

Suicidal Ideation, Emotional Well-being, and Barriers to Help-Seeking Among Medical Students in Western Uttar Pradesh: A Mixed-Methods Cross-Sectional Study

Amit Kumar, Anurag Verma, Swati, Nikhil, Sandip Kumar, Parul Roy, Hira Kant Singh
Uttar Pradesh University of Medical Sciences (UPUMS), Saifai, Uttar Pradesh

Corresponding author: Dr. Anurag Verma, Department of Community Medicine, Uttar Pradesh University of Medical Sciences (UPUMS), Saifai, Etawah, Uttar Pradesh, India

E-mail: anuragv037@gmail.com

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Abstract

Background: Medical students face sustained academic and psychosocial stressors that place them at elevated risk for suicidal ideation. Institutional mixed-methods evidence from India, particularly with validated instruments and adjusted estimates, remains sparse. **Material & Methods:** A convergent mixed-methods cross-sectional study was conducted among 400 medical students at UPUMS, Saifai, western Uttar Pradesh. Twelve-month suicidal ideation was assessed using item 2 of the Suicidal Behaviors Questionnaire-Revised (SBQ-R). Emotional well-being was measured with the WHO-5 Well-Being Index (continuous variable). Multivariable logistic regression estimated adjusted odds ratios (AOR) for sociodemographic and well-being predictors. Open-ended written responses from students who screened positive were analysed using thematic analysis to explore barriers to mental health help-seeking. **Results:** Overall 12-month suicidal ideation prevalence was 20.5% (n = 82). On multivariable analysis, lower WHO-5 score was the strongest predictor of suicidal ideation (AOR 0.96 per unit increase, 95% CI 0.94-0.97, $p < 0.001$), indicating that higher emotional well-being was associated with lower odds of ideation. Hostel residence was independently associated with suicidal ideation (AOR 1.87, 95% CI 1.02-3.42, $p = 0.043$). Male gender showed a borderline trend that did not reach statistical significance (AOR 1.61, 95% CI 0.98-2.65, $p = 0.061$). Despite 53.5% awareness of campus mental health services, only 19.5% of students had ever utilised any service. Thematic analysis identified five barrier themes: stigma and social shame, fear of confidentiality breach, academic and career consequences, structural access barriers, and emotional avoidance. **Conclusion:** One in five medical students reported 12-month suicidal ideation. Lower emotional well-being was the dominant modifiable predictor. A substantial treatment gap persists, maintained by stigma, confidentiality concerns, and structural inaccessibility. Routine anonymous WHO-5 screening and structurally confidential counseling pathways should be embedded in medical college health policy.

Keywords: suicidal ideation; medical students; SBQ-R; WHO-5 Well-Being Index; help-seeking barriers; India; mental health

Introduction

Medical education is one of the most demanding professional training pathways globally. Sustained academic pressure, competitive evaluation, prolonged working hours, early exposure to clinical suffering, and limited personal time collectively create an environment that is increasingly recognised as harmful to student mental health.[1] Systematic reviews and meta-analyses have consistently documented

elevated rates of depression, anxiety, burnout, and suicidal ideation among medical students compared with age-matched general populations.[2,3]

Suicidal ideation - defined as thoughts of engaging in behaviour intended to end one's life - represents a critical point on the suicidality continuum and is a recognised precursor to suicide attempts.[4] The Interpersonal Theory of Suicide provides a useful conceptual frame: suicidal ideation

intensifies when thwarted belongingness and perceived burdensomeness co-occur.[5] Within the medical college environment, hostel isolation, peer competition, and fear of academic failure may contribute to both constructs, making this framework relevant to institutional contexts. The stress-diathesis model offers a complementary perspective: pre-existing psychological vulnerabilities interact with acute environmental stressors to lower the threshold for suicidal thinking.[6]

In India, suicidal ideation among medical students has been documented across several institutional studies, though prevalence estimates vary considerably due to differing instruments, outcome definitions, and analytic approaches.[7] Most existing Indian studies rely on bivariate analyses, limiting their utility for identifying high-risk subgroups and designing targeted prevention strategies.[8] A mixed-methods approach, combining quantitative estimation with qualitative exploration of help-seeking barriers, offers a more actionable evidence base.

Despite available institutional mental health services, utilisation remains consistently low among medical students. Barriers including stigma, confidentiality fears, academic consequences, and structural inaccessibility have been described in global and Indian literature.[9,10] Characterising the gap between ideation prevalence and actual service use is essential for developing effective support systems within medical institutions.

This study aimed to: (i) estimate the 12-month prevalence of suicidal ideation among medical students at a tertiary care teaching hospital in western Uttar Pradesh; (ii) identify sociodemographic and emotional well-being predictors using multivariable logistic regression; and (iii) explore barriers to mental health help-seeking through thematic analysis of open-ended written responses.

Material & Methods:

Study Design and Setting

A convergent mixed-methods cross-sectional study was conducted at Uttar Pradesh University of Medical Sciences (UPUMS), Saifai, Etawah district, western Uttar Pradesh, India. The study integrated a quantitative survey phase with a qualitative component involving open-ended written responses. The study follows STROBE reporting guidelines for its observational component and the Standards for Reporting Qualitative Research (SRQR) for its qualitative component.

Study Population and Eligibility

Undergraduate and postgraduate students were both included because the study sought to assess suicidal ideation

and help-seeking barriers across the continuum of medical training within the same institutional environment. Although the nature of academic and clinical responsibilities differs between these groups, both are exposed to substantial educational and psychosocial stressors and represent important populations for institutional mental health planning. All consenting students were eligible for inclusion. Students who were unwilling to participate or who submitted questionnaires with more than 20% missing items were excluded.

Eligible students were recruited through classroom-based visits conducted by the research team during scheduled academic sessions. All students present during the data collection period were invited to participate voluntarily. A consecutive sampling approach was adopted, whereby all available and eligible students attending the selected sessions were approached until the required sample size was achieved.

Sample Size

For the quantitative component, sample size was calculated assuming a prior 12-month suicidal ideation prevalence of 53.6%[12], 95% confidence level, and 5% absolute precision, yielding a minimum required sample size of 382 participants. To ensure achievement of this minimum sample after accounting for potential non-response and incomplete questionnaires, recruitment continued until at least 400 completed responses were obtained. For the qualitative component, open-ended written responses were analysed from students who screened positive for 12-month suicidal ideation, defined as reporting suicidal thoughts 'rarely', 'sometimes', or 'often/very often' on SBQ-R item 2 ("How often have you thought about killing yourself in the past year?").

Data Collection Tools

A structured, anonymous, self-administered questionnaire (available in online and paper formats; approximately 25 minutes) comprised: (i) sociodemographic and academic details; (ii) the Suicidal Behaviors Questionnaire-Revised (SBQ-R), a four-item validated instrument assessing lifetime ideation and attempts, 12-month ideation frequency, communication of suicidal intent, and likelihood of future attempt;[11] (iii) WHO-5, a five-item positively worded scale scored from 0 to 100, where higher scores indicate better emotional well-being. Consistent with established recommendations, a score of ≥ 50 was considered indicative of poor emotional well-being and the possible need for further assessment and (iv) selected items from the Reasons for Living Inventory (RFL) measuring protective cognitive factors.

Primary Outcome Definition

The primary outcome was 12-month suicidal ideation, defined as a response of 'rarely,' 'sometimes,' or 'often/very often' to SBQ-R item 2 ('How often have you thought about killing yourself in the past year?'). This item-based approach avoids conflating lifetime ideation with current risk and aligns with published guidance on applying the SBQ-R for prevalence estimation.[11]

Statistical Analysis

Descriptive statistics summarised sample characteristics. Multivariable binary logistic regression forced-entry method with 12-month suicidal ideation as the binary outcome estimated adjusted odds ratios (AOR) and 95% confidence intervals (CI). Predictors entered simultaneously were: gender, year of study (pre-clinical vs. clinical/postgraduate), residence (hostel vs. others), annual family income (at or below Rs. 5 lakh vs. above Rs. 5 lakh), and WHO-5 score as a continuous variable. A p-value below 0.05 was considered statistically significant. A borderline association was noted for predictors with p-values between 0.05 and 0.10. All analyses were performed in IBM SPSS Statistics, version 24.

Qualitative Analysis

Within the same anonymous questionnaire, students who screened positive for 12-month suicidal ideation were presented with open-ended questions exploring their experiences with mental health help-seeking and the reasons they had or had not sought support. Responses were submitted anonymously and could not be linked to individual participants. Responses were analysed using Braun and Clarke's thematic analysis framework: familiarisation, open coding, theme generation, review, definition, and write-up. An inductive coding approach was adopted, whereby codes and themes were derived directly from participant responses rather than from predefined categories. Two investigators independently coded the responses and subsequently compared and refined codes through discussion and consensus. Individual responses frequently contained multiple ideas relating to different aspects of help-seeking behaviour; therefore, multiple codes could be assigned to a single response. Related codes were subsequently grouped into broader themes. Thematic analysis was continued iteratively until no new themes emerged from the available responses, indicating thematic saturation.

Ethical Considerations

Ethical clearance was obtained from the Institutional Ethics Committee, UPUMS, Saifai. Participation was voluntary and students could withdraw at any time without consequence. Written informed consent was obtained prior to data collection. Questionnaires were anonymous, and no personally identifiable information was collected or retained.

The qualitative component consisted of anonymous written responses completed within the same questionnaire; therefore, researchers could not identify or contact individual participants based on their responses. At the end of the questionnaire, all participants were provided information regarding available mental health support resources, including institutional counseling services and relevant mental health helpline contact details. This information was made available irrespective of survey responses to ensure that students experiencing psychological distress could access support if required.

Results

Sample Characteristics

A total of 415 eligible students were approached during classroom recruitment sessions. Of these, 400 completed the questionnaire and were included in the final analysis, yielding a response rate of 96.4%. The mean age was 21.4 ± 2.3 years; 58.0% ($n = 232$) were male. The majority (71.5%; $n = 286$) resided in institutional hostels. About 61.5% ($n = 246$) reported annual family income at or below ₹5 lakh. Full sociodemographic data are presented in Table 1.

Table 1. Sociodemographic and Academic Characteristics (n = 400)

Variable	Category	n (%)
Age (years)	Mean $\pm$ SD	21.4 ± 2.3
Gender	Male	232 (58.0)
	Female	168 (42.0)
Year of study	Pre-clinical (Years I-II)	140 (35.0)
	Clinical (Year III Final year)	224 (56.0)
	Postgraduate	36 (9.0)
Residence	Hostel	286 (71.5)
	Day scholar / others	114 (28.5)
Annual family income	₹5 lakh or below	246 (61.5)
	Above ₹5 lakh	154 (38.5)

SD = standard deviation.

Prevalence of 12-Month Suicidal Ideation

Based on SBQ-R item 2, 82 participants (20.5%) reported suicidal ideation in the preceding 12 months. Responses were distributed as follows: rarely (13.0%; $n = 52$), sometimes (6.0%; $n = 24$), and often or very often (1.5%; $n = 6$). This is the primary outcome and forms the basis of all subsequent analyses. Figure 1 illustrates the distribution across ideation frequency categories.

Emotional Well-being and Protective Factors

The mean WHO-5 score for the full sample was 56.8 ± 17.2 . Using the conventional screening threshold of ≥ 50 as indicative of poor emotional well-being, 148 students (37.0%)

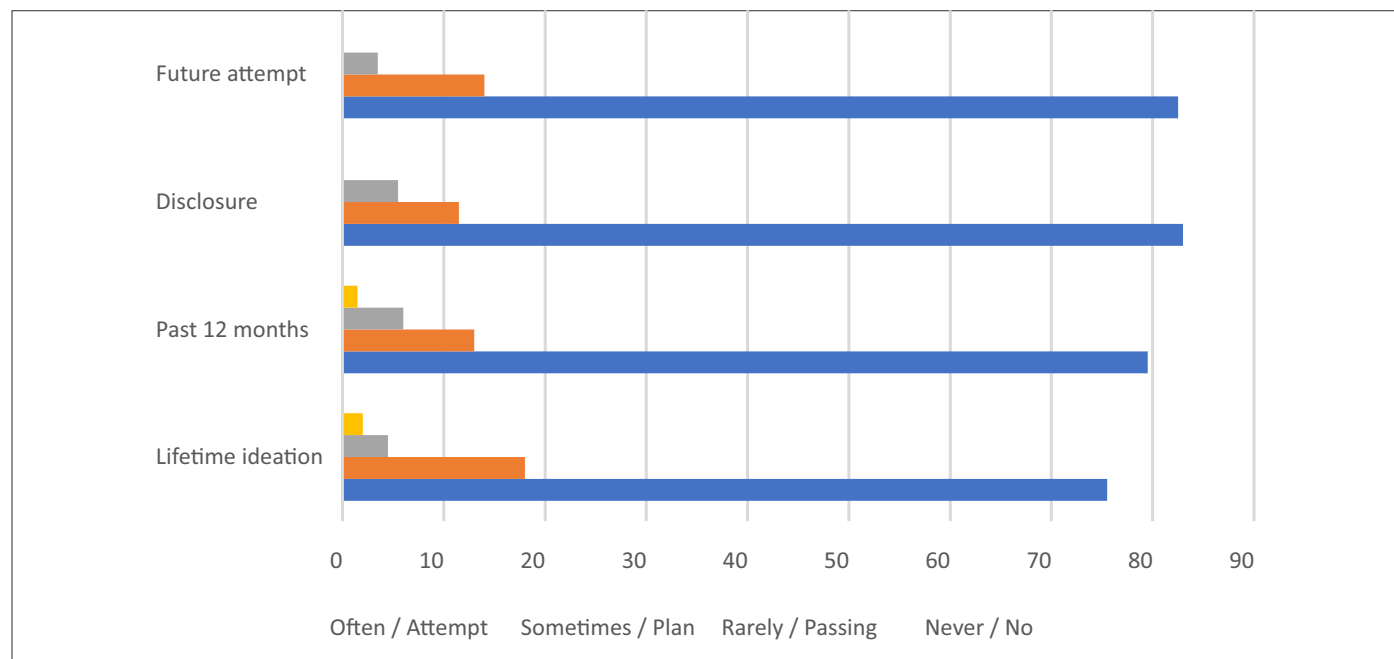


Figure 1: Prevalence and Frequency Distribution of 12-Month Suicidal Ideation

fell in this category. Among students who reported 12-month suicidal ideation, the mean WHO-5 score was substantially lower (44.1 ± 14.6) than among those who did not (60.7 ± 15.8), consistent with a strong inverse association between emotional well-being and suicidal ideation. Figure 2 presents a visual comparison of WHO-5 distributions by ideation status.

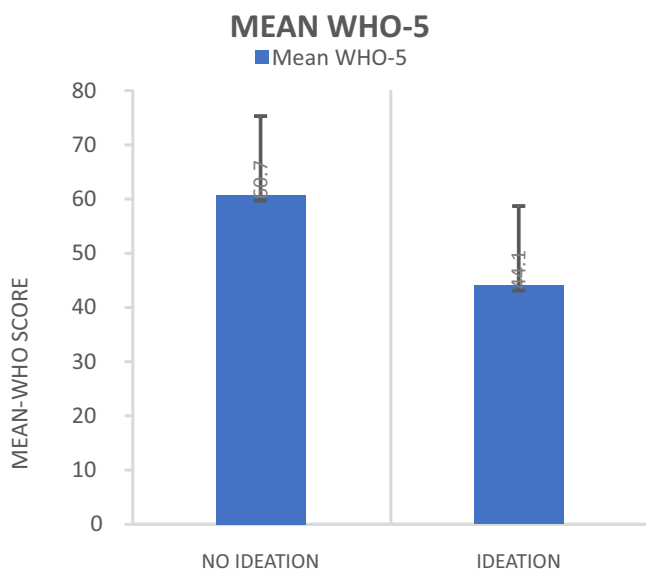


Figure 2. Mean WHO-5 well-being scores among students with and without 12-month suicidal ideation.

Error bars represent standard deviations.

Among protective factors assessed through the Reasons for Living Inventory, family responsibility was rated as 'quite' or 'extremely' important by 79.5% of participants. Belief in one's

coping ability was endorsed by 61.5%, and a sense of control over one's life by 57.0% as shown in figure 3.

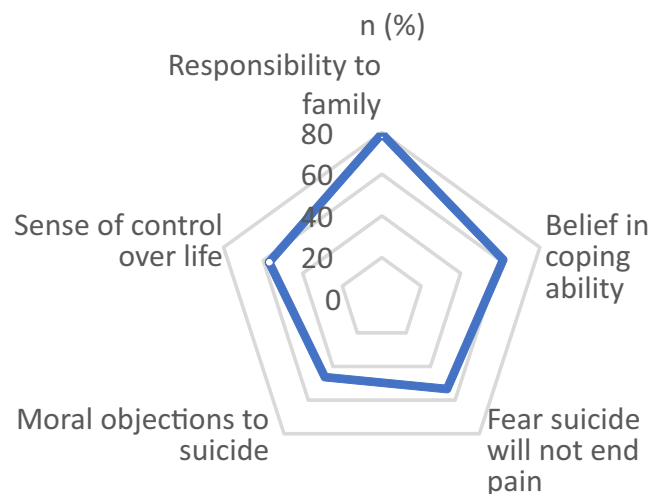


Figure 3: Radar Plot of Suicide Protective Factors Among Participants

Table 2 presents unadjusted (UOR) and adjusted odds ratios from multivariable logistic regression. After adjustment for all covariates, lower WHO-5 score was the strongest predictor of 12-month suicidal ideation: each one-unit increase in WHO-5 score was associated with a 4% reduction in the odds of ideation (AOR 0.96, 95% CI 0.94-0.97, $p < 0.001$). This corresponds to an approximately 34% reduction in odds for a 10-point increase in WHO-5 score - a clinically meaningful difference given the scale range. Hostel residence was

independently associated with higher odds of suicidal ideation (AOR 1.87, 95% CI 1.02–3.42, $p = 0.043$). Male gender showed a borderline trend toward higher odds that did not reach statistical significance (AOR 1.61, 95% CI 0.98–2.65, $p = 0.061$) and should be interpreted with caution. Year of study and family income were not independently significant after adjustment.

Table 2. Multivariable Logistic Regression: Predictors of 12-Month Suicidal Ideation (n = 400)

Variable	Category	UOR (95% CI)	AOR (95% CI)	p-value
Gender	Female (ref)	1.00	1.00	—
	Male	1.44 (0.90–2.30)	1.61 (0.98–2.65)	0.061*
Year of study	Clinical/PG (ref)	1.00	1.00	—
	Pre-clinical	1.29 (0.81–2.05)	1.18 (0.72–1.94)	0.512
Residence	Day scholar (ref)	1.00	1.00	—
	Hostel	1.72 (1.00–2.96)	1.87 (1.02–3.42)	0.043
Annual family income	Above ₹5 lakh (ref)	1.00	1.00	—
	₹5 lakh or below	1.19 (0.75–1.90)	1.11 (0.68–1.82)	0.671
WHO-5 score	Per 1-unit increase	0.96 (0.94–0.97)	0.96 (0.94–0.97)	<0.001

UOR = Unadjusted Odds Ratio; AOR = Adjusted Odds Ratio; CI = Confidence Interval; ref = reference category. * $p = 0.061$: borderline trend, not statistically significant at $\alpha = 0.05$. Model chi-square significant ($p < 0.001$).

Help-Seeking Awareness and Utilisation

Of the 400 students, 214 (53.5%) reported awareness of campus mental health resources; however, only 78 (19.5%) had ever utilised any such service. Among the 82 students who reported 12-month suicidal ideation, fewer than one-third had sought any form of mental health support, representing a substantial treatment gap.

Table 3. Awareness and Utilisation of Mental Health Resources (n = 400)

Variable	Category	n (%)
Aware of campus mental health resources	Yes	214 (53.5)
	No	186 (46.5)
Ever utilised any mental health resource	Yes	78 (19.5)
	No	322 (80.5)
Type of resource used*	Counseling services	52 (66.7)
	Helpline	18 (23.1)
	Peer support	14 (17.9)
	Other	2 (2.5)
Perceived effectiveness (among users)	Effective or very effective	46 (59.0)
	Neutral or ineffective	32 (41.0)

*Multiple responses permitted; percentages calculated among 78 utilising students (n = 78). PG = postgraduate.

Thematic Analysis: Barriers to Help-Seeking

Thematic analysis of open-ended written responses from students who screened positive yielded five coherent themes. Representative quotes are presented as reported by participants (lightly edited for grammar; semantic meaning preserved).

Theme 1 - Stigma and Social Shame. Students feared being perceived as unable to manage the pressures of medical

training if they disclosed psychological distress to peers or faculty.

"If people find out you went to see a psychiatrist, they will think you can't handle pressure. In medicine, you are supposed to be the strong one." [Male, MBBS]

Theme 2 - Fear of Confidentiality Breach. Doubt that personal disclosures would remain private within a small, interconnected institutional community was the most consistently named barrier.

"The college is small. The counselor knows the professors. How can I trust that what I say won't reach my HOD or the principal?" [Female, MBBS]

Theme 3 - Academic and Career Consequences. Students expressed concern that formal engagement with mental health services could adversely affect their academic records, specialty selection, or future registration with medical councils.

"What if it goes on my record? Medical Council does background checks. I can't afford that risk right now." [Male, Postgraduate]

Theme 4 - Structural Access Barriers. Rigid operating hours and the absence of a clear referral pathway were cited as practical deterrents, particularly for students with clinical duties.

"The counseling room is only open on weekdays from 10 to 4. That is exactly when I have ward duties. There is no way to go without taking permission." [Female, Intern]

Theme 5 - Emotional Avoidance and Self-Reliance. Some students normalised their distress by comparing themselves to peers and preferred to manage difficulties independently, viewing help-seeking as an acknowledgement of personal failure.

"I keep telling myself it will pass. Everyone else is also stressed. I don't want to make it a big deal." [Male, MBBS]

Taken together, these themes indicate that the treatment gap reflects not merely ignorance of available services, but active deterrence by overlapping psychosocial and structural barriers.

Discussion

This convergent mixed-methods cross-sectional study documents a 12-month suicidal ideation prevalence of 20.5% among medical students at a tertiary teaching hospital in western Uttar Pradesh. This estimate is consistent with recent meta-analytic and systematic review evidence. Vera-Ponce et al. reported a pooled prevalence of 22.1% among health sciences students across multiple countries;^[13] Mortier et al. documented a pooled estimate of 17.5% among college

students globally.[22] The consistency of our finding with this broader literature suggests that the result is not an outlier but reflects a genuine and persistent pattern of mental health burden in this population.

The strongest predictor in our regression model was WHO-5 score, with each unit increase associated with a 4% reduction in the odds of suicidal ideation. This inverse association persisted after adjustment for all other covariates and held across the full continuous range of the WHO-5, suggesting that emotional well-being operates as a meaningful psychological buffer rather than a categorical threshold effect. Interpreted within the stress-diathesis model, these findings are consistent with the view that lower emotional well-being reduces the individual's capacity to modulate the effects of acute academic and interpersonal stressors.[6] Similar associations have been reported in other studies using validated well-being instruments among health professional students.[14] From a public health perspective, the practical implication is that interventions aimed at improving emotional well-being - even modestly - may yield meaningful reductions in suicidal ideation risk within this population.

Hostel-residing students had approximately 87% higher adjusted odds of suicidal ideation compared with day scholars or those living off-campus. This finding is consistent with prior evidence from residential medical colleges in North India.[8] Physical separation from family networks may reduce access to informal support and erode a sense of belonging, while the competitive dynamics of shared hostel environments may amplify perceptions of relative failure. These conditions align conceptually with the Interpersonal Theory of Suicide, in which thwarted belongingness and perceived burdensomeness are posited as key contributors to suicidal ideation.[5] Male gender showed a borderline trend toward higher adjusted odds (AOR 1.61, $p = 0.061$) that did not reach conventional statistical significance; this association should not be interpreted as established without replication in larger samples. The direction of this trend is not necessarily counterintuitive, as suicidal ideation may be expressed differently across genders in institutional settings, and several Indian studies have reported comparable patterns.[21,23]

The treatment gap documented in this study - 53.5% awareness but only 19.5% utilisation, and fewer than one-third of ideators seeking any support - is consistent with multi-site surveys among Indian medical students and global university mental health research.[9,10,19] Thematic analysis provides insight into the mechanisms sustaining this gap. Students did not simply fail to recognise their need for support; rather, they described a complex of active deterrents including stigma, confidentiality doubt, career anxiety, and structural

inaccessibility. Several of these themes have been reported in qualitative studies from UK, Ethiopian, and Southeast Asian medical schools,[17] but the career-specific dimension - fear of Medical Council scrutiny and the credential sensitivity of professional training - may be particularly salient in the Indian context, where regulatory pathways into postgraduate training are competitive and opaque.

The combination of quantitative and qualitative data through triangulation adds interpretive depth. The treatment gap is not an artefact of poor service design or student unawareness alone; it appears to be maintained by an institutional environment in which disclosure of distress carries perceived professional risks. Addressing this gap requires changes not only in service provision but in institutional culture and communication strategy. Specifically, clear institutional messaging that mental health engagement does not affect academic standing or registration - backed by enforceable confidentiality protocols - may be a necessary precondition for increasing utilisation.

Several practical implications follow. First, routine anonymous WHO-5 screening should be embedded in academic calendars, allowing early identification of students at risk without requiring disclosure.[16] Second, counseling services should be provided by professionals with no administrative or academic affiliation with the students they serve, in order to establish credible confidentiality. Third, structural access barriers - rigid operating hours and the absence of online or telephonic options - should be addressed directly, as Theme 4 data indicate that scheduling incompatibility is a concrete deterrent for students with clinical duties. Fourth, peer gatekeeper training programs have shown effectiveness in comparable institutional settings and should be prioritised for first-year and hostel-resident students.[20]

Strengths and Limitations

This study has several strengths. Both the SBQ-R and WHO-5 are internationally validated instruments with established psychometric properties. The primary outcome uses a clearly defined 12-month timeframe, avoiding the definitional ambiguity common in studies using composite or lifetime measures. Multivariable regression provides adjusted estimates that are more informative for prevention planning than unadjusted comparisons. The qualitative component, analysed using a transparent thematic analysis framework,[24] provides mechanistic depth that the quantitative data alone cannot offer.

Several limitations must be acknowledged. The cross-sectional design precludes causal inference; it is not possible to determine whether poor well-being precedes suicidal

ideation, is a consequence of it, or whether both are attributable to shared unmeasured factors. The sample included students across different stages of medical training, including undergraduate and postgraduate learners. While this improves representation of the institutional student population, it may also introduce heterogeneity arising from differences in academic responsibilities, clinical exposure, and stress profiles between training levels. Self-reported data are subject to social desirability bias, which may underestimate the true prevalence of suicidal ideation in a stigmatised domain. Voluntary participation introduces potential selection bias: students with severe distress may have been less willing to complete the questionnaire, potentially underestimating ideation in the most vulnerable subgroup. The recall period of 12 months may be subject to recall bias for earlier episodes within the year. The study was conducted at a single institution, limiting generalisability to medical colleges with different academic cultures, student demographics, or resource environments. Finally, the SBQ-R was used on an item-level basis rather than with its total-score cutoff, which, while appropriate for a 12-month definition, prevents direct comparison with studies using total-score-based classification. The study did not assess several potentially important psychosocial and clinical correlates of suicidal ideation, including depression, anxiety, substance use, sleep disturbances, family psychiatric history, previous psychiatric treatment, and perceived academic stress. The absence of these variables may have resulted in residual confounding and should be considered when interpreting the observed associations.

Conclusion

One in five medical students at this tertiary care institution in western Uttar Pradesh reported suicidal ideation in the preceding 12 months. Lower emotional well-being was the dominant and modifiable predictor, with an inverse association that was consistent across the full range of the WHO-5 scale. Hostel residence independently added to ideation risk. A substantial treatment gap persists: awareness of available services does not translate to utilisation, because stigma, confidentiality doubt, academic fear, and structural inaccessibility together form a durable set of barriers. Addressing this gap requires action at multiple levels: routine anonymous WHO-5 screening, structurally confidential counseling services, extended access hours, and institutional communication strategies that explicitly decouple mental health engagement from academic or regulatory consequences. Multi-centre longitudinal studies examining ideation trajectories and testing specific interventions should be prioritised as the next step.

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