (41) among adolescents, can also be explained by the improved socialization and chances for going off campus that these outings provide.

Similar to Bitonte et al. (42) we found a slightly more than two times chance of having suicidal ideation, depression, and anxiety among the graduates who never exercised. There is a large body of evidence in favor of exercise as a cost-effective remedy for bolstering both the physical and mental health of an individual (43). We believe that our research findings lay a firm ground for recommending the incorporation of a regular exercise schedule into the medical school curriculum, thereby ensuring adequate physical activity for all students.

Students who felt overwhelmed due to academic pressure were found to have twice the chance of having depression and higher odds of having anxiety and suicidal ideation. Steare et al., in their systematic review of 52 studies, have found a positive association in 48 studies between academic pressure and at least one mental health outcome, the most common being mixed anxiety and depression (44). 39.2% of our graduates reported academic stress. In a cross-sectional study in western India by Desai et al., half of the students had identified academic burden as a significant life stressor (45). Some of the important factors that contribute to academic stress in the Indian context include intense pressure to excel academically, which may be coupled with fear of failure, and a mismatch between the curricular load and the available study time.

Understanding the complex interrelationships underlying the variables of mental health and assessing the relevance of each of these risk factors can be a very challenging task for researchers. We therefore generated a CART using 41 independent variables identified during the preliminary data analysis, which were fed into this model.

74% of individuals who had suicidal thoughts and 60% of individuals who were anxious had depression. Thus, we observed that depression was the strongest risk factor for anxiety and suicidal ideation. Our findings are consistent with those of a meta-analysis by Seo et al. who have reported that medical students with comorbid depression are more likely to engage in suicidal ideation (8 studies, OR = 6.87, $p < 0.00001$) (46). We found that slightly more than half of our participants who had expressed dissatisfaction with maternal love had also reported suicidal ideation in the past year compared to 13.8% with full satisfaction of maternal love. Similar to our observation, Seo et al. have also reported a significantly higher risk of suicidal ideation among medical students who had a previous experience of being neglected by parents (4 studies, OR = 2.53, $p = 0.03$) or demanding parents (3 studies, OR = 2.04, $p = 0.0001$). Our model predicted that 36% of individuals who felt like crying most of the time, 27.7% who had lost >4 kg of body weight, and 36.8% those who had difficulty in making decisions were at significant risk for having suicidal ideation, even if they had not reported having other symptoms of depression.

Difficulty in decision-making was identified by our model as a significant predictor for suicidal ideation, anxiety, and depression. We observed that our analysis was able to correctly identify 36.1% of those with suicidal ideation, 74.6% of those with depression, and 80.5% of those with anxiety among those individuals who had reported difficulty in decision-making. Past research by Leykin et al. has established the fact that depression is strongly associated with maladaptive decision-making (47). Students who are depressed are likely to underestimate their ability and maintain a pessimistic portfolio of themselves. These individuals often have a reduced engagement in reward-seeking behaviors and a risk-averse approach to life. Delayed decision-making is likely to lead to many negative outcomes, the accumulation of which can further cause a reduced expectation of positive events and can therefore predispose these individuals to increased anxiety and suicidal ideation.

Our model has also identified increased fatiguability as predictive of depression among 49.2% of our students. Silva et al. have similarly reported that fatigue was the most prevalent symptom (55.9–74%) in medical students with depression (48). Our analysis also revealed feelings of unattractiveness and feelings of being punished as predictors of depression. 71% of those who expressed feelings of unattractiveness and 67.4% of those who felt punished were depressed. Consistent with these findings, research by Noles et al. have shown that depressed subjects were less satisfied with their bodies and saw themselves as less physically attractive when compared to nondepressed subjects (49).

91% of students who attempted suicide had anxiety and/or depression. Ideas of guilt and blaming oneself predicted anxiety among 66.5 and 68.4% of our graduates, respectively.

There is a growing body of research showing that guilt is an important feature of various psychological problems, including anxiety disorders (50).

All the above-mentioned risk factors are easy to identify and can be used for the early identification of students with mental health problems. Our model showed good sensitivity and moderate specificity, which may make it useful in a clinical setting where the identification of at-risk students takes priority over identifying healthy ones. Future researchers may want to pay particular attention to developing questionnaire items incorporating the predictors identified by our model.

Limitations

Inherent to any cross-sectional study, the model cannot accurately predict causation and future behaviors. Self-report questionnaires are also subject to self-selection bias, recall bias, response bias, and differences in participant insight. Despite these shortcomings, our study provides preliminary evidence to the existence of subtle and clinically identifiable predictors for suicidal ideation, depression, and anxiety among medical students in India. We therefore recommend future longitudinal studies to track the unfolding of these symptoms over the entire period of medical education.

Conclusion

Around one-fifth of our medical graduates had suicidal ideation, one-third had depression, and half had anxiety. Significantly higher suicidal ideation was associated with female gender, poor satisfaction with maternal love, disharmonious family, poor relationship with classmates, substance abuse, and frequent visits to shopping malls. The risk of having suicidal ideation, depression, and anxiety doubles among graduates who never exercised. Two-fifths of our graduates reported academic stress, and overwhelming academic pressure was found to double the chances of having depression. While visiting religious places was found to lower the odds of having anxiety, regular sightseeing resulted in a lesser risk of depression among our graduates. Our CART analysis predicted depression as the strongest risk factor for anxiety and suicidal ideation. Around one-third of students who felt like crying and those who had lost more than 4 kg of body weight were at significant risk for having suicidal ideation. Difficulty in decision-making emerged as a significant predictor for suicidal ideation (one-third of students) and anxiety and depression (three-fourths of students). Increased fatiguability, feelings of being unattractive, and feelings of being punished predicted depression in around half of our students. Ideas of guilt and blaming oneself predicted anxiety in two-thirds of our students. CART analysis has shown high sensitivity and specificity, making it a valuable tool in clinical research settings.

Funding

The authors declare that no financial support was received for the research, authorship, and/or publication of this article.

Conflict of interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Indian Journal of Mental Health and Neurosciences
Volume 8, Issue 2, 2025, pp. 32–35
DOI: 10.54646/ijmhns.2025.12
www.ijmhns.com

VIEWPOINTS

Navigating psychotherapy in India

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Received: 26 December 2025; **Accepted:** 30 January 2026; **Published:** 27 March 2026

Background: Historically, psychotherapy training in India was largely restricted to Cognitive Behavioral Therapy (CBT) and psychoanalytic models, often sidelined by pharmacological interventions due to time constraints and limited specialized personnel. However, the last two decades have seen a paradigm shift characterized by increased patient awareness, a diversification of therapeutic modalities, and the emergence of structured interventions for complex conditions like Borderline Personality Disorder (BPD).

Objectives: This paper aims to reflect on the evolving journey of psychotherapy in India, specifically examining the practical application, challenges, and clinical utility of Mentalization-Based Treatment (MBT) and Dialectical Behaviour Therapy (DBT).

Methods: The authors utilize a reflective, practice-based narrative drawing from their clinical experience as psychiatrists trained in both Indian and international settings. Case vignettes are employed to illustrate the cultural adaptations and systemic barriers encountered while delivering structured therapies in the Indian context.

Results: The transition to specialized therapies reveals unique socio-cultural challenges: systemic barriers like the dual role of the psychiatrist as both a prescriber and therapist necessitating clear boundary setting; cultural dynamics: collectivistic family structure challenging autonomy and confidentiality; implementation hurdles: scarcity of trained supervisors, high training cost, lack of a centralised database particularly outside urban centres.

Conclusion: While psychotherapy in India has gained significant momentum and acceptance, there is a pressing need for standardized training, peer supervision networks, and culturally sensitive adaptations of Western models. The shift from symptom management to addressing underlying psychological distress through MBT and DBT represents a vital maturation of Indian psychiatric practice.

Keywords: psychotherapy in India, mentalization-based treatment (MBT), dialectical behavior therapy (DBT), borderline personality disorder, cultural adaptation, psychiatric training

Psychotherapy has been an integral part of mental health interventions for a very long time. When we first started training in psychiatry, in the late 1990s and early 2000s, there were only a handful of therapies we needed to learn. Practical exposure to therapy was limited to cognitive behavioral therapy (CBT) formulation and psychoanalytic models and a few behavioral paradigms for trainees in India. Therapy learning varied between institutions and relied a lot on the training lead and what their therapy orientation was. We did not see many psychiatrists delivering therapies, and access to psychologists who were delivering therapies was also scarce. On the clinical front, the psychiatrists had the responsibility to decide what therapy to offer the patients. In most training institutions time was also a huge barrier in offering therapy, especially for psychiatry units.

Awareness amongst the patient population regarding therapy was limited (1). In most training institutions time

ISSN: 2581-9445 (online)

was also a huge barrier in offering therapy, especially for psychiatry units.

Today the scene is very different. We are currently in a phase where almost all alphabets of the English language feature in abbreviations of therapies. The number of psychologists and psychiatrists delivering therapy is increasing. The menu for therapy is also expanding around the world.

The field of psychotherapy in India has seen progress too. An increasing number of psychiatrists, psychologists, counselors, and social workers deliver therapy. Available therapies in India have grown and include almost all therapies quoted in literature, like psychodynamic psychotherapy, CBT, Rogerian client-centered therapy, family therapy, mentalisation-based treatment (MBT), dialectical behavior therapy (DBT), and mindfulness-based treatments. There are also options for group therapies. Online psychotherapy is getting increasingly popular, especially after the covid pandemic.

The landscape of mental health help-seeking in India is changing too (2). There is an openness to getting help for various problems ranging from marital problems, domestic violence, and substance abuse to severe mental illnesses and personality disorders. Therapy is also sought for autistic spectrum disorders and attention deficit disorder. Many mental health organizations are working hard to raise awareness about mental illnesses and treatments and therapies. The internet has equipped people with knowledge about therapies. More people come asking for therapy, and there is an increasing demand for specific needs ("queer affirmative therapists" to "I want a middle-aged experienced female marital therapist"). Structured therapies are more readily available. However this is weighted towards urban centers and there are still not enough psychiatrists or psychologists to meet the needs for therapy, more so in tier two cities or rural settings. The quality and availability also vary from place to place.

As psychiatrists with a special interest in psychotherapy, we have worked in this area in India and other countries. In this article, we want to share our experience of psychotherapy practice in India, particularly in the field of DBT, and MBT.

What interested us in working in psychotherapy?

AB: Soon after my internship, my first job was as an Senior House Officer in psychiatry in India. I remember my consultant telling me, "Talk to the patients and spend time listening to them…that's the only way you can understand them." What felt very alien at that time soon became interesting and probably stayed with me while I was at a crossroads needing to choose my super-specialty in Australia. I still remember the moment when I decided to do my advanced training in psychotherapy. One of my consultants, who was also a psychotherapist said, "Therapists get down to the bottom of the problem. That is actual treatment. Medications are just managing symptoms that emerge from the underlying psychological distress and not really treating anything." I find that to be true of most of the people I see, and that's the reason I chose to train in psychotherapy and why it forms an integral part of my practice.

LV: Some of my teachers clearly introduced the biopsychosocial models during training, and this helped to keep an open mind to use psychotherapy as an active intervention with my patients. Early introduction to psychoanalytic psychotherapy in undergraduate days, even though it was in the form of lectures, kept my interest in psychotherapeutic approaches alive.

What is the experience of delivering MBT in India?

LV: During my psychiatric training in India and the UK, I had experience in psychodynamic psychotherapy and CBT. Over the years, I retained my role as a psychiatrist diagnosing and prescribing medications and referred patients to other therapists and used an eclectic approach in my own practice with some of my patients, borrowing from different models depending on the patient's needs. When I returned to India 10 years ago, I noticed a lot of patients with borderline personality disorder (BPD) in my practice, and I could not find many trained therapists around me. I had been introduced to MBT when I was working in the field of eating disorders in the UK, and with the opportunity to be trained in MBT by Prof. Anthony Bateman, I decided to pursue this training, and in the last few years, I have been practicing MBT and participating in peer group supervision.

Whilst both psychologists and psychiatrists who are trained in MBT can deliver the intervention, it is advised that the psychiatrist does not do both medical management and therapy for the same patient. This dual role by the same clinician can create a conflict of interest and affect the therapeutic alliance.

When I started seeing patients for therapy referred by fellow psychiatrists, I initially found it challenging to remain a therapist and not focus on diagnosing or using pharmacological interventions. Very often patients would ask me for advice about the medical management, and in the very early stages of my therapy practice, I would intervene. It certainly affected the therapy space, and I started floundering. As I got more experienced, I am now able to draw boundaries at the very start and ensure that the patient understands what my role is and what it is not. When there are medication-related issues, I readily refer back to the psychiatrist.

Peer group supervision has been the backbone of my MBT practice. Discussing cases, learning from other practitioners, and refreshing MBT skills and theory have all been very useful.

In the last 4 years, I have been seeing more and more patients being referred for therapy. I have referred my patients to other therapists for MBT. This is a good trend, as it indicates the awareness on all sides.

The mental health professional pool is still small for the proportion of patients needing therapy. The cost of training

and time commitment plays a role in trained therapists being available and the number of patients that one can take in for therapy. Also, most of the therapists are concentrated in specific pockets of the country (3). Many psychologists and psychiatrists around the country are not aware of the training opportunities. There is no centralized database of therapists, and this is a challenge when patients have to be referred. The referrals mostly happen by word of mouth, and this is far from ideal.

AB: Working through stigma and educating family members forms a main part of delivering therapy in India.

For example, TN, a 24-year-old girl, was one of my earliest patients after returning to India, who met the criteria for BPD but did not engage in any high-risk behaviors. She associated depression with trauma and felt guilty having developed the condition even with a seemingly normal upbringing. Her family also didn't know how to approach me and would often tell me things about her behind her back. Explaining the context and framework of therapy, setting boundaries without upsetting the family, and continuing to encourage connections between them helped in maintaining improvement for this girl.

Even those educated in the therapy model can find it hard to receive therapy. Like this 28-year-old therapist with complex trauma, who approached me for therapy for herself. Being a victim of child sexual abuse herself, she often felt overwhelmed when working with patients with similar histories. The difficulty I faced with her was getting her to stay in the role of the one receiving therapy. She often intellectualized her problems and used jargon to respond to my queries—never actually telling me what she actually felt. Another difficulty that we both faced was the regulations, or lack thereof, in reporting the abuse in India. The framework of MBT helped to overcome the barriers she posed to me. She was able to start being more vulnerable in the session, which in turn made her stronger when interacting with her parents, friends, and partner.

What are the challenges in delivering MBT in practice?

There are generic and therapy-specific challenges. In India, there can still be a significant stigma associated with seeking mental health treatment. Cultural beliefs, family norms, and societal pressures might discourage individuals from openly discussing their psychological struggles and seeking professional help.

LV: A gentleman walked into the clinic and when asked to sit down, he hesitantly looked up and, with a sly smile, said that he was here not for himself but for his nephew, who was waiting outside and needed "counseling" to get married. The nephew did not know that the consultation was for him. I talked to the nephew and realized that he was absolutely fine in his mental health, and he was as shocked as I was that he was sneaked into a psychiatric consultation without his knowledge.

A mother told me that the best way for the patient to get better was for her to be busy. She said, "Doc, work is the best solution; if she works hard and works all the time, she will not have time to think of problems at all."

A recently widowed 42-year-old doctor felt invalidated when the family wanted her to move on and not engage in therapy.

In our collectivistic society, decisions regarding healthcare are made by families, and a lot of the time, the individual does not have the choice (4). This certainly has an impact on the therapeutic alliance and the individual's ability to participate in therapy. This is not an uncommon scene in many psychiatric consultations today.

AB: This is especially relevant for younger patients. An 18-year-old college student was brought to me after being taken to several different doctors over a period of 2 years. When I insisted on seeing her alone first and that I would talk to the father afterwards for collateral information, he was appalled and angry. He felt he had to give me all the information about her otherwise, I would not get it right. But just seeing her alone before anyone else in her family had a chance to talk to me sowed a small seed of trust in her, which she had not been able to do with other therapists before. Parents of children/young adults find it very hard to concede autonomy, which often can be a barrier for engagement in therapy.

On the other hand, more and more people are engaging in therapy for various mental health issues ranging from grief management to eating disorders to personality disorders. In fact, younger people in urban areas specifically want psychotherapy over medical management of mental health issues like anxiety and depression.

Mentalisation-based treatment involves developing an ability to understand one's own mental state and that of others and interpret them. It is challenging because patients come from a culture where there is collectivism and the focus is on interpersonal dynamics rather than self-reflection.

A young woman lived in a joint family with her husband and mother. She was very engaging in therapy, but she struggled to talk about her perspective. Therapy was going around in circles with no progress. After several sessions, the therapist realized that whatever the client was talking about in sessions was not her own view of the world or herself but actually her mother's. This then allowed the therapist to modify the approach to constantly check if her interpretation is her own or that of her mother, and this has enabled the client to also reflect better on herself.

The other common challenge is the traditional hierarchy model in the society, which affects the therapist-patient relationship in MBT. Encouraging open discussions and exploring different perspectives might face resistance if clients are not accustomed to expressing their thoughts freely. A young man in therapy would send messages to the therapist when he was running late for sessions. He would interpret brief replies to mean that the therapist was angry with him

for being late to the sessions. He never brought this up in discussion, as he did not feel comfortable questioning the therapist. After several months in session, when they were discussing how he got anxious at work when he got mail from the boss, the man spoke about this in the session.

The family dynamics in India affect privacy and confidentiality, and this affects the ability of the person to share openly their feelings and thoughts with the therapist (5). A 24-year-old woman was being seen for individual therapy. The family was concerned and wanted information from the therapist. They also revealed "secrets" to the therapist but insisted that this not be shared with the patient.

The other big challenge for patients engaging in therapy is the cost of sessions. Therapy works best with regular and consistent participation for an extended period of time. Weekly sessions for 6 months to a year is the minimum duration. People find it difficult to spare the time and money for this. Whilst teletherapy has been a useful approach to overcome the time factor, it certainly does not work for everyone. Many people do not have private space that they can use at home to have uninterrupted secure time. There have been dogs, grandmothers, and maids intruding into the virtual sessions!

Dialectical behavior therapy

AB: When I first commenced psychotherapy training in Australia, I was fortunate to work for 2 years as part of a comprehensive DBT team, where I had to see a patient for individual therapy, co-facilitate skills group therapy, be part of a supervision group, and provide crisis support to patients.

Dialectical behavior therapy is a structured therapy that focuses on harm minimization and social skills training. Ideally, the patient is enrolled in weekly individual therapy and a concurrent group therapy program. The group therapy focuses on skills training, and individual sessions focus on reducing risks, building therapeutic alliance, and improving quality of life. The skills are taught with a combination of didactic and experiential formats, and cover emotional regulation, distress tolerance, interpersonal effectiveness, and mindfulness. While I found this modality very useful, I also began to learn about my own preferred style. DBT is a form of behavior therapy and directive in its approach. For the first year or two, the focus is deliberately on immediate factors and not on deep trauma. My style is a little less directive, and I had to work hard on sticking to the model prescribed in therapy, which wasn't often easy. For example, my first DBT patient was a 30-year-old financial analyst who had a history of sexual abuse from a male nurse during her psychiatric admission at the age of 14 for an eating disorder. Each session of ours required us to begin and end with a mindfulness exercise; many of the common ones focused on breathing and body scanning. It took me at least four sessions to figure out that she just couldn't relax if she paid attention to her body due to the history of abuse, and she couldn't tell me this because she hadn't yet begun to fully trust mental health professionals. It's only when we delved a little into her trauma that we figured out one of the reasons for her resistance, and then we were able to devise alternative mindfulness exercises that did not focus on her body. Seasoned DBT therapists are able to adapt and yet stick to the model. Because I was new to this model, it took me time and good supervision to help this patient. There are very few therapists in India who are fully trained to offer the comprehensive DBT system. But many are able to offer DBT-informed therapy, which can be a starting step to more comprehensive therapy.

Conclusion

In conclusion, we feel that it's a good thing that there are many forms of therapies available, because we are seeing patients present with a range of problems and clinicians present with various styles. A particular therapy or therapist style may not suit everyone, and it's helpful to have a range of models to choose from, train in, and develop expertise in. Despite all our training, we are still learning from our patients, and our confidence as therapists is growing by sharing and learning from each other.

Acknowledgments

The article is a viewpoint reflecting the authors own experience. This work received no specific grant from any funding agency in the public, private, or not-for-profit sectors.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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