

Assessment of well-being and coping abilities among medical and paramedical trainees, in a Government Medical College, West Uttar Pradesh, India

Rajeev Kumar¹, Anita Maurya², Dhananjay Kumar Singh³, Puja Dudeja⁴

¹Department of Community Medicine, Shaikh-Ul-Hind Maulana Mahmood Hasan Government Medical College, Saharanpur, Uttar Pradesh, India, ²Officer in Charge, Station Health Organisation, Ministry of Defence, Armed Forces Medical Sciences, Roorkee, Uttarakhand, India, ³Department of Community Medicine, Heritage Institute of Medical Sciences, Varanasi, Uttar Pradesh, India, ⁴Department of Community Medicine, Armed Forces Medical College, Pune, Maharashtra, India

Correspondence to: Rajeev Kumar, E-mail: dr.rajeevkumar1983@gmail.com

Received: January 13, 2020; Accepted: February 08, 2020

ABSTRACT


Background: High levels of stress and psychological morbidity occur in health-care professional students. **Objective:** The objective of this study was to estimate psychological well-being, perceived stress level, and coping abilities among medical and paramedical students. **Materials and Methods:** A cross-sectional analytical study carried out in a tertiary care hospital, West Uttar Pradesh, India. The total study period was from September 2019 to November 2019 with a sample of 145 medical students aged 17–25 years and 81 paramedical students aged 19–33 years. Ethical clearance was obtained from the College Ethical Committee. We used self-administered, three different types of validated tools for data collection. Data were analyzed using SPSS Version 20. **Results:** The median age of paramedical and medical trainees was 22 and 21 years, respectively. Family history of mental illness was 21% and 5.5%, respectively. On general health questionnaire-12 scale, 9% of paramedical trainees reported evidence of distress and 91% of severe problem and psychological distress while 19% of medical trainees having evidence of distress and 81% of severe problem and psychological distress. On perceived stress scale-10 (PSS-10) scale, 15% of paramedical trainees reported average level, 27% moderate level, and 55% high level of perceived stress while 2% of medical trainees having average, 19% moderate level, and 79% high level of perceived stress, respectively. The difference in mean score on PSS-10 and Brief COPE scale between paramedics and medical trainees group was found statistically significant ($P < 0.05$). **Conclusion:** We concluded the higher level of severe problem and psychological distress in the paramedical and high level of perceived stress in medical trainees. Paramedical trainees practice a better coping mechanism than medical trainees.

KEY WORDS: Coping Abilities; Medical/Paramedical Trainee; Stress; West Uttar Pradesh

INTRODUCTION

Stress is a response to any event which is perceived to alter or threaten our well-being and is a cognitive (thought)

process, the body's reaction to change that requires physical, mental, or emotional response.^[1] Despite the current efforts in changing medical curricula, the pattern and design of the Indian medical education system and examination is stressful.^[2] Apart from the examination, the daily routine of a medical student is extremely busy and involves first-hand exposure to pain suffering for the 1st time in the majority of them.^[3] Studies suggest that high levels of stress and psychological morbidity occur in health-care professional students.^[4] Graduate medical studies are considered one of the most stressful professional courses.^[5,6] High expectations from self and family members coupled with the training for

Access this article online	
Website: http://www.ijmsph.com	Quick Response code
DOI: 10.5455/ijmsph.2020.02024202008022020	

International Journal of Medical Science and Public Health Online 2020. © 2020 Rajeev Kumar, *et al.* This is an Open Access article distributed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), allowing third parties to copy and redistribute the material in any medium or format and to remix, transform, and build upon the material for any purpose, even commercially, provided the original work is properly cited and states its license.

assuming responsibility for the well-being of the patient, make a medical student prone to experience stress, which may become excessive.^[7] Moreover, medical students with their heavy academic commitment are often not able to spare reasonable time for hobbies entertainment and relaxing pursuits as compared to their peers in other professions.^[8] The accumulating stress is likely to have several deleterious effects on medical students, including academic jeopardy and poor quality of life.^[9] Considerable research has investigated stressors and psychological morbidity in medical, dental, nursing, and physiotherapy student.^[10-15] However, few studies have been undertaken in the paramedical trainees, especially health assistants and health technicians and compared with the stress level among medical trainees in Indian settings. Too much stress pooled with other psychological factors can be damaging and can disrupt normal functioning of the students. It may further lead to physical and psychological complications and morbidity. The subjective experience of stressors in students can lead to poor quality of life, condensed self-esteem resulting in lower self-confidence, compromised ability to cope with daily life problems and may influence student's academic performance.^[16,17] Stress may foster anxiety, substance abuse, burnouts leading to abandonment of studies, depression, and even suicidal ideation.^[18]

A major difference between those who feel stress and those who do not is not necessarily the presence or absence of stress, but the ability to recognize and manage it.^[19] Coping is the process of using emotional, cognitive, and/or behavioral strategies to manage one's stress to reduce its potential harmful impact on psychological adjustment.^[20] Coping styles are associated with psychological distress in a number of different populations. Hence, the present study was done with the objective to estimate psychological well-being, perceived stress level, and coping abilities among medical and paramedical students.

MATERIALS AND METHODS

This was a cross-sectional analytical study carried out in a tertiary care hospital, West Uttar Pradesh, India. The reference population were all the medical and paramedical trainees getting trained in the tertiary care hospital. Data collection was done for 3 months (September 2019–November 2019). This time period of the study was decided as it was the academic year for medical and paramedical students when they were not burdened for any particular stressors such as examination performance, attendance, and lack of recreational activities. The study population consisted of medical and paramedical trainees getting trained in tertiary care hospital derived from the reference population. The sample was collected using simple random sampling. Each batch was instructed before the purpose and objective of the study and asked to gather at a predefined place on predefined time and day. Day, time, and place were decided as there would be no disturbance

in academic and out of academic activities after discussing with students and concerned authorities. A self-administered questionnaire which was pre- and pilot-tested was used which included general health questionnaire-12 (GHQ-12), perceived stress scale-10 (PSS-10), and Brief COPE. Before filling the questionnaire, each question was explained to students so that they could understand the questionnaire completely and could answer properly. A single observer demonstrated the questionnaire to all batches. The Institutional Ethical Clearance was obtained from the College Ethical Committee. Consent was taken from the study subjects before the distribution of the questionnaire and scales. A total of 145 medical students and 81 paramedical trainees were included in the study. The sample size calculation was done using the assumed prevalence of stress in 25% and 80% of medical and paramedical students, respectively.

Inclusion Criteria

All medical and paramedical trainees getting trained for more than 1 year and not facing examination within 30 days of the beginning of the study, who gave consent to participate were included in the study.

Exclusion Criteria

Medical and paramedical trainees of tertiary care hospital were excluded from the study.

- Any h/o psychiatric or chronic medical illnesses
- Fresh trainees (<12 months)
- Trainees facing examinations in the next 1 month.

Data were analyzed using SPSS 20.

RESULTS

A total of 81 paramedical trainees, median age was 22 years, all male, 88% (71/81) educated up to 12th standard and 12% (10/81) graduated, 53% (43/81) from urban background, 83% (67/81) Hindu by religion, and 21% (17/81) gave a history of mental illness in the family and total of 145 medical trainees, median age was 21 years, 56% (81/145) female, 99% (143/145) educated up to 12th standard and 1% (2/145) graduated, 59% (85/145) from rural background, 97% (140/145) Hindu by religion, and 5.5% (8/145) gave a history of mental illness in the family [Table 1].

On GHQ-12 scale, a total 81 paramedical trainees 9% (7/81) having evidence of distress and 91% (74/81) severe problem and psychological distress and a total 145 medical trainees 19% (27/145) having evidence of distress and 81% (118/145) having severe problem and psychological distress. On PSS-10 scale, a total of 81 paramedical trainees 15% (18/81) reported average level of perceived stress, 27% (22/81) moderate level of perceived stress, and 55% (44/81) high level of perceived

stress and 145 medical trainees 2% (3/145) having average level of perceived stress, 19% (27/145) moderate level of perceived stress, and 79% (115/145) high level of perceived stress [Table 2].

The difference in mean score on PSS-10 scale between paramedics and medical trainees group was found highly statistically significant ($P = 0.000$) [Table 3].

We found mean score of adaptive mechanism of coping on Brief COPE scale among medical and paramedical trainees 43.1 (standard deviation [SD] = 7.2) and 43.1(SD = 7.1), respectively. The 95% confidence interval 1.9–1.9 and the difference of adaptive coping mechanisms among paramedical and medical groups were not found significant. We found mean score of maladaptive mechanism of coping on Brief COPE scale among medical and paramedical trainees 26.2 (SD = 5.4) and 24.1(SD = 4.4), respectively. The 95% confidence interval 0.7–3.4 and the difference of adaptive coping mechanisms among paramedical and medical groups were found statistically significant ($P < 0.05$) [Table 4].

DISCUSSION

The present study estimated the higher prevalence of severe problem and psychological distress and average to moderate level of perceived stress level among paramedical trainees as compared to medical trainees. The difference in the level of perceived stress between paramedical and medical trainees was found statistically significant ($P < 0.05$) on PSS-10 scale. We found a difference in adaptive and maladaptive mechanism of coping among both paramedical and medical students statistically significant ($P < 0.05$). The difference in

maladaptive coping mechanism between paramedical and medical students was statistically significant ($P < 0.05$).

Indian medical education and training render a significant amount of stress to the students.^[21] There is growing evidence of increased prevalence of psychological problems and burnout among medical profession all over the world.^[22] Indian medical and paramedical students are expected to learn and master a huge amount of knowledge, attitudes, and skills, for which they have to work hard which, in turn, puts them under a lot of stress in day-to-day activity. Stress affects more than half of the students of medical courses, though there was a marked variation in the reported rates of depression and stress across the studies. Female students were more likely to be affected by depression and stress as compared to male students.^[2] The present study also showed that the proportion of female medical trainees having a high perceived stress level as compared to male medical trainees but with the contrast that stress was not found to differ significantly on the basis of sex as reported by Supe.^[21] In a study, based on stress among physiotherapy students conducted by Sabih *et al.* highlighted the higher level of stress in undergraduate physiotherapy students (paramedical students);^[23] and we also found similar result in present study that most of undergraduate paramedical trainees having severe problem and psychological distress based on GHQ-12 scale and average to moderate level of perceived stress based on PSS-10 scales. Our study revealed that the medical trainee group has evidence of distress on GHQ-12 scale and most of the trainees having a high level of perceived stress on the PSS scale as compared to approximately half of the students by studies conducted at Bareilly and Surat.^[24,25] The experience of academic stress and adolescent distress has been identified and explored by researchers in Korea and Japan. They concluded that academic stress has a high prevalence and is manifested in a variety of psychological and behavioral problems.^[26] In a cross-sectional study by Jayanthi *et al.*, in Tamil Nadu, using

Table 1: Comparative distribution of demographic characteristics among paramedical and medical trainees

Demographic characteristics	Paramedical trainees (n=81) (n) (%)	Medical trainees (n=145) (n) (%)
Median age (Range)	22 (19–33)	21 (17–25)
Gender		
Male	81 (100)	64 (44)
Female	0 (0)	81 (56)
Education		
Up to 12 th std.	71 (88)	143 (99)
Graduation	10 (12)	2 (01)
Background		
Urban	43 (53)	60 (41)
Rural	38 (47)	85 (59)
Religion		
Hindu	67 (83)	140 (97)
Others	14 (17)	5 (3)
Family history of any mental illness	17 (21)	8 (5.5)

Table 2: Comparative distribution of GHQ-12 and PSS-10 score among paramedical and medical trainees

GHQ-12 score	Paramedical trainees (n=81) (n) (%)	Medical trainees (n=145) (i) (%)
0–11 (no evidence of distress)	Nil	Nil
12–20 (evidence of distress)	7 (9)	27 (19)
>20 (severe problem and psychological distress)	74 (91)	118 (81)
PSS-10 score		
0–13 (average stress level)	15 (18)	3 (2)
14–19 (moderate stress level)	22 (27)	27 (19)
≥20 (high stress level)	44 (55)	115 (79)

GHQ: General health questionnaire, PSS: Perceived stress scale

Table 3: Comparative analysis of scores among paramedical and medical trainees

Scales	Groups	Number of students	Total score (Mean±SD)	Range	P value	95% CI
GHQ	Paramedics	81	26±4	17–38	0.072	–0.09–2.09
	Medics	145	25±4	17–39		
PSS	Paramedics	81	19±7.5	01–48	0.000	–4.5 to–1.4
	Medics	145	22±4	11–36		
Brief COPE	Paramedics	81	69±10	49–93	0.442	–1.56–3.56
	Medics	145	68±09	38–88		

SD: Standard deviation, CI: Confident interval, GHQ: General health questionnaire, PSS: Perceived stress scale

Table 4: Comparative analysis of coping mechanism among paramedical and medical trainees

Scale	Groups	Type of coping	Mean±SD	Range	95% CI	P value
Brief cope	Adaptive	Paramedical trainee	43.1±7.2	29–56	–1.9–1.9	1
		Medical trainee	43.1±7.1	24–59		
	Malaadaptive	Paramedical trainee	26.2±5.4	14–40	0.7–3.4	0.0018
		Medical trainee	24.1±4.4	14–40		

SD: Standard deviation, CI: Confident interval

the Modified Educational Stress Scale for Adolescents, it was reported that academic stress was that the most prevalent stressor and adolescents who had academic stress were at 2.4 times higher risk of depression.^[27] Common stressors in adolescents were related to financial and academic factors. Stressors were different in males and females. The presence of stress was significantly associated with male gender, type of family, and family income.^[28] The present study estimates the higher prevalence of evidence of distress among medical trainees as compared to paramedical trainees on GHQ-12 scale and high perceived stress level on PSS-10 scales. The rate of the usage of faulty coping techniques was found high among paramedical students contrary to the present study.^[29]

Limitations

The present study was non-blinded. The sample size of the study was small due to the constraint of time and resources. This study did not assess the risk factors or stressors due to logistic constrain.

CONCLUSION

We concluded the higher level of severe problem and psychological distress in the paramedical and high level of perceived stress in medical trainees. Paramedical trainees practice a better coping mechanism than medical trainees.

REFERENCES

- Selye H. The Stresses of Life. New York: MC Graw Hil; 1956. p. 523-67.
- Dehaan RL, Venkatnarayan KM. Education for Innovation. Rotterdam: Sense Publishers; 2008. p. 13-4.
- Sarkar S, Gupta R, Menon V. A systematic review of depression, anxiety, and stress among medical students in India. *J Ment Health Hum Behav* 2017;22:88-96.
- Omigbodun OO, Odukogbe AT, Omigbodun AO, Yusuf OB, Bella TT, Olayemi O. Stressors and psychological symptoms in students of medicine and allied health professions in Nigeria. *Soc Psychiatry Psychiatr Epidemiol* 2006;41:415-21.
- Guthrie EA, Black D, Shaw CM, Hamilton J, Creed FH, Tomenson B. Embarking upon a medical career: Psychological morbidity in first year medical students. *Med Educ* 1995;29:337-41.
- Radcliffe C, Lester H. Perceived stress during undergraduate medical training: A qualitative study. *Med Educ* 2003;37:32-8.
- Sood R. Medical education in India. *Med Teach* 2008;30:585-91.
- Dyrbye LN, Thomas MR, Shanafelt TD. Medical student distress: Causes, consequences, and proposed solutions. *Mayo Clin Proc* 2005;80:1613-22.
- Paro HB, Morales NM, Silva CH, Rezende CH, Pinto RM, Morales RR, *et al.* Health-related quality of life of medical students. *Med Educ* 2010;44:227-35.
- Varsha C, Deepak U, Shailendra S, Arun S, Shanker JH, Rashmi K. A cross sectional study to assess perceived stress and stressors associated with it among undergraduate medical students in a private medical college of Uttar Pradesh, India. *Int J Community Med Public Health* 2016;3:1752-8.
- Dahlin M, Joneborg N, Runeson B. Stress and depression among medical students: A cross-sectional study. *Med Educ* 2005;39:594-604.
- Sherina MS, Rampal L, Kaneson N. Psychological stress among undergraduate medical students. *Med J Malaysia* 2004;59:207-11.
- Polychronopoulou A, Divaris K. Perceived sources of stress among Greek dental students. *J Dent Educ* 2005;69:687-92.
- Rajab LD. Perceived sources of stress among dental students at the University of Jordan. *J Dent Educ* 2001;65:232-41.
- Sharma B, Wavare R. Academic stress due to depression among medical and para-medical students in an Indian medical college: Health initiatives cross sectional study. *J Health Sci* 2013;3:29-38.
- Silver HK, Glick AD. Medical student abuse. Incidence, severity, and significance. *JAMA* 1990;263:527-32.

17. Niemi PM, Vainiomaki PT. Medical students\academic distress, coping and achievement strategies during thepre-clinical years. *Teach Learn Med* 1999;11:125-34.
18. Nandi M, Hazra A, Sarkar S, Mondal R, Ghosal MK. Stress and its risk factors in medical students: An observational study from a medical college in India. *Indian J Med Sci* 2012;66:1-2.
19. Chaudhury S, Srivastava K, Raju MS, Salujha SK. A life events scale for armed forces personnel. *Indian J Psychiatry* 2006;48:165-76.
20. Folkman S. *Stress, Appraisal, and Coping*. New York: Springer Publishing Company LLC; 1984.
21. Supe AN. A study of stress in medical students at Seth G.S. Medical College. *J Postgrad Med* 1998;44:1-6.
22. Grover S, Sahoo S, Bhalla A, Avasthi A. Psychological problems and burnout among medical professionals of a tertiary care hospital of North India: A cross-sectional study. *Indian J Psychiatry* 2018;60:175-88.
23. Sabih F, Siddiqui FR, Baber MN. Assessment of stress among physiotherapy students at Riphah Centre of rehabilitation sciences. *J Pak Med Assoc* 2013;63:346-9.
24. Forces A, College M, Medicine C. Psychosocial determinants of stress among adolescents in an urban slum in a city of Western Maharashtra: Across-sectional study. *Int J Adolesc Med Health* 2019;2019:20182139.
25. Solanki P, Desai B, Kavishwar A, Kantharia SL. Study of psychological stress among undergraduate medical students of Government Medical College Surat. *Int J Med Sci Public Health* 2012;1:38-42.
26. Lee M, Larson RW. The Korean examination hell: Long hours of studying, distress, and depression. *J Youth Adolescence* 2000;29:249-72.
27. Jayanthi P, Thirunavukarasu M, Rajkumar R. Academic stress and depression among adolescents: A cross-sectional study. *Indian Pediatr* 2015;52:217-9.
28. Aishwarya CS, Samanta I, Dudeja P. Psychosocial determinants of stress among adolescents in an urban slum in a city of Western Maharashtra: A cross-sectional study. *Int J Adolesc Med Health* 2019;pii:/ijamh.ahead-of-print/ijamh-2018-0139/ijamh-2018-0139.xml.
29. Deshpande SR, Vaishampayan NR, Bevinamarad SB, Patil SR. Assessment of prevalence and awareness regarding premenstrual syndrome and its coping techniques among the paramedical students – A research study. *Int J Med Sci Public Health* 2019;8:893-6.

How to cite this article: Kumar R, Maurya A, Singh DK, Dudeja P. Assessment of well-being and coping abilities among medical and paramedical trainees, in a Government Medical College, West Uttar Pradesh, India. *Int J Med Sci Public Health* 2020;9(3):229-233.

Source of Support: Nil, **Conflicts of Interest:** None declared.