

Original Research Article

Assessment of Mental Stress among Medical Undergraduate Students of a tertiary health care centre of Bihar, India**Chandra Mani¹, Hem Kant Jha², Vijay Kumar Chaudhary^{3*}**¹*Assistant Professor, Department of Community Medicine, Darbhanga Medical College, Laheriasarai, Bihar India*²*Associate Professor, Department of Community Medicine, Darbhanga Medical College, Laheriasarai, Bihar, India*³*Assistant professor Department of Community Medicine, Darbhanga Medical College, Laheriasarai, Bihar, India***Received: 03-01-2021 / Revised: 29-01-2021 / Accepted: 05-03-2021****Abstract**

Background: Studies done across the world reveals that psychological morbidity like stress is commonly present in medical undergraduate students. **Aim:** To find out the prevalence of stress among medical undergraduate students. **Materials and Method:** Across sectional study was conducted among 150 medical undergraduates to assess their levels of stress by using Kessler 10 (K10) psychological distress scale. Stress was categorized into none, mild, moderate and severe categories. **Result:** The total prevalence of stress was 62.6% and the prevalence of severe stress was 21.3%. **Conclusion:** Students should receive consultation on how to manage and cope up with stress. Preventive mental health services, supportive learning environment and student counseling services need to be made available and accessible to curb this morbidity.

Keywords: Kessler 10 psychological distress scale, medical undergraduates, stress.

This is an Open Access article that uses a fund-ing model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.

Introduction

Stress is deviation from homeostasis where a person feels that the existing circumstances are threatening to him/her and that situation leads to lack of well-being of the person.[1,2]Illness related with stress is very common worldwide. Stress related disorders are responsible for about one-third of the years lost due to disability caused by stress related illnesses. [3] Awareness regarding mental health and stress related disorders have increased worldwide. The medical schools are also realizing this fact and are concerned to take steps to avoid the bad effect that these stress related illnesses can have to their students and want to take preventive measures. [4] Previous studies have shown presence of high levels of stress leading to serious stress-related disorders like depression in undergraduate students of medical schools. [5,6]Numerous studies have been done regarding stress among medical students in different parts of world. In British medical school, the stress level was 31.2% [7] and it was 63.7% in Saudi Arabia, [8] and 61.4% in Thailand. [9] Many of the studies show that cognitive functioning and learning of students is negatively affected by high levels of stress, in the medical school. [5] Mental health of medical students is badly affected by educational process which has inevitably led to high occurrence of depression, anxiety and stress among them. [9-12] In a highly competitive environment in order to maintain a good academic result, they have to make personal and social sacrifice which puts them under stress [13]

*Correspondence

Dr Vijay Kumar Chaudhary

Assistant professor Department of Community Medicine, Darbhanga Medical College, Laheriasarai, Bihar, India.

E-mail: dr.vkc.96@gmail.com

In medical colleges of India specially North India very few studies have been done to assess the presence of stress in their students. Furthermore, the faculties and teachers should also know the gravity of the situation regarding the stress levels present and the potential risk of developing stress-related serious illnesses which can hamper medical student's studies and later their career. The stressful environment of the medical studies has even lead ended up by students committing suicide.[14,15] This study was done to find out the prevalence of stress among medical undergraduate students at Darbhanga Medical College and Hospital, Darbhanga using Kessler psychological distress scale K10 [16,17] which is a well validated tool used by WHO to assess current (one month) distress. [18-21]

Materials and Methods

The present cross sectional study was conducted at Darbhanga Medical College and Hospital, Darbhanga, Bihar. The study was conducted for a period of two Months from November 2020 to December 2020. The study sample consisted of 150 medical undergraduate students aged between 17- 25 years. Students who were under long term medication for chronic illness which affect cognitive behavior were excluded from this study. Stress was assessed using Kessler psychological distress scale (K10). According to Kessler psychological K10 distress scale, the stress was categorized as presence of stress or absence of stress. Mild, moderate and severe levels of stress were labeled as "presence of stress." World Health Organization (WHO) used Kessler psychological distress scale K10 in "The World Mental Health Survey" as a clinical outcome measure. It is used widely in epidemiological studies in order to assess current (one month) distress. [18-21] Data was entered in Microsoft excel sheet and analyzed with the help of SPSS Software, Version 22.0. Frequency table was made and percentage calculation of study variables was done.

The study was approved by the institutional ethical and research committee. An informed and written consent was taken from all the participating subjects prior to the commencement of the study.

Result

We have studied total 150 medical undergraduates in present study, out of which 59 students (39.3%) were male while 91 students (60.7%) were female. (Table: 1) Among 150 medical students, the

prevalence of stress (of all levels) was 62.6% and prevalence of severe stress was 21.3%. (Table: 2) Among 92 female students 28 (30.4%) were suffering from mild stress, 16 (17.4%) were suffering from moderate stress and 23 (25.0%) were suffering from severe stress. Among 58 male students 13 (22.4%) were suffering from mild stress, 5 (8.6%) were suffering from moderate stress and 9 (15.5%) were suffering from severe stress.(Table: 3)

Table 1: Genderwise distribution of study subjects (n=150)

Study variable	Number (No.)	Percentage (%)
Male	59	39.3%
Female	91	60.7%

Table 2: Prevalence and levels of stress among study participants (n=150)

Variable	Number (No.)	Percentage (%)
Levels of stress (n=150)		
No stress/Well	56	37.4%
Mild	41	27.3%
Moderate	21	14.0%
Severe	32	21.3%

Table 3: Levels of stress among study participants (n=150)

Variable	Mild stress	Moderate stress	Severe stress	Well	Grand total
Female	28 (30.4%)	16 (17.4%)	23 (25.0%)	25 (27.2%)	92
Male	13 (22.4%)	5 (8.6%)	9 (15.5%)	31 (53.5%)	58

Discussion

The medical undergraduate students have to work hard and read regularly their vast courses so that they acquire proper clinical skills and also gain huge amount of knowledge, which inevitably puts them under great deal of stress. The main aim of the present study was to assess the stress level of medical undergraduates of our institution.

The level of stress in the study was found to be 62.6%. This level of stress was very close to the level of stress found in the study conducted in medical schools of Saudi Arabia (63.8%) [8] and in Thailand (61.4%). [9]

The stress level of this study was found to be greater than the stress level revealed by study done in Egyptian medical school (43.7%) [22] and among British medical students (31.2%). [7] This result might have come because of use of different scales to measure stress at different medical schools.

This increased levels of stress leads to deterioration of mental health of medical students and this is reflected in poor academic performance and clinical skills which eventually ends up with poor patient care. [23]

Another study done in North America revealed that mental health deteriorates after a student joins a medical school and continues to get worse in their entire study duration. [24]

The adverse impacts of exhausting medical education on the mental and physical conditions of students have been emphasized in many researches done. The outcome of a research done in United Kingdom revealed that one-third of students who were stressed out successfully finish the course. [25]

By knowing the prevalence of stress and its various levels we can take measures to prevent stress related illnesses.

Health-promotion programs have been started in medical schools in the United States and Canada. These programs showed positive results in terms of helping to decrease the adverse effects caused by stress to our mental and physical health and thus improving the study performance in medical schools. [26-28]

Methods like provision of recreation and sports, use of small groups for teaching and support, more participation in social activities are suggested to lower the stress level. Leisure activities can decrease

stress levels in medical colleges. [29] These methods can also be implemented in our institute to ensure reduction in stress level of medical students which can help them acquire clinical skills properly and to perform better academically.

Conclusion

The result showed high levels of presence of stress among medical undergraduates. They are being supported by mentorship and student counseling units which should be further enhanced. Prevention of stress related disorders becomes easy by knowing the various levels of stress. Those students who are already in "severe" category of stress level can be advised to take professional help to increase their efficiency and improve academic performance and clinical skills.

References

1. MdAris SMY, Mariam AD. Differences in depression, anxiety and stress between low-and high-achieving students. *J Sustain Sci Manage* 2011; 6:169-78.
2. Khodarahimi S, Hashim IHM, Mohd- Zaharim N. Perceived stress, positive- negative emotions, personal values and perceived social support in Malaysian undergraduate students. *Int J PsycholBehav Sci.* 2012; 2:1-8.
3. Begg S, Vos T, Barker B, Stevenson C, Stanley L, Lopez AD. The burden of disease and injury in Australia 2003. PHE 82. Canberra: AIHW 2007.
4. Shuchman M. Falling through the cracks—Virginia Tech and the restructuring of college mental health services. *N Engl J Med.* 2007; 357(2):105-110.
5. Dahlin M, Joneborg N, Runeson B. Stress and depression among medical students: a cross-sectional study. *Med Educ.* 2005; 39:594-604.
6. Sherina MS, Rampal L, Keneson N. Psychological stress among undergraduate medical students. *Med J of Malaysia.* 2004; 59(2):207-11.
7. Firth J. Levels and sources in medical students. *BMJ.* 1986; 292:1177-80.

8. Abdulghani HM, Alkanhal AA, Mahmoud ES, Ponnampereuma GG, Alfari EA. Stress and its effects on medical students: a cross-sectional study at a college of medicine in Saudi Arabia. *J Health Popul Nutr.* 2011; 29(5):516-522.
9. Saipanish R. Stress among medical students in a Thai medical school. *Med Teach.* 2003; 25:502-506.
10. Stewart SM, Betson C, Marshall I, Wong CM, Lee PW, Lam TH. Stress and vulnerability in medical students. *Med Educ* 1995; 29:119-127.
11. Singh G, Hankins M, Weinman JA. Does medical school cause health anxiety and worry in medical students? *Med Educ.* 2004; 38:479-481.
12. Dyrbye LN, Thomas MR, Shanafelt TD. Systematic review of depression anxiety, and other indicators of psychological distress among U.S. and Canadian medical students. *Acad Med.* 2006; 81:354-373.
13. Wolf TM, Kissling GE. Changes in life-style characteristics, health and mood of freshmen medical students. *J Med Edu.* 1984; 59:806-14.
14. Tyssen R, Hem E, Vaglum P, Gronvold NT, Ekeberg O. The process of suicidal planning among medical doctors: predictors in a longitudinal Norwegian sample. *J Affect Disord.* 2004; 80(2-3):191-8.
15. Dyrbye LN, Thomas MR, Massie FS, Power DV, Eacker A, Harper W et al. Burnout and suicidal ideation among U.S. medical students. *Ann Intern Med.* 2008; 149(5):334-41.
16. Kessler RC, Andrews G, Colpe LJ, Hiripi E, Mroczek DK, Normand SL et al. Short screening scales to monitor population prevalence and trends in non-specific psychological distress. *Psychol Med.* 2002; 32:959-76.
17. Andrews G., Slade T. Interpreting scores on the Kessler Psychological Distress Scale (K10). *Aust NZJ Public Health.* 2001; 25:494- 497.
18. Cairney J, Veldhuizen S, Wade TJ, Kurdyak P, Streiner DL. Evaluation of 2 measures of psychological distress as screeners for depression in the general population. *Can J Psychiatry* 2007; 52:111-20.
19. Brooks RT, Beard J, Steel Z. Factor structure and interpretation of the K10. *Psychol Assess* 2006; 18:62-70.
20. Forero R, Young L, Hillman KM, Bauman AE, Leraci S. Prevalence of psychological stress assessed in emergency departments. *Emerg Med J.* 2006; 23:489.
21. Kilkkinen A, Kao-Philpot A, O'Neil A, Philpot B, Reddy P, Bunker S et al. Prevalence of psychological distress, anxiety and depression in rural communities in Australia. *Aust J Rural Health.* 2007; 15:114-9.
22. El-Gilany AH, Amr M, Hammad S. Perceived stress among male medical students in Egypt and Saudi Arabia: effect of sociodemographic factors. *Ann Saudi Med.* 2008; 28:442-8.
23. Abdulghani HM. Stress and depression among medical students: a cross sectional study at a medical college in Saudi Arabia. *Pak J Med Sci.* 2008; 24(1):12-7.
24. Dyrbye L, Thomas MR, Shanafelt TD. Medical student distress: causes, consequences, and proposed solutions. *Mayo Clin Proc.* 2005; 80:1613-22.
25. Salmons PH. Psychiatric illness in medical students. *Br J Psychiatry.* 1983; 143:505-8.
26. Wolf TM, Randall HM, Faucett JM. A survey of health promotion programs in U.S. and Canadian medical schools. *Am J Health Promot.* 1988; 3:33-6.
27. Abramovitch H, Schreier A, Koren N. American medical students in Israel: stress and coping—a follow-up study. *Med Educ.* 2000; 34:890-6.
28. Lee J, Graham A. Students' perception of medical school stress and their evaluation of a wellness elective. *Med Educ.* 2001; 35:652-9.
29. Shaikh B, Kahloon A, Kazmi M, Khalid H, Nawaz K, Khan N, et al. Students, stress and coping strategies: a case of Pakistani medical school. *Educ Health.* 2004; 17(3):346-53.

Conflict of Interest: Nil

Source of support: Nil