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Mental Health Status and Its Sociodemographic Correlates among University Students in Odisha, India: A Cross-Sectional Study

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Abstract

Psychological distress among university students is becoming an increasingly significant concern. Studying mental health in this demographic is crucial, as it affects academic performance, physical health, and overall well-being. Therefore, the present study aims to assess the mental health of university students and the factors that influence it. A cross-sectional study was conducted among 1,112 university students from seven universities in Odisha, India, selected through simple random sampling. Psychological distress was assessed using the General Health Questionnaire-12 (GHQ-12), originally developed by David Goldberg in 1972. Detailed sociodemographic characteristics such as age, gender, education, lifestyle, spirituality, and parental status were collected. Correlation analysis was performed between mean GHQ-12 scores and various sociodemographic factors to evaluate associations. The study found a mean GHQ-12 score of 3.61 out of 12, indicating a relatively high level of psychological distress among university students, with 57.6% experiencing severe distress. Females obtained significantly higher psychological distress scores (3.84) than males (3.25). Students from families with marital discord and those raised by a single parent reported significantly higher distress compared to their counterparts. Students with religious beliefs and those who regularly engaged in spiritual practices showed significantly better mental health outcomes. The findings highlight that a considerable proportion of university students are experiencing psychological distress, underscoring the urgent need for counselling facilities and mental health support services within educational institutions in India.

Keywords: Mental health, University students, Demographic factors, Psychological distress, Depression

1 Introduction

Psychological distress is a prevalent mental health problem that affects how an individual feels, thinks, acts, and understands their surroundings (American Psychiatric Association (APA), 2025). Several studies have reported that university students tend to experience, or at least to report, higher levels of depression due to academic, financial, and social challenges than non-students (Liu & Wang, 2024; Luo et al., 2024). Some previous studies found that in India, the prevalence of depression ranges from moderate to high (27%-58.6%) (Balamurugan et al., 2024; Shaikh et al., 2024). In Odisha, 7% of students were severely affected, and 25.7% fell under the moderate level (Maharana et al., 2023). This issue needs serious attention, as it affects academic and overall well-being (Chen et al., 2023). Various studies showed that depression prevalence among students is influenced by age, parental pressure, academic stress, career uncertainty, lack of job opportunities, social pressure, and other socioeconomic factors (Cherian et al., 2024; Maji et al., 2024; Seely et al., 2024). All these factors affect the overall physical and psychological well-being, such as eating and sleeping patterns, among students, resulting in weight fluctuation, insomnia, or oversleeping (Lyu et al., 2024). It impacts personal well-being, leads to struggles with motivation and self-care, is a reason for declining grades and frequent absenteeism (Wadi et al., 2024). Students suffering from psychological distress are more likely than others to have suicidal thoughts (Li et al., 2022; Mustaffa et al., 2014). Depression among university students may pose a significant health burden, with negative effects on social growth as India is a young nation with a large youth population of 371.4 million, among which 43.3 million are university students (National Statistical Office, Ministry of Statistics and Programme Implementation, Government of India, 2022). Considering the above factors, studying mental health status and associated factors among university students is very crucial for addressing the adverse outcomes. To the best of our knowledge, very few studies have been conducted among university students in Odisha. The present study is designed to assess the depression status among university students of Odisha.

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2 Material and Methods

2.1 Research Design and Sample Size

This cross-sectional study was conducted among undergraduate and postgraduate students across seven universities in Odisha, India. The study population included all actively enrolled students, and the sampling frame consisted of class lists obtained from selected departments. The required sample size was estimated using the standard single population proportion formula: $n = \frac{Z^2 p(1-p)}{d^2}$, where Z = 1.96 for a 95% confidence level, p = .50 (assumed prevalence, selected to maximize sample size and ensure stronger generalizability as no state-wide estimates were available), and d = 0.03 (margin of error). A 3% margin of error (instead of the commonly used 5%) was intentionally chosen to obtain higher precision, considering the large and heterogeneous university population and the wide variability of depression estimates reported in previous studies in India. Using the formula, the minimum required sample size was 1,067. After adjusting for a 5% non-response rate, the target sample size was 1,120. A total of 1,112 students completed the survey. Data collection was carried out over a four-month period from January 2025 to April 2025. Simple random sampling was used to select classrooms from each university, and all eligible students present were invited to participate. Recruitment was conducted through classroom announcements, and responses were collected confidentially through a Google Form, which minimized response bias and supported a paperless approach.

Inclusion criteria were that students had to be currently enrolled, able to understand English, and willing to provide informed consent. Exclusion criteria involved students who were absent during data collection, those who submitted incomplete or duplicate responses, and those who self-reported any clinically diagnosed psychiatric illness.

2.2 Data Collection and Analysis

Demographic information including gender, age, marital status, education, social category, annual family income, lifestyle, parental status, amount of pocket money received, number of siblings, birth order, belief in spirituality, and frequency of spiritual practice was collected using a structured questionnaire. Psychological distress was assessed using the General Health Questionnaire-12 (GHQ-12), developed by Goldberg (1972), a widely validated screening tool used to measure general mental health or psychological distress across diverse populations. The GHQ-12 consists of 12 items, each rated on a four-point Likert scale that reflects the severity or frequency of symptoms experienced in the recent past compared to the respondent's usual condition. The four response options include: (1) better than usual, (2) same as usual, (3) worse than usual, and (4) much worse than usual. The binary scoring method (0-0-1-1) was applied, wherein for positively worded items, the first two responses were coded as 0 and the last two as 1; for negatively worded items, the scoring was reversed. This approach allowed us to identify the presence or absence of psychological distress. Each respondent's total GHQ-12 score ranged from 0 to 12, with higher scores indicating greater psychological distress.

According to the GHQ-12 scoring guidelines, individuals with a total score of less than 3 are considered to be within the normal range, while those scoring between 3 and 12 are classified as experiencing significant psychological distress.

Data were analyzed using Microsoft Excel and SPSS version 22. To facilitate analysis, demographic variables were numerically coded. The GHQ-12 total scores were treated as continuous variables ranging from 0 to 12. Descriptive statistics were used to summarize demographic characteristics and GHQ-12 scores. The internal consistency of the GHQ-12 was assessed using Cronbach's alpha. The GHQ-12 is a widely validated screening tool with strong psychometric properties, showing high internal consistency (Cronbach's alpha typically 0.82–0.90) and good criterion validity across diverse populations. In the present study, the scale demonstrated excellent reliability, with a Cronbach's alpha of 0.84, consistent with previous research. To examine the underlying factor structure of the scale, a principal components analysis (PCA) was conducted. PCA supported a unidimensional structure, with the first component accounting for the majority of the variance.

To examine associations between psychological distress (as measured by GHQ-12 scores) and demographic variables, appropriate statistical tests were applied based on the nature of the variables. For categorical variables such as gender, parental presence, being raised by a single parent, belief in spirituality, and frequency of spiritual practice, chi-squared tests were conducted to assess group differences in psychological distress categories (normal vs. distressed). Where the GHQ-12 score was analyzed as a continuous outcome, independent-samples t-tests or one-way ANOVA were used for comparing means across two or more groups. A p-value of less than .05 was considered statistically significant.

2.3 Ethical Consideration

This study was approved by the ethics committee of the institution. Informed consent, presented in English and the regional language, was taken from all respondents prior to the study, which clearly stated that the data provided by

them would be used for the study only and would not be disclosed to anyone.

3 Results

Table 1 presents the socio-demographic characteristics of the 1,112 university student participants. The sample was predominantly female, with a mean age of 21.15 years. Most respondents were pursuing postgraduate degrees and belonged to small nuclear families, with over 64% having only one sibling and around 11% being single children. Reports of parental separation or divorce were low, and the majority of students lived with both parents. Engagement in substance use was relatively low, with only a small proportion reporting alcohol, tobacco, or smoking habits. A significant majority expressed belief in spirituality, and nearly half practiced spiritual activities regularly.

Table 2 summarizes key findings from the GHQ-12 items used to assess psychological distress among the participants. Each respondent's GHQ-12 total score was computed by summing the 12 binary-scored items, yielding individual scores ranging from 0 to 12. A significant proportion of students reported symptoms of emotional strain. Over one-fourth consistently struggled with sleep due to worry and felt persistently under pressure. Nearly half reported frequently or always feeling worthless, while more than 75% indicated feeling depressed and unhappy on a regular basis. Many students also reported a loss of confidence and a sense of helplessness in dealing with difficulties. While several participants indicated an ability to concentrate, solve problems, and enjoy daily activities, the overall mean GHQ-12 score was 3.61 out of 12, suggesting a relatively elevated level of psychological distress and potential vulnerability to psychiatric morbidity.

Figure 1 illustrates the distribution of total GHQ-12 scores among university students, where scores range from 0 to 12, with higher values indicating greater psychological distress. Although more than half of the respondents (57.64%) scored 3 or above, suggestive of elevated distress based on conventional GHQ-12 cut-offs (Goldberg, 1972), this binary classification should be interpreted with caution, as psychological distress is better understood as a continuous construct. Accordingly, the total GHQ-12 scores were treated as continuous variables for subsequent analysis. The distribution of scores showed a right skew, with no strong indication of a bimodal (taxonic) structure; that is, there was no clear second peak within the depressed range.

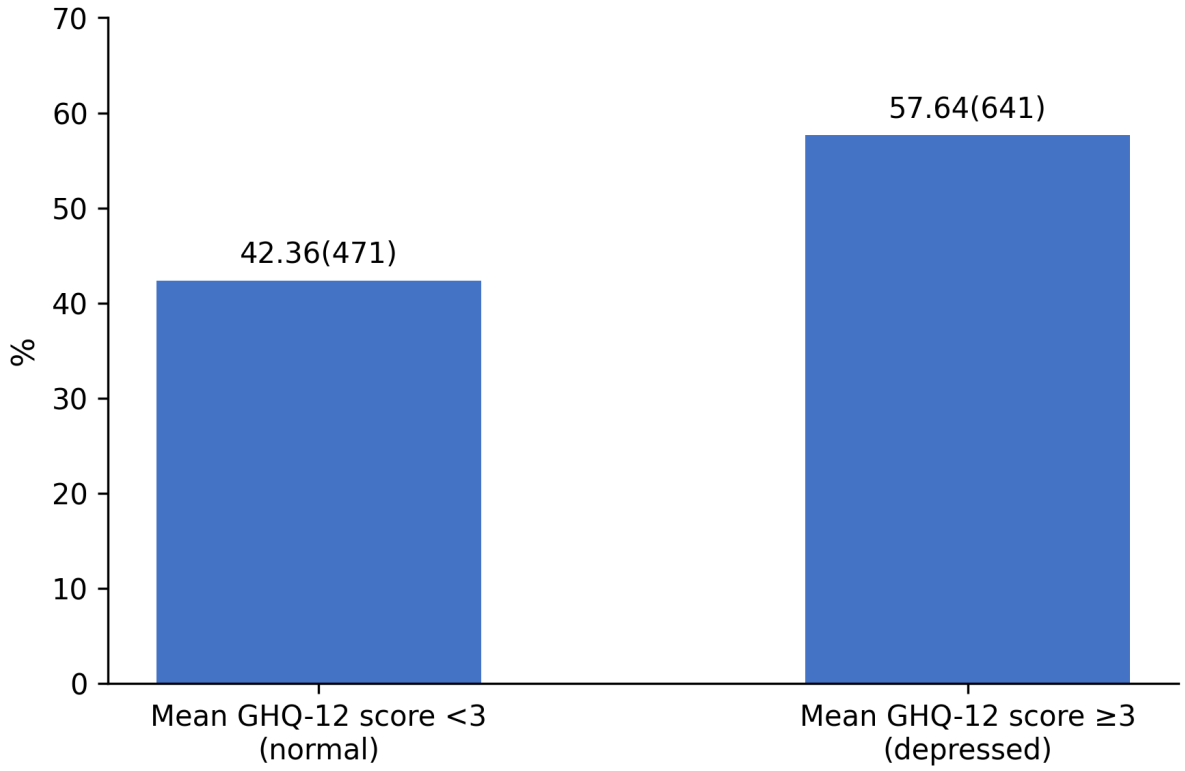

Figure 1: Distribution of psychological distress scores based on GHQ-12 mean score cut-off value

Table 3 presents the association between various demographic and psychosocial variables and psychological distress, as measured by GHQ-12 scores. Female students reported significantly higher levels of distress (mean score = 3.84) than males (3.25) (Amaro et al., 2024; Pinho et al., 2025). Participants whose parents were divorced,

Table 1: Sociodemographic profile of respondents (n = 1112)

Category	Sub-category	Count	Percentage
Gender	Female	710	63.85
	Male	402	36.15
Age (years)	17–19	333	29.95
	20–22	500	44.96
	23–25	205	18.44
	26 and above	74	6.65
Mean age (±SD)	21.15 (±2.64)	—	—
Marital status	Married	72	6.47
	Unmarried	1040	93.53
Education	Undergraduate	454	40.83
	Masters	626	56.29
	Other	32	2.88
Social category	General	442	39.75
	Other Backward Classes (OBC)	416	37.41
	Scheduled Castes (SC)	150	13.49
	Scheduled Tribes (ST)	104	9.35
Annual income (INR)	<200000	505	45.41
	200000 – <300000	132	11.87
	300000 and above	475	42.72
Mean annual income (±SD)	432764.3 (±744029.4)	—	—
Lifestyle	Alcohol consumption	94	8.45
	Tobacco consumption	39	3.51
	Smoking	62	5.58
Status of parental presence	Both are alive	997	89.66
	Only mother alive	61	5.49
	Only father alive	47	4.23
	Both deceased	7	0.63
Parental living status	Together	983	88.40
	Widow	61	5.49
	Widower	47	4.23
	Divorced/ Separated	14	1.26
Pocket money received from parents (n=1110)	No	138	12.41
	Yes (2983.99)	972	87.41
Number of sibling(s)	No sibling	122	10.97
	1	716	64.39
	2 and above	274	24.64
Position among sibling(s)	Single child	122	10.97
	1^{st}	716	64.39
	2^{nd}	165	14.84
	3^{rd} or above	109	9.80
Believe in spirituality	Yes	915	82.28
	No	197	17.72
Frequency of spiritual practice (n=915)	Daily	493	44.33
	Weekly	116	10.43
	Monthly	25	2.25
	Occasionally	202	18.17
	Rarely	44	3.96
	Never	35	3.15

Table 2: Frequency distribution of responses to GHQ-12 items and mean psychological distress scores among university students (n = 1,112)

	Always		Frequently		Sometimes		Never		Item-wise mean score[a]
Questions	No.	%	No.	%	No.	%	No.	%	(max = 1)
Been able to concentrate well on what you're doing?	405	36.42	303	27.25	79	7.10	325	29.23	0.36
Felt you were playing a useful part in things?	339	30.49	266	23.92	131	11.78	376	33.81	0.45
Felt capable of making decisions about things?	421	37.86	257	23.11	339	30.49	95	8.54	0.39
Been able to enjoy your normal day-to-day activities?	475	42.72	246	22.12	308	27.70	83	7.46	0.35
Been able to face up to your problems?	504	45.32	226	20.32	298	26.80	84	7.55	0.34
Been feeling reasonably happy, all things considered?	386	34.71	297	26.71	349	31.38	80	7.19	0.38
Lost much sleep over worry?	307	27.61	531	47.75	140	12.59	134	12.05	0.24
Felt constantly under strain?	306	27.52	564	50.72	149	13.40	93	8.36	0.23
Felt you couldn't overcome your difficulties?	333	29.95	526	47.30	145	13.04	108	9.71	0.22
Been feeling unhappy and depressed?	255	22.93	619	55.67	129	11.60	109	9.80	0.24
Are you losing confidence in yourself?	338	30.40	515	46.31	135	12.14	124	11.15	0.23
Been thinking of yourself as a worthless person?	553	49.73	348	31.29	93	8.36	118	10.61	0.18
Total mean score (maximum score = 12)									3.61

[a] Item-wise mean score calculated based on binary scoring (0-0-1-1).

separated, or widowed exhibited greater psychological distress (4.11) than those whose parents were married (3.45) (Geshica & Musabiq, 2019; Hadžikapetanović et al., 2017). Similarly, students raised by a single parent or with only one or no parent present showed higher distress levels compared to those living with both parents. Belief in spirituality was associated with lower distress scores (mean = 3.32) than disbelief (4.05) (Aggarwal et al., 2023; Pillay et al., 2016). A clear pattern was also observed with the frequency of spiritual practice: daily practitioners had the lowest distress levels (3.1), while those who never engaged in spiritual activities reported the highest (4.2) (Gilbertson et al., 2022; Lee, 2014). These findings highlight the significant influence of gender, family structure, and spiritual orientation on students' psychological well-being.

Table 3: Association between demographic variables and GHQ-12 scores

Variable	**Group comparison**	**Mean GHQ-12 score**	**Association (p-value)**
Gender	Male	3.25	0.004
	Female	3.84	
Parental marital status	Married	3.45	0.039
	Divorced/Separated/Widowed	4.11	
Parental presence	Both Parents Present	3.46	0.041
	One or No Parent Present	4.03	
Raised by single parent	Yes	4.00	0.006
	No	3.43	
Belief in spirituality	Yes	3.32	0.001
	No	4.05	
Frequency of spiritual practice	Never	4.2	< 0.001
	Rarely	3.8	
	Occasionally	3.8	
	Weekly	3.3	
	Daily	3.1	

4 Discussion

The present study assessed the level of psychological distress among university students and found an overall mean GHQ-12 score of 3.61 out of 12, indicating a moderate level of psychological distress within the studied population. In comparison, a recent study conducted by Ovi et al. (2024) among university students in Bangladesh reported a slightly

lower mean GHQ-12 score of 3.2 out of 12, suggesting relatively better mental health status. The difference may reflect variations in academic, cultural, or psychosocial stressors across populations. Many respondents (29.23%) admitted that they face difficulty in focusing on their work, with a mean score of 0.36. Similarly, a previous study also depicted that 45.0% of the respondents involved in that study were facing the same condition, which the researchers interpreted as indicating a requirement for regular problem-solving counselling at universities at a personal level among students (Ovi et al., 2024).

In the current study, 7.55% of the respondents, with a mean score of 0.34, reported never being able to face their difficulties. In contrast, Ovi et al. (2024) found that 31% of his Bangladeshi students reported the same, with a mean GHQ value of 7.2. 27.61% of our respondents reported disrupted sleep from excessive worry. In a previous study (Comotti et al., 2024), a total of 73% of participants indicated that they experienced the same, which directly affects the mental health of an individual, triggering rumination, making a person even more affected by depression. 22.93% of our participants reported feeling depressed and unhappy, but a recent study conducted by Sonmez et al. reveals that 56.5% of the respondents were facing the same issue (Shek et al., 2023). In our study, 49.73% of participants feel worthless about themselves; 42% of respondents felt the same in a previous study by Comotti et al. (2024). Few case studies were conducted on individuals with higher depression scores. When asked about the reasons behind their depression, they reported common themes, including gender, parents' marital status, parental presence, belief in spirituality, and frequency of practice.

A small number of students reported being involved in alcohol (8.45%), tobacco (3.51%), and smoking (5.58%). Daily consumption of alcohol was reported by 0.90%. Several earlier studies had reported that university students who engage in alcohol consumption are at a high risk of depression — or that depressed students are at high risk of alcohol consumption (Amaro et al., 2024; Antora et al., 2024; El Ansari et al., 2024; Marufi et al., 2024; Muniz et al., 2024; Pinho et al., 2025). Very few participants reported consuming tobacco daily (0.45%), weekly (0.63%), monthly (1.26%), or occasionally (1.17%). Various other studies conducted among student populations in Iran, Sweden, Bangladesh, and other countries have found that depression and its symptoms are associated with various behaviours including tobacco use (Antora et al., 2024; Marufi et al., 2024; Pinho et al., 2025). However, a recent study among Ukrainian college students by Burlaka et al. (2024) did not find any such association. In that study, 1.62% smoked daily, and 2.52% smoked occasionally. Recent studies have highlighted that higher levels of smoking are often associated with increased depressive symptoms (Farina et al., 2024; Moss et al., 2024). However, this relationship is not consistent across all research. Several studies, including those by Moss et al. (2024), Milic et al. (2020), Farina et al. (2024), and Burlaka et al. (2024), found no significant association between smoking and mental health. In the present study, it was found that there is no significant connection of depression with smoking and tobacco consumption.

Our study shows that parental presence shows a positive correlation with the mental health score. Students with both parents alive reported better mental health, with a mean GHQ-12 score of 3.46, than those raised by a single parent (4.00) or those who had lost one or both parents (4.03), indicating greater psychological distress among the latter groups. Earlier studies done in the United States and Serbia had found that students raised by both parents were less likely to have depressive symptoms, highlighting the role of parental guidance, financial stability, and psychological comfort, compared to individuals with only one parent living. Depression impacted their financial as well as mental well-being. Importantly, maternal loss was found to be the most emotionally distressing (Farina et al., 2024; Milic et al., 2020). However, students who had lost both parents were at a higher risk of experiencing elevated stress, anxiety, and depression (SAD) than those who had lost only their mother or father. These students often faced financial and emotional challenges, leading to feelings of loneliness in the absence of parental support. They also encountered academic difficulties along with depression (Mofatteh, 2020).

Additionally, the present study revealed a statistically significant association between parental marital status and student mental health. Students whose parents were divorced, separated, or widowed had a higher mean GHQ-12 score (4.11) than those whose parents were married (3.45), indicating poorer mental health outcomes among the former group. Previous studies had shown that students raised by divorced parents scored high on psychological distress, grief, suicidal thoughts, and difficulty concentrating. It was also found that students with divorced parents face long-term problems such as struggling to maintain social functioning, emotional stability, intimate relationships, and close friendships (Hadžikapetanović et al., 2017). Female students particularly appear to be more depressed when raised by divorced parents, as found in a study conducted in Indonesia by Geshica and Musabiq (2019).

In the present study, 12.41% reported that they don't receive any pocket money. An earlier study reported that students with less or no pocket money were likely to be under financial stress, a factor that is strongly associated with depression (Quansah et al., 2024). Having sufficient pocket money makes a student feel financially secure, minimizes stress over basic needs, and allows them to participate socially, which boosts their social image and confidence (Quansah et al., 2023; Quansah et al., 2024). However, no association was found between pocket money and depression score in the present study.

10.97% were found to be the only child of their parents. Various studies found that children with no siblings tend

to have more depressive symptoms, perhaps related to protective parenting as a factor that restricts the development of coping abilities, which makes mental health worse (Cheng et al., 2020). Another study, however, highlighted that single children tend to have less to no depression as they get long-term financial support, concentrated resources, and low expectations regarding their employment and settling down (Jiang et al., 2020). Previous studies concluded that the more siblings, the more depressive symptoms are observed because of restricted resources and improper parental care. The relationship between the siblings also plays a role in mental health, as the poorer the relationships between the siblings, the poorer the mental health score is among the youth (Levkovich & Labes, 2023; Toseeb & Wolke, 2022).

Most of our students (82.28%) confessed a belief in spirituality, but 17.72% didn't. Confirming the results of an earlier study, it was found that individuals with high spiritual beliefs reported less depression than did individuals with low spiritual beliefs (Lee, 2014). With spiritual beliefs, they get better support in the community. This works as a barrier against isolation and hopelessness, which are strongly associated with depression as found in a study by Aggarwal et al. (2023). Increases in self-satisfaction and self-control, which help to maintain interpersonal relationships, were also reported in studies done by Pillay et al. (2016) and Shek et al. (2023). Engaging in regular spiritual practices enhances the prefrontal cortex's thickness, along with better emotion regulation and less over-rationalisation (Brečka et al., 2024). Spiritual practices are negatively associated with depression as individuals involved in them are better able to overcome self-blame, chronic guilt, low problem-solving, and maladaptive forgiveness practices, habits which isolate the individual and thereby boost depression and stress levels (Brečka et al., 2024; Gilbertson et al., 2022).

5 Conclusion

This study assessed the prevalence of mental health among university students in Odisha, India, revealing notable associations between psychological distress levels and various socio-demographic and psychosocial factors. The mean GHQ-12 score among participants was 3.61 out of 12, indicating the presence of depressive symptoms in this student population. Notably, female students reported higher levels of psychological distress (3.84) than male students (3.25). Furthermore, students from maritally disrupted families (mean GHQ-12 score = 4.11) and those raised by a single parent (4.0) reported significantly poorer mental health compared to those from intact families (3.45) and those raised by both parents (3.43). The absence of one or both parents was associated with increased emotional and financial stress, which may lead to feelings of loneliness and vulnerability. Importantly, belief in spirituality (3.32) and frequent spiritual practice (3.1) were significantly associated with better mental health outcomes, suggesting a potentially protective role of spiritual engagement in managing stress and emotional discomfort. Students reported symptoms such as overthinking, emotional detachment, feelings of worthlessness, and a loss of interest in daily activities, which are hallmarks of psychological distress.

To improve psychological well-being among university students, it is essential to consider evidence-based strategies. Programs such as Cognitive Behavioral Therapy (CBT), Mindfulness-Based Interventions (MBIs), Acceptance and Commitment Therapy (ACT), and interpersonal counseling models like IPC-C have shown effectiveness in various settings. However, rather than assuming their effectiveness in all contexts, institutions must conduct localized research to evaluate and adapt these interventions accordingly. Colleges and universities should also implement accessible, confidential mental health services on campus, led by qualified professionals. Awareness campaigns through workshops and seminars can help reduce stigma, while student engagement in activities such as yoga, meditation, and guided relaxation may offer additional stress relief. Furthermore, policies supporting flexible academic procedures, such as deadline extensions or academic leaves, can help students navigate periods of psychological difficulty. The findings highlight a complex challenge that necessitates an integrated approach, combining personal, social, institutional, and policy-level efforts to enhance student mental health and resilience.

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