

Screening of Mental Health Status and Perceived Stress of Undergraduate Students of a General Degree College in Kolkata, West Bengal, India- A Pilot Study

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Abstract:

Background: Mental health among college students is a neglected issue and there is a dearth of comprehensive studies addressing it among Indian youth. Due to the stigma attached, it often remains under diagnosed. The mental well being of the college students are often compromised precipitated by academic failures, relationship issues, adjustment to campus life, economic, social and familial problems. **Objectives:** The objective of the study was to assess the overall mental health profile and perceived stress levels of the undergraduate students of a general degree college in Kolkata, West Bengal, India and also to assess the relationship between perceived stress and mental health among selected college students. **Materials and methods:** This is an institutional based pilot study carried out during the period of November to December 2024 amongst 62 undergraduate students aged 18 to 23 years at Prasanta Chandra Mahalanobis Mahavidyalaya, Kolkata, West Bengal. The standard 18 items Mental Health Inventory (MHI) questionnaire and Perceived Stress Scale (PSS) were administered to assess mental health and perceived stress respectively. The purpose of the study was explained to respondents and the confidentiality of the responses was assured. Individual consent from students was taken before administering the questionnaires. Statistical methods such as frequency, percentage, mean, median, standard deviation and Pearson r correlation were used to analyze the data. **Results:** Out of 62 respondents, the majority 38(61.3%) were females and 24 (38.7%) were males. The overall computed MHI scores (0-100) total score ranges from 33.33 to 84.44, mean score 57.99, median score 58.33 with a standard deviation of 12.28. Majority of the students were found to have moderate levels of stress based on PSS scale (PSS score between 14-26). Significant negative relationships are observed between perceived stress of the respondents and their overall mental health based on MHI transformed score ($r = 0.037^*$, $p < 0.05$) indicating higher stress lowers mental health and vice versa. **Conclusion:** The study revealed majority of students having poor mental health status and moderate stress levels suggestive of early screening and diagnosis among college students. Necessity of counselling and therapeutic intervention is suggested.

Keywords: Mental Health Inventory, Perceived Stress Scale, college students, mental health, Anxiety, Depression.

Introduction:

Physical health augmented by mental well being is a subject of heightened attention as it encompasses the emotional, psychological, and social well-being, influencing how a person thinks, feels, and acts. According to World Health Organization, mental health is a "a state of well-being in which the individual realizes his or her abilities, can cope with the normal stresses of life, can work productively and can contribute to their community"¹. Poor mental health contributes substantially to the global disease burden, a whopping 13.9% of the world's population have been reported to experience mental disorders in 2021². The importance of mental disorders is underestimated because of the constraints in linkage between mental illness and other health conditions³. Mental health problems exist in college students⁴. Academic stressors, challenges to adapt in new environment away from family, emerging adulthood with incomplete cognitive maturity, economic dependency on parents, abuse, exposure to violence, marginalization are implicated as worrisome causes in precipitation of mental health distress⁵. In 2020-21, a study reported that >60% of students were identified to meet conditions with one or more mental health problems with a 50% increase since 2013⁶. Student's mental health condition is worsening and is a matter of public health concern since a decade. Significant high prevalence rates of anxiety and depression were reported from a study encompassing 15 cities of India from college students aged 18 to 21 years⁷. Studies have established that although most mental disorders initiate during young adulthood ie. 12-24 years of age, but are detected later on due to delayed interventions⁸ along with social stigma and lack of time⁹. Mental health can also result in disability and mortality¹⁰. Mental health studies among college students is under researched, there is paucity of literature related to the assessment of mental health and little attention is paid to potential initiatives to address them substantially. Stress is in continuum while dealing with mental health. The study sought to screen a pilot sample of students to detect the students suffering in distress. Furthermore, strategies can be undertaken to create consciousness and to create a culture of psychological well being in campus life.

Aims and objectives:

The study aims to assess the overall mental health status, its different aspects and perceived stress levels among the undergraduate students of a general degree college in Kolkata, West Bengal, India. Additionally, the study explores the relationship between perceived stress and the overall mental health of student respondents.

Materials and methods:

Study design and setting: An institutional based cross-sectional study was carried out during the period of November to December 2024 amongst undergraduate students aged

18 to 23 years studying at Prasanta Chandra Mahalanobis Mahavidyalaya, Kolkata, West Bengal. The study seeks to examine 62 students both males and females using a convenience sampling technique. Students who volunteered to participate in the study were enrolled as participants. Confidentiality of the responses was assured and individual consent was obtained from the students before administering the questionnaires.

Study tools: The standard 18 items Mental Health Inventory (MHI) developed by Veit and Ware¹¹ was used to assess the overall mental health status. The Mental Health Inventory (MHI) is a widely accepted self reporting 18 items likert scale used for evaluating mental health issues such as anxiety, depression, behavioral control and positive effect. This instrument thus measures overall emotional functioning of individuals. The raw MHI subscales and the total score ranges from 1 to 6. Raw MHI scores are converted to computed MHI scores using the formula¹²: $MHI \text{ Total score} = [(Mean \text{ MHI} - 1) * 100] / 5$. Anxiety Subscale score (MHA), Depression Subscale score (MHD), Behavior Control Subscale (MHC) and Positive Affect Subscale (MHP) are also calculated according to formula¹². The computed subscale and total scores range from 0 - 100, higher scores of MHI total score indicate better mental health. Higher scores on two subscales (behavior control and positive affect) indicate positive state of mental health /psychological well being whereas higher scores on the other two subscales (anxiety and depression) indicate negative state of mental health/ psychological distress¹³.

Table 1: Cut off values of mental health scores based on MHI-18^{13, 14}:

Mental health scores	Interpretation
≤ 61 (Low score)	Poor mental health
62 to 66 (Medium score)	Better mental health with some problems
≥ 67 (High score)	Good mental health

Perceived Stress Scale (PSS -10), a self reported 10 item questionnaire was used to measure psychological distress. PSS scores can vary from 0 to 40 .The higher PSS scores are indicative of higher perceived stress¹⁵. Scores varying from 0-13 indicate low stress, scores from 14-26 indicate moderate stress, scores from 27-40 indicate high perceived stress¹⁶.

Exclusion criteria: Students who were suffering from any critical ailment or psychological disorder were excluded from the study.

Data analysis: Data was entered in Microsoft Excel spreadsheet (Microsoft, Redwoods, WA, USA) and checked for accuracy. Descriptive statistics for the study were reported

using frequency (%), mean, median, range and standard deviation. Depression, anxiety, and stress levels were categorized based on scores. Statistical analysis was performed using Windows based SPSS software, version 20.0 (Statistical Package for the Social Sciences Inc., Chicago, IL, USA). p value ≤ 0.05 was considered statistically significant.

Results:

Table 2 shows that out of 62 students, the majority 38 (61.3%) were females and 24 (38.7%) were males. Mean age of the study participants was 19.34 years with standard deviation of 1.2. Minimum age of the participants was 18 years and maximum age reported was 23 years.

Table 2: General profile of the student respondents:

General profile	Number of participants(n = 62)	Percentage (%)
Age(in years)		
17-19	20	32.26
>19 to 23	42	67.74
Gender		
Male	24	38.7
Females	38	61.3

Table 3: Raw MHI scores of the student respondents with mean, median and standard deviation (n =62)

Raw MHI score	Range	Mean	Median	Standard deviation
1 - 6	2.67 – 5.22	3.89	3.92	0.61
Raw Sub scales score				
Anxiety (MHA)	1.6 – 5.8	3.84	4.0	0.97
Depression (MHD)	2.25 – 5.75	3.81	3.87	0.96
Behaviour control(MHC)	2.25 – 6.0	3.96	4.0	0.91
Positive affect (MHP)	1.6 – 5.8	3.84	4.0	0.97

Raw MHI scores of the study population with mean, median and standard deviation with various subgroups like anxiety, depression, behaviour control, positive affect are shown in Table 3. The mean MHI raw scores (1-6) in this study for overall mental health ranged from 2.67 to 5.22, mean was 3.89, median 3.92 and standard deviation 0.61.

Table 4: Computed MHI scores of the student respondents with mean, median and standard deviation (n =62)

Transformed MHI score	Range	Mean	Median	Standard deviation
0 - 100	33.33 to 84.44	57.99	58.33	12.28
Transformed Sub scales score				
Anxiety (MHA)	12 to 96	56.96	60	19.59
Depression (MHD)	25 to 95	56.29	57.5	19.20
Behaviour control(MHC)	25 to 100	59.27	60	18.26
Positive affect (MHP)	35 to 100	63.14	65	14.99

Table 4 depicts the computed MHI scores of the study population with mean, median and standard deviation with various subgroups like anxiety, depression, behaviour control, positive affect. The computed MHI score ranges from 33.33 to 84.44 mean score was 57.99, median 58.33 and standard deviation 12.28.

Figure 1: Distribution of student respondents having different Mental Health levels based on MHI -18score (n = 62):

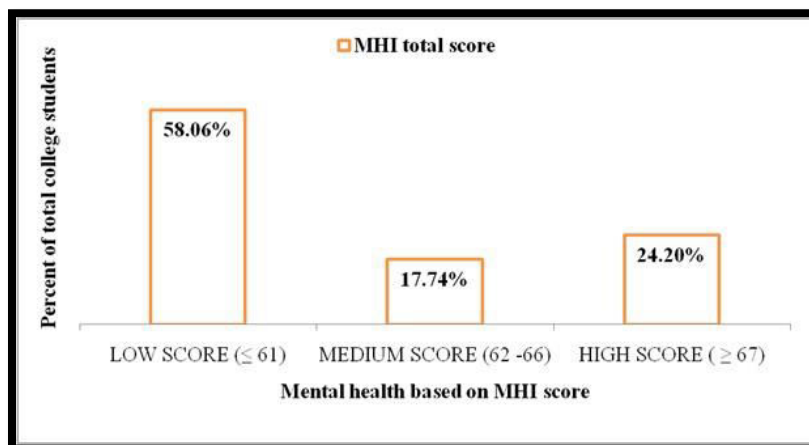


Figure 1

Figure 1 displays that majority of the college students, 58.06% have low MHI score (≤ 61), 17.74% students have medium MHI score (62 – 66) and 24.2% students were found to have high MHIscore.

Table 5: Level of Perceived stress of student respondents (n=62):

Perceived stress by PSS-10	Mean	SD	Interpretation
	19.12	3.54	Moderate stress

Table 5 reveals the level of perceived stress of student respondents. The value shows that most of the students were in “Moderate” category, with a mean $\pm$ SD of 19.12 ± 3.54 .

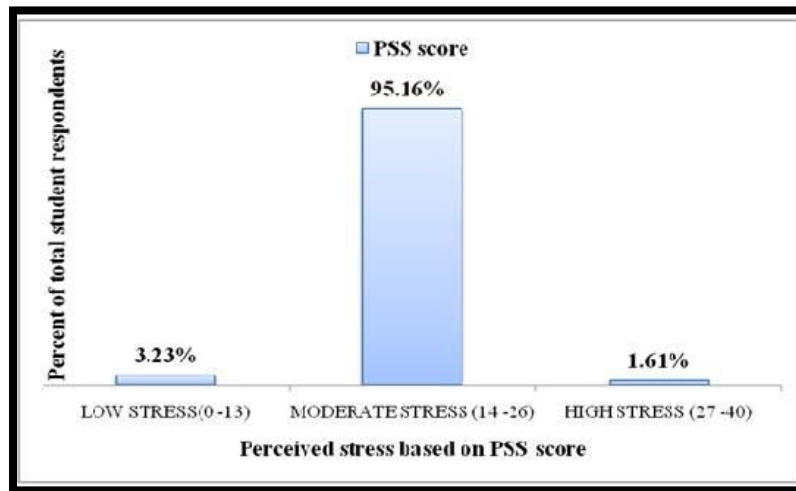


Figure2: Perceived stress levels of the student respondents based on PSS -10 score (n=62)

Figure 2 displays that majority of the student respondents (95.16%) have moderate levels of perceived stress based on PSS score.

Table 6: Correlation between Perceived Stress and Mental Health of student respondents based on PSS 10 and MHI-18 scores (n =62):

PEARSON 'S CORRELATIONS								
			1	2	3	4	5	6
1.	Perceived Stress	r	1					
		P						
2.	Mental Health (Total Score)	r	- 0.032	1				
		P	0.807					
3.	Mental Health (Anxiety)	r	-0.024	0.734*	1			
		P	0.856	0.000				
4.	Mental Health (Depression)	r	- 0.134	0.776*	0.441*	1		
		P	0.300	0.000	0.000			
5.	Mental Health	r	0.024	0.716*	0.295*	0.500*	1	

	(Behavior Control)	P	0.851	0.000	0.020	0.000		
6.	Mental Health (Positive Affect)	r	0.065	0.555*	0.167	0.317*	0.259*	1
		P	0.617	0.000	0.195	0.012	0.042	

* Significant $p < 0.05$

Table 6 depicts that perceived stress correlate inversely with Mental health in general though not statistically significant ($r = -0.032$, $p = 0.807$) indicating stress deteriorate mental health and vice versa. This demonstrates high stress negatively impact mental health among study subjects. Inverse correlation of perceived stress was observed with domains of anxiety subscale score ($r = -0.024$, $p = 0.856$) and depression subscale score ($r = -0.134$, $p = 0.300$) but not statistically significant. This suggests perceived stress increases anxiety and depression. Positive correlation of perceived stress was observed with domains of behavior control subscale score ($r = 0.024$, $p = 0.851$) and positive affect subscale score ($r = 0.065$, $p = 0.617$) but not statistically significant. This indicates perceived stress increases two positive psychological constructs, behavior control and positive affect. Mental health total score significantly correlated positively with all its four domains ranging from 0.555 to 0.776 ($p < 0.05$).

Discussion:

The present cross-sectional study conducted in a general degree college among the undergraduate students using MHI 18 is a cost-effective, quick and reasonably valid measure of both positive and negative facets of mental health, revealed that 58.06% students have poor mental health. The results are considerably higher than findings of prevalence of poor mental health among 27.62% students found in a community-based study among undergraduate medical students of a Govt. Medical College in Karnataka, India¹⁴. In another study conducted in Bangladesh using MHI, Ahmed et. al. found that around half of students had poor mental health similar to this study¹⁸. As per the study conducted by Canillo et al.¹⁷, usage of MHI in assessment of mental health of college students in Philippines found moderate mental health with mean value of 47.11 ± 5.59 which is lower than MHI mean value (57.99 ± 12.28) of current study which may be due to small sample size. Yuvaraj et. al also reported much higher mean values of MHI at 63.5 ± 4.01 suggesting better mental health compared to current study. In contrast, hostel residents in the Residential College of Universiti Malaysia Terengganu (UMT) had overall good mental health conditions¹⁹. Again poor mental health was reported in 25.1% medical students using Goldberg's General Health Status Questionnaire in Mysore, Karnataka²⁰. Sherina MS et al reported from Malaysia, the prevalence of depression was 33.6% using the CES-D scale²¹. The variability may be due the fact that studies are being conducted in different geographical settings, different ethnicities, varied demographic characteristics

with varied sample size. The study aims to fill in the research gap of knowledge of mental health status among students of a general degree college of Kolkata.

Perceived stress was in moderate range for majority (95.16%) of students in the current study. Canillo et. al reported similar findings with presence of moderate stress in college students¹⁷. Stress was reported in 33.7% students in a study in Karnataka using Beck Depression Inventory (BDI). The difference in values can be attributed to the usage of different scales.

Significant positive correlation between MHI total score and subscales score were found in present study. A higher MHI score and a low PSS score indicate good mental health. The data exhibited negative correlation as expected (Table 6). This establishes MHI as a broad indicative instrument to screen mental health status.

Therefore adequate attention and focus on mental health with and larger samples of psychological screening camps in educational institutions should be encouraged. Necessary interventions for boosting mental health should be formulated.

Limitations:

There were limitations of the current study, the sample size was small as it was a pilot study and the sampling technique used was convenience sampling.

Conclusion:

The present study concluded poor mental health was substantially high in a representative sample of students of a general degree college in Kolkata. Perceived stress was also found among subjects. Screening and early detection should be encouraged across campuses. Behavioral interventions including guidance and mentoring, encouragement by trained counselors with accessibility to support services can prevent exacerbation of symptoms in students. The findings can help institutions take a multifaceted approach for holistic development thus facilitating overall wellbeing of students.

Acknowledgements: The author would like to acknowledge the student participants and the administration of Prasanta Chandra Mahalanobis Mahavidyalaya, Kolkata who approved the data collection.

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