Section: Psychiatry

Original Research Article

A CROSS-SECTIONAL STUDY TO ESTIMATE THE PREVALENCE OF MENTAL STRESS AND LEVEL OF COPING AMONG PROFESSIONAL AND NONPROFESSIONAL COLLEGE STUDENTS FROM A CITY OF NORTH GUJARAT

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Received *: 07/09/2024*
Received in revised form *: 22/10/2024*
Accepted *: 06/11/2024*

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DOI:10.70034/ijmedph.2024.4.147

Source of Support: Nil,
Conflict of Interest: None declared

Int J Med Pub Health
2024; 14 (4); 792-797

ABSTRACT

Background: Stress is an inevitable part of college student's life. Previous studies have estimated prevalence of stress among professional course and medical students, but few have explored nonprofessional students in north Gujarat region. **Aims:** To estimate prevalence of stress among college students, correlate stress level with their coping measures and to compare stress level between professional and non-professional course students.
Settings and Design: Cross sectional descriptive study was done among 232 including 117 professional and 115 nonprofessional course undergraduate students from randomly selected six colleges of a non-metro city of north Gujarat from April to September 2019.
Material and Methods: Students were assessed using self-report student stress inventory (SSI), general health questionnaire-28 (GHQ-28) and Burnout prevention assessment (BPA).Statistical analysis used:Data was subjected to descriptive and inferential statistical analysis.
Results: The prevalence of mild and moderate stress was 68.9% and 31% respectively. Stress did not significantly differ among professional and nonprofessional students. Stress had negative correlation with adaptive coping measures. ($P < 0.0001$, correlation coefficient $r = -0.2375$ for SSI; $P < 0.0001$, correlation coefficient $r = -0.2936$ for GHQ-28)
Conclusion: The prevalence of moderate to severe stress is 31% among all college students. Stress is equally experienced by professional and nonprofessional course students. Adaptive coping is associated with stress reduction for optimal functioning in important areas of college student's life.
Keywords: Stress, college student.

INTRODUCTION

Stress is defined by Selye (1956) as "Any external event or any internal drive which threaten to upset the organism equilibrium is stress."[1]Stress is an essential and unavoidable component of a student's life. 'Good stress' or 'eustress' works as driving force for optimum performance and wellbeing of individual. However, 'badstress' or 'distress' has an adverse psychological, physical, and behavioural consequence which ultimately leads todecline in performance level and wellbeing.Distress commonly manifest as dropout, self-harming behaviour, frank depression, and suicide among students. Depression, adjustment problems and poor coping styles are common factors leading to self-harming behaviours and completed suicide. The incidences of suicide among college students have been increased in last decade. In India, 37.8% suicides are committed by the people under the age of 30 years.[2]
The literature search was done across PubMed and Google scholar to review the relevant literature on prevalence of stress and coping strategies among college students especially from India.

A cross-sectional study from a northern Indian city among 400 college students reported that professional students experienced more stress compared to non-professional students.[3]Another cross-sectional observational study for assessment of depression, anxiety, and stress among 187 medical students in a medical college of New Delhi, India reported that 60 (32.0%), 75 (40.1%), and 82 (43.8%) students were affected by symptoms suggestive of depression, anxiety, and stress respectively.[4]A study conducted among of 100 randomly selected medial, nursing and engineering students at Sewagram, Maharashtra, India using self-report questionnaire. It recruited equal number of male and female subjects. The authors concluded that stress is universally present among students of all three streams irrespective of age, sex, and other variables. Students in all three professional streams have shown denial to existence of problems, with maximum denial among nursing students. Medical and engineering students had stress level of such a degree that required clinical attention, while none of the nursing students had clinically significant stress. [5]

Another similar study in 2008 among 100 final year undergraduate medical students from Government Medical College in India assessed perceived stress and coping. Study reported that perceived stress was significantly associated with general psychopathology and depressive-anxiety component of burnout. Acceptance, positive reframing, humour, planning, and active coping correlated with lower score on perceived stress. The positive coping strategies correlated with lesser stress and general psychopathology. Nearly half (53.5%) subjects were above cutoff on scores of general psychopathologies.[6] A few studies from India have explored the stressors and coping styles of Indian medical undergraduate, but there is still a deep gap and need to do more extensive work in this area.[7]

All above studies were limited among medical or other professional course students but none have explored psychological stress among nonprofessional course students. The coping methods were neither assessed nor correlated with stress in previous studies. There are limited studies among college students which have assessed stress and coping methods to prevent burnout students from north Gujarat region. So, the current study was planned with following objectives

1. To estimate prevalence of psychological stress among college students
2. To compare stress level between professional and non-professional course college students
3. To correlate stress level with socio-demographic variables and adaptive coping.

MATERIALS AND METHODS

A cross-sectional observational study was carried out at psychiatry department of a tertiary care hospital from June to September 2019. Ethical permission was granted from institutional ethics committee with approval letter number-MCD/PTN/IEC/62/2019 affiliated with the institute. The minimum sample size for frequency (%) of moderate to severe stress in the population was calculated by open epi online statistical calculator. [8] The population size was kept 1000000 (for finite population correction factor) and hypothesized frequency of moderate to severe stress in the population was taken 50%+/- 10 after review of literature of similar studies in similar population. The confidence limits as absolute precision +/- % were kept 10% and design effect was kept one. The estimated minimum sample size at 95% confidence level was 97. So kept more than minimum sample size 240 including 120 professional course students and 120 nonprofessional college students for the study. Total 240 college students from a non-metro city of north Gujarat were recruited by systematic random sampling. 120 students were from three professional courses including medical, nursing and engineering colleges and 120 students were from three nonprofessional including science, commerce, and arts education course colleges.

Inclusion criteria for participants were age more than 18 years and willing to provide written informed consent. Those participants who were not willing, uncooperative, or aggressive due to nature and severity of the psychiatric or co morbid medical disorder were excluded. Witten informed consent was obtained from participants after explaining nature and purpose of the study up to their satisfaction. The participants were assured about anonymity and confidentiality of information provided by them. They were informed that participation was voluntary and their response would not influence their academic assessment and curriculum. It was ensured that students were not under influence of any college event or examination which may likely to distort their response at the time of data collection. The case record forms were filled by participants in presence of investigator(s) and they took 20-25 minutes to complete the case record form including questionnaire. The case record form had demographic data including age, sex, year of joining college, details about living facilities, history of psychiatric illness, personal hobby, substance use (alcohol, tobacco, cannabis, or opiate) in past 6 weeks and three structured prevalidated questionnaires as described below.

First questionnaire was student stress inventory (SSI) developed and validated by Mohammad Aziz Shah Mohamed arip*et al.* to measure the level of stress among university students.[9] SSI includes 40 negative items divided into four subscales (10 items for each subscale) which are sub scale 1: Physical, 2: Interpersonal relationship, 3: Academic and 4: Environmental factor. Each item is rated on four-point Likert scale ranging with ordinal scale ‘Never’, ‘somewhat frequent’, frequent’ and ‘always’. The value mark given for each choice are

1 for 'Never', 2 for 'Somewhat Frequent', 3 for 'Frequent' and 4 for 'Always'. It takes about 15 to 20 minutes to complete the SSI. Depending on the scores obtained, each participant will fall into category of mild, moderate, or severe stress.

Second questionnaire was General health questionnaire -28 (GHQ-28) developed by Goldberg *et al*. [10] It is one of the most widely used and validated assessment tools for screening emotional distress and possible psychiatric morbidity. It has 28 items divided into four subscales. These are: somatic symptoms (items 1–7); anxiety/insomnia (items 8–14); social dysfunction (items 15–21), and severe depression (items 22–28). Each item is rated from 0 to 3 Likert scale with total score ranging from 0 to 84. The cut off score of more than 23 is considered presence of distress.

The third questionnaire was Burnout Prevention Assessment (BPA) for assessment of adaptive coping. It has 23 items which assesses different adaptive coping methods to reduce stress level and prevent burnout. Each item is rated on an ordinal Likert scale. Depending on the response, the total score of individuals on BPA ranges from 0 to100. Higher score indicates better adaptive coping against stress. Depending on the score obtained by the subject on BPA, each subject would fall into any of the following three categories: 'A wide range of coping measures', 'adequate coping measures' and 'need to adopt coping measures'.[11]

Descriptive statistics was used for quantitative data variables. Qualitative data were expressed in frequency and percentages. Quantitative data were expressed in mean and standard deviation (SD). Comparison between the professional and nonprofessional student group was done using the Chi-square and Fishers' exact test with post hoc test wherever applicable for the nominal and ordinal variables. Spearman rank correlation coefficient was calculated for statistical significance. *P* value <0.05 was considered as statistically significant. Data was entered into Microsoft excel worksheet and analyzed using Graph pad in stat version 3.06 statistical analysis software to tabulate results.

RESULTS

Total 240 college students were approached in study. Out of them, eight students returned incomplete case record forms giving 96.6% response rate. So, they were excluded and remaining 232 including 117 Professional and 115 nonprofessional students' data was subjected to statistical analysis. Mean age of all participants was 19.8years (standard deviation 1.57, range 17-28).

The socio demographic details of all subjects are shown in Table 1. Out of 232 students, 154 students stayed at hostel or similar living facilities and 78 lived at home (66.4% vs 33.6%). Fourteen (6%) subjects had history of anxiety/depressive psychiatric illness in last one year. Thirteen subjects from professional students and none from nonprofessional students reported bullying at either their living or study premises (11.1% vs 0%). [See Table 1]

Table 2 shows the degree of satisfaction among all students with respect to their hostel or non-home similar living facilities. Among hostel-based participants, maximum students reported dissatisfaction with food (41.6%) followed by toilet facility (40.3%). Participants reported maximum satisfaction with electricity supply (82.5%) followed by recreational facilities (47.4%) among all basic needs at the living place.

Prevalence of mild stress was 68.9% (160 out of 232) and moderate stress was 31 % (72 out of 232) among participants according to student stress inventory (SSI). Severe stress was not rated by any participant on SSI. Prevalence of perceived psychological distress (bad stress) was 33.2% (77out of 232) according General Health Questionnaire-28.

Table 3 shows gender wise distribution of perceived psychological stress and coping. The prevalence of stress and level of perceived stress did not significantly differ between male and female college students (*P*>0.05 for both SSI and GHQ-28). There was no significant difference among males and females with respect to adaptive coping measures. (*P*>0.05, Chi square test for independence).

Table 4 shows distribution and comparison of perceived psychological stress and adaptive coping measures among professional and nonprofessional course college students. The prevalence of stress and level of perceived stress did not significantly differ between professional and nonprofessional course college students (P >0.05 for both SSI and GHQ-28). There was no significant difference among professional and nonprofessional students with respect to adaptive coping measures. (P>0.05, Chi square test for independence).

As shown in Table 5, SSI and GHQ-28 scores of every student were correlated with their adaptive coping measures of BPA. The Spearman correlation between SSI and BPA coping measures scores was significant (P < 0.0001, correlation coefficient r = -0.2375). Similarly, the Spearman correlation between GHQ-28 and BPA coping measures scores was significant (P < 0.0001, correlation coefficient r =-0.2936).

Table 1: Socio demographic details of all participants (n=232)

Variable	Professional course students (n=117) (%)	Nonprofessional course students (n=115) (%)	All participants (N=232) (%)
Age (Mean±SD)	19.6 ± 1.25	20.2 ± 1.79	19.9 ±1.57
Gender			

Male *Female*	63 (53.8) 54 (46.2)	59 (51.3) 56 (48.7)	122 (52.6) 110 (47.4)
Stream *Medical* *Engineering* *Nursing* *Education* *Arts* *Commerce*	 40 (34.2) 38 (32.5) 39 (33.3) - - -	 - - - 40 (34.8) 40 (34.8) 35 (30.4)	 40 (17.2) 38 (16.4) 39 (16.8) 40 (17.2) 40 (17.2) 35 (15.2)
Presence of chronic medical illness	15 (12.8)	3 (2.6)	18 (7.8)
Past psychiatric illness (anxiety /depression)	11 (9.4)	3 (2.6)	14 (6)
Substance use	6 (5.1)	1(0.9)	7 (3.0)
Face bullying	13 (11.1)	0 (0)	13 (5.6)
Living at *Home* *Hostel or similar*	 22 (18.8) 95 (81.2)	 56 (48.7) 59 (51.3)	 78(33.6) 154(66.4)

Table2: Degree of satisfaction with living facilities among all participants (N=232, living at hostel or similar =154)

Variable	Highly dissatisfied (%)	Not satisfied (%)	Neutral (%)	Satisfied (%)	Very satisfied (%)	Total responses (%)
Satisfaction with the food you eat*	12 (7.8)	52(33.8)	42(27.2)	32(20.8)	16(10.4)	n=154 (100)
Cleanliness of your room and hostel*	9(5.8)	18(11.7)	40(26)	60(38.9)	27(17.6)	n=154 (100)
Satisfaction with toilet facility*	13(8.5)	49(31.8)	33(21.4)	42(27.2)	17(11.1)	n=154 (100)
Satisfaction with drinking water facility*	13(8.5)	34(22.1)	28(18.2)	64(41.5)	15(9.7)	n=154 (100)
Satisfaction with electricity supply*	2(1.2)	5(3.3)	20(13)	87(56.5)	40(26)	n=154 (100)
Satisfaction with recreational facilities in hostel/college*	5(3.3)	33(21.4)	43(27.9)	52(33.8)	21(13.6)	n=154 (100)
Satisfaction with Library facility	25(10.8)	29(12.5)	48(20.7)	93(40.1)	37(15.9)	N=232(100)
Satisfaction with classroom teaching	15(6.5)	30(13)	62(26.7)	82(35.3)	43(18.5)	N=232(100)

***Applicable to students living at hostel or similar non-home living premises**

Table 3: Gender distribution and comparison of perceived psychological stress and adaptive coping measures

Stress experienced / Coping measures	Male (n=122)(%)	Female (n=110)(%)	All subjects (N=232)(%)	*P* value
Student stress inventory (SSI) * *Mild stress* *Moderate stress* *Severe stress*	 85 (69.6) 37 (30.4) 0 (0)	 75 (68.2) 35 (31.8) 0 (0)	 160 (68.9) 72 (31) 0 (0)	*P* = 0.8871
General health questionarrie-28 (GHQ-28) * *Distress present (score>23)* *Distress absent (score<23)*	 37 (30.4) 85 (69.6)	 40 (36.3) 70 (63.7)	 77 (33.2) 115 (66.8)	*P* = 0.4023
Burnout Prevention assessment# *Have wide range of coping measures* *Have adequate coping measures but should adopt more* *Need to adopt coping measures on priority*	 62 (50.8) 53(43.4) 7 (5.8)	 55 (50) 49 (44.5) 6 (5.5)	 117(50.4) 102 (43.9) 13 (5.6)	*P*= 0.9841

***Fisher's exact test # Chi square test for independence**

Table 4: Distribution and comparison of perceived psychological stress and adaptive coping measures among professional and non professional course students

Stress experienced / Coping measures	Professional course students (n=117)(%)	Non professional course students (n=115)(%)	All subjects (N=232)(%)	*P* value
Student stress inventory (SSI) * *Mild stress* *Moderate stress* *Severe stress*	 77 (65.8) 40 (34.2) 0 (0)	 83 (72.1) 32 (27.8) 0 (0)	 160 (68.9) 72 (31) 0 (0)	0.32
General health questionarrie-28 (GHQ-28) * *Distress present (score>23)* *Distress absent (score<23)*	 35 (29.9) 82 (70.1)	 42 (36.5) 73 (63.5)	 77 (33.2) 115 (66.8)	0.33
Burnout Prevention assessment# *Have wide range of coping measures*	61 (52.1)	56 (48.7)	117(50.4)	0.53

Have adequate coping measures but should adopt more *Need to adopt copingmeasures on priority*	48 (41) 8 (6.8)	54 (46.9) 5 (4.3)	102 (43.9) 13 (5.6)	

***Fisher's exact test # Chi square test for independence**

Table 5: Spearman correlation between perceived stress on SSI and GHQ-28 with coping measures.

		Adaptive coping measures according to BPA score
SSI score	Spearman correlation coefficient 95% confidence interval Two tailed significance	r= -0.2375 -0.3588to -0.1083 *P* <0.0001
GHQ-28 score	Spearman correlation coefficient 95% confidence interval Two tailed significance	r = -0.2936 -0.4102 to0.1675 *P* <0.0001

DISCUSSION

The study estimates that prevalence of mild and moderate stress was 68.9% and 31% respectively among college students. These findings are consistent with similar Indian studies among medical professional course undergraduate students. Guthrie et al. reported that psychiatric illness was found in 22-36 % study subjects.[12]Indian studies have found the stress in up to 73.5% of the medical students.[6]A study from medical college of central Gujarat, India among post graduates medical students reported that prevalence of depression (27.71%), anxiety (36.58%), and stress (24.24%) was found among the resident doctors.[13]

We could not find any previous Indian study which estimated stress among non-professional course student to compare and co-relate findings with this study. One study from Saudi Arabia in 2018 examinedperceived Stress among female medical and non-medical university students. Study concluded that substantial number of non-medical College of Applied Studies and Community Services (CASCS) studentsalso perceive academic stress implying that non-medical students also face similar challenges and both need equal supportive counselling and guidance services to cope with stress.[14] The finding was consistent in our study too.We also did not find difference with respect to perception of stress among professional and nonprofessional course college students. All higher undergraduate courses have their own merits and demerits regarding stress perception including academic and non-academic stress but do not alter grossly stress and coping.

Variation in estimated prevalence is explained because socio cultural and personality traits which affect both perception and expression of stress. Previous studies have focused on the assessment of stressors and its psychological consequences in undergraduate medical students.

There was no statistically significant difference in the mean scores on PSS and SRQ of male and female residents. Male residents significantly used more dysfunctional coping strategies than female residents (P = 0.045) [15]

Two third study subjects (n=154, 66.4%) belong to hostel or similar non-home living facilities. The study also points that there is still dissatisfaction among college students with basic needs like meals and sanitation facilities at their hostel or study places which may contribute to their burden of stress. This gives insights to management authorities and stakeholders to improve quality of the basic requirements.

Research indicates that positive coping methods, such as problem-solving and seeking social support, are associated with lower anxiety and stress levels, while negative coping methods, like avoidance and emotional suppression, correlate with higher anxiety and stress.[16,17]This relationship suggests that students who actively engage in constructive coping strategies are likely to experience better mental well-being and reduced stress.[18, 19] Overall, fostering positive coping mechanisms is crucial for mitigating mental stress among college students.

The is probably first study to explore the prevalence of stress among nonprofessional course college students in addition to professional course students and has compared the stress levels among both groups in north Gujarat region. In addition to stress, the study also estimated prevalence of adaptive coping measures to prevent burnout. However, the study had relatively limited sample size and findings needs to be confirmed by large scale community survey. There is a scope for future studies to explore bad(non adaptive) coping measures too in addition to good (adaptive) coping measures

CONCLUSION

Stress is equally prevalent among both professional and nonprofessional college students. The study findings indicate call for stakeholders to plan appropriate interventions for this vulnerable population.

REFERENCES

1. Selye H. The stress of life. 1956.
2. Reddy MS. Suicide incidence and epidemiology. Indian J Psychol Med. 2010 Jul;32(2):77-82.
3. A. Singh. Stress and adjustment among professional and nonprofessional students. Industrial Psychiatry Journal 2008; 17:26-27.

4. Taneja N, Sachdeva S, Dwivedi N. Assessment of depression, anxiety, and stress among medical students enrolled in a medical college of New Delhi, India. Indian J Soc Psychiatry 2018; 34:157-62.
5. Behere SP, Yadav R, Behere PB. A comparative study of stress among students of medicine, engineering, and nursing. Indian J Psychol Med 2011; 33:145-8.
6. Singh S, Prakash J, Das RC, Srivastava K. A cross-sectional assessment of stress, coping, and burnout in the final-year medical undergraduate students. Ind Psychiatry J 2016; 25:179-83.
7. Cherkil S, Gardens SJ, Soman DK. Coping styles and its association with sources of stress in undergraduate medical students. Indian J Psychol Med 2013; 35:389-93
8. Openepi open source online Statistical calculator V.3.0.1 Website source: https://www.openepi.com/SampleSize/SSPropor.htm updated on 06/04/2013 cited on 13 March 2019.
9. Arip MM, Kamaruzaman DN, Roslan A, Ahmad A, Rahman MA, Malim T. Development, validity, and reliability of student stress inventory (SSI). The Social Sciences.2015; 10(7):1631-8.
10. Goldberg D. Manual of the general health questionnaire. NFER Nelson; 1978.
11. Web source: The network for social work management, NC; c2019. Available from: https://socialworkmanager.org/wp-content/uploads/2017/10/Stress-and-Burnout-Questionnaire.pdf.Last updated:1st Jan 2019, Last cited on 25th Jan 2019.
12. Guthrie E, Black D, Bagalkote H, Shaw C, Campbell M, Creed F. Psychological stress and burnout in medical students: A five-year prospective longitudinal study. J R Soc Med 1998; 91:237-43.
13. Dave S, Parikh M, Vankar G, Valipay SK. Depression, anxiety, and stress among resident doctors of a teaching hospital. Indian J Soc Psychiatry 2018; 34:163-71.
14. Al-Dabal BK, Koura MR, Rasheed P, Al-Sowielem L, Makki SM. A Comparative Study of Perceived Stress among Female Medical and Non-Medical University Students in Dammam, Saudi Arabia. Sultan Qaboos Univ Med J. 2010 Aug;10(2):231-40.
15. Datar MC, Shetty JV, Naphade NM. Stress and coping styles in postgraduate medical students: A medical college-based study. Indian J Soc Psychiatry 2017; 33:370-4.
16. Fu H, Mao Y, Tian L. Coping methods of college students with different personality traits when facing COVID-19 from the anxiety psychology perspective. Frontiers in Psychology. 2024 May 30;15:1357225.
17. Meijer C. *The Relationship of Coping Strategies, Stress, and Mental Well-Being in University Students* (Bachelor's thesis, University of Twente)
18. Gong Z, Wang H, Zhong M, Shao Y. College students' learning stress, psychological resilience and learning burnout: status quo and coping strategies. BMC psychiatry. 2023 Jun 2;23(1):389.
19. Barbayannis G, Bandari M, Zheng X, Baquerizo H, Pecor KW, Ming X. Academic stress and mental well-being in college students: correlations, affected groups, and COVID-19. Frontiers in psychology. 2022 May 23;13:886344.