Original Research

Investigating Stress Factors In Medical Students Of Jahrom University Of Medical Sciences: A Cross-Sectional Descriptive Study In 2022

Mahsa Keshavarz[1], Samaneh Abiri[2], Sanaz Rezaeian[1], Navid Kalani[2*]

1. Student Research Committee, Jahrom University of medical sciences, Jahrom, Iran
2. Research Center for Social Determinants of Health, Jahrom University of Medical Sciences, Jahrom, Iran

***Corresponding Author: Navid Kalani**. Research Center for Social Determinants of Health, Jahrom University of Medical Sciences, Jahrom, Iran. E-mail: navidkalani@ymail.com. Orcid:

Abstract:

Background:

Medical students experience high stress during their studies. High levels of stress may negatively affect cognitive performance and learning in medical school students. Therefore, the purpose of this study is to investigate stress factors in medical students of Jahrom University of Medical Sciences: a cross-sectional descriptive study in 2022.

Methods:

This is a cross-sectional descriptive study that was conducted on 100 medical students of Jahrom University of Medical Sciences in 2022. The tools of data collection in this study are two demographic information questionnaires and clinical stress factors questionnaire. Demographic information questionnaire includes: age, gender, academic semester and duration of internships. In order to evaluate the stress factors of the clinical environment, the Kack & Kleehammer questionnaire of the stress factors of the clinical environment was used.

Results:

The average tension of students was 2.20±0.66. The stress level of more than half of the students was at an average level (51%). The stress level was severe in 11% of medical students. Also, tension in female students was significantly higher than male students (P=0.032). Among the stress factors, "the high amount of material to be learned was reported as the highest stress factor for students.

Conclusion:

According to the results of this study, which showed that the highest level of stress-causing factors in medical students were related to academic issues, this area needs serious attention and planning to reduce the level of stress-causing factors.

Keywords: Stress factors, Medical students, Clinical Environment

Submitted: 02 September 2022, Revised: 15 October 2022 , Accepted: 14 November 2022

Introduction

Medical students experience high stress during their studies (1). A high level of stress may have a negative effect on the cognitive performance and learning of medical school students (2). The results of studies show that mental health worsens after the start of the medical course and remains poor during the training period (1). Most of the studies on stress in medical education focus on documenting stress and information on the correlates of stress (3). In many medical schools, the environment provided by the authoritarian and rigid system creates a stressful situation in itself, a system that encourages competition rather than cooperation among learners (4). It is not only the undergraduate course that brings stress, but it may continue during the internship, the postgraduate course and later in the practitioner's practical life (5). Stress may also reach burnout levels (6). Medical science fields create a stressful situation for students who study in these fields (7). These alarming conditions show that medical students are under a lot of mental pressure and stress during their studies. Long-term exposure to psychological pressures and tensions has negative effects on the emotional, mental and physical health of students (8). This severe mental tension can lead to interpersonal conflicts, sleep disorders, poor academic and clinical performance. It can also cause attention and concentration disorders, errors in decision-making, and reduce the ability to communicate well with patients, followed by a feeling of inadequacy and dissatisfaction in the clinical performance of the student in the future (9). Even this problem can be related to suicide, drug abuse and alcohol consumption (10-11). In various studies, it has been concluded that psychological problems caused by stressful factors with the demands of the university during the education period (12); Like tests and exams, the stress caused by the lack of time is related to the large volume of subjects that must be read (13). Early diagnosis of potential stressors helps to design appropriate interventions to improve the mental health of students. Therefore, the purpose of this study is to investigate stress factors in medical students of Jahrom University of Medical Sciences.

Method

This is a cross-sectional descriptive study that was conducted on 100 medical students of Jahrom University of Medical Sciences in 2022. Inclusion criteria include; Medical students who are in Externs and Interns and the criteria for excluded the study include; it was the non-cooperation of the students and incomplete filling of the questionnaires.

The tools of data collection in this study are two demographic information questionnaires and clinical stress factors questionnaire. Demographic information questionnaire includes: age, gender, academic semester and duration of internships. In order to evaluate the stress factors of the clinical environment, the Kack & Kleehammer questionnaire of the stress factors of the clinical environment was used. This questionnaire contains 16 questions. The reliability of this questionnaire was first reported by Yaqoubian in 2005 using the test-retest method (r=82%). Questions related to the stressors of the clinical environment based on a 5-point scale (strongly agree that it is highly anxiety-provoking 5 points, agree that it is anxiety-provoking 4 points, moderately anxiety-provoking 3 points, disagree and not anxiety-provoking 2 points, and strongly disagree and it is not anxiety-inducing, 1 point), was scored. The minimum score is 16 and the maximum score is 80. A score between 16 and 26 is low, a score between 26 and 53 is moderate, and a score above 53 is high (14). Due to the short questionnaire, all medical students were asked to complete the questionnaire in the clinical environment. It should be mentioned that it was explained to all of them that if they don't want to, they can

submit the questionnaire blank and there is no need to write down their characteristics and their names. Data analysis was done using spss software version 21 and using descriptive and inferential statistical tests, at a significance level of $p<0.05$.

Results

The results showed that 100 medical students (internal, external) participated in the study. 68% of them were girls and the rest were boys. Their average age was 25.31 ± 1.11 and ranged from 24 to 27.

The average tension of the students was 2.20±0.66. The stress level of more than half of the students was at an average level (51%). The stress level was severe in 11% of medical students.

Also, tension in female students (2.30±0.66) was significantly higher than male students (1.99±0.63) ($p=0.032$, $t=18.2$).

Among the stress-causing factors, "high amount of material to be learned" (2.99±1.07) was reported as the highest stress factor among students. Talking with patients about personal problems (1/16/08±1) had the least effect on the tension of medical students of Jahrom University of Medical Sciences. The average of other stress factors in medical students of Jahrom University of Medical Sciences is shown in Table 1.

Discussion

Personal or environmental events that can cause tension in us are called stressors. Managing stressful situations is very vital and important for maintaining optimal performance in the field of medicine and for medical students. However, few researches have investigated the stress factors in medical students and the influencing factors.

The results of the present study showed that the average stress of the medical students included in the study was 2.20±0.66. The stress level of more than half of the students was at an average level (51%) and the stress level was severe in 11% of the medical students.

The study of Nader (15) who investigated the stress factors in medical students in Mashhad showed that 49% of the students have severe stress levels, which is contradictory and much higher than our study and the results obtained. Since the city of Mashhad has a much higher population than the city of Jahrom, the number of patients referred to the hospitals of this city is also higher. The reason for this discrepancy can be the higher workload of hospitals in Mashhad compared to Jahrom, which increases the workload of students and increases their stress level.

The results of the study by Bolharis (16) also showed that the amount of severe stress in medical students of the University of Iran was 24.8%, the amount of mild stress was 44.1% and the amount of moderate stress was 31.1%, which compared to our study, the amount of severe stress is higher. They can be like the city of Mashhad due to the increased workload of students and the stress caused by the higher costs of living in bigger cities.

The results of the study of Stewart (17) showed that the level of severe stress in medical students in Hong Kong was very low, which was contradictory to the results of our study, and the reason for this contradiction could the better socioeconomic conditions of the students studying. In this city compared to Jahrom city, and also more facilities and more advanced diagnostic and treatment tools in this city can be one of the reasons for reducing the stress level in these students.

The results of our study showed that the level of stress in female students is higher than that of males, which was consistent with the results of the study of Nader (15) and the study of Bolharis (16), as well as with the results of the study of Alsaggaf (18) who investigated the level of stress in medical students in Saudi Arabia were also consistent, which can confirm that women are more vulnerable in this field

and need more support. In this regard, the results of the study by Ahangarzadeh Rezaei (19) which was conducted in 2013 also showed that the amount of stress was higher in females, which is due to the difference in psychology and the lower level of tolerance of girls in dealing with stressful situations.

The results of the present study showed that among the stress factors, "high amount of material to be learned" as the highest stress factor for students and talking with patients about personal problems had the least effect on the stress of medical students of Jahrom University of Medical Sciences.

Bakhshi (20) in their study investigated stress factors in students of Rafsanjan University of Medical Sciences. The results of this study showed that the most stress perceived by the students is related to the amount and quality and difficulty of the course material due to the time limit, which is consistent with the results of the present study. Since the medical education system is the same everywhere in Iran and a large amount of material is taught and tested to students in a short period of time, it causes this stress in medical students everywhere in Iran.

The results of the study by Yazdankhah Fard (21) who investigated the stress factors in students of various fields in Bushehr University of Medical Sciences in 2009 showed that the high volume of educational materials was in the second place and humiliating experiences were in the first place. It is not consistent with the results of the present study. This inconsistency in the results obtained from this study and the present study can be caused by cultural differences between Jahrom and Bushehr communities, as well as the different conditions of the educational environment and the interaction between staff and students.

In the study of Nader (15), interpersonal stressors after stressors related to academic issues (high volume of educational materials) caused the highest amount of stress in students, which is consistent with the results of the present study and with the results of It is contradictory to the study of hangarzadeh Rezaei (19) which showed that interpersonal stressors had the lowest amount of stress. This difference can be due to the fact that in the study of hangarzadeh Rezaei, students were studied from all levels of education, but in the present study and the study of Mehdi Nader and his colleagues, clinical students were studied, which can justify this difference in the results of this study.

Nazari et al.'s study (22) in Sanandaj University of Medical Sciences also showed that the lack of proper communication between staff and students had the greatest impact on stress in students, which is contradictory to the results of the present study and to the results of Abazari et al.'s study (23) was consistent. The difference in the behavior of personnel in different cities, as well as the difference in the amount of verbal and behavioral violence in the different cities under study, can be the reason for this contradiction.

The results of the present study showed that after the large amount of material to be learned, 1) lack of time to review the material learned, 2) heavy workload, 3) falling behind the study program, 4) tests/exams,5) conflict. with professors, 6) verbal or physical violence by professors, 7) lack of knowledge to do work, 8) need to do things properly and correctly (being under pressure from others) and 9) facing illness or death of patients the most It has had the effect of creating stress and tension in the medical students of Jahrom in the internal and external stages.

The results of the study by Jeyhani (24) showed that "emotional and emotional problems, educational and academic affairs, related to marital issues, marriage, occupational, welfare and financial problems, family problems and social problems, choosing a spouse" respectively have the largest share in have caused stress among medical students of

Tehran Azad University, which is contradictory to the results of our study. The reason for this discrepancy can be due to the difference in the approach of the educational system of Tehran Azad University and Jahrom University of Medical Sciences, which causes more sensitivity. In the students of Jahrom Medical Sciences, academic issues should be more important in Jahrom University of Medical Sciences.

In the present study, talking with patients about personal problems was the least stressful for medical students, followed by parents' wishes for you to study medicine, participation in class presentations, unwillingness to study medicine, lack of desire to study medicine. Receiving sufficient feedback from professors had the least impact on students' stress.

The study of Jeyhani (24) showed that the lowest amount of stress was caused by unexpected events such as natural disasters and various accidents, followed by characteristics, behavioral habits and health issues, which is different from the results of our study, as It was said that in our study, social and family issues such as parents' desire to study medicine and talking with patients about personal problems did not have a significant effect on increasing stress, but in Jeihani et al.'s study, these issues, along with marital and emotional issues, were among the top causes of stress. and academic issues, unlike our study, had a lower value, which could be due to the different views of the people who entered the study, people who live in large cities and more populated centers are usually involved in more social and economic issues than people who live in smaller and less populated cities, therefore these people are more affected by the surrounding environment and suffer more stress from these issues.

The results of Izadpanah's study (25), which examined the stress factors in nursing and midwifery students in the clinical environment, showed that in the clinical environment, the students were the most concerned about caring for dying people and seeing wounds and performing dressings, and academic issues. Due to exams and the volume of educational materials, they suffer the least stress. Since the educational and academic materials of nursing and midwifery fields are smaller and most of these fields focus on practical activities and in clinical environments, therefore these results are justified.

The results of the study by Bolhari et al, (16) also showed that the fear of not being accepted in the exams and inappropriate behavior of the professors are also the main causes of stress in medical students, which is consistent with the results of the present study which showed that academic issues are the most important. it is contrary to the results that showed that the teachers' treatment and the violence caused by them are less important than academic issues, which can be caused by the different educational environment in the studied places.

The study of Moutinho et al, (26) showed that 47.1% of medical students suffer from severe stress and the most stressful factor in these students was the same as in the present study, academic issues and the volume of courses studied, which due to the high volume of educational materials in the field Medicine must be learned can be explained, in this study, the stress caused by exams and the confrontation of professors and the violence of professors and staff were less than in our study, which can be due to the adaptation of the educational system of Brazil to the procedure of taking exams and creating an educational environment with tension be lower

The study by Forney et al, (27) showed that more than half of the 937 medical students included in the study suffered from severe stress, which was the most important factor related to academic and educational issues, followed by talking to patients and giving news. Bad and lack of knowledge to do the work was that the amount of stress caused by talking with patients and giving bad news and

lack of knowledge to do the work in this study was more than the current study, which could be due to the cultural and social differences of the studied places. .

Conclusion

According to the results of this study, which showed that the highest level of stress-causing factors in medical students were related to academic issues, this area needs serious attention and planning to reduce the level of stress-causing factors and as a result The performance of clinical students should be improved, therefore it is very important to conduct interventional clinical studies to reduce these stressful factors.

References:

1. Rosal MC, Ockene IS, Ockene JK, Barrett SV, Ma Y, Hebert JR. A longitudinal study of students' depression at one medical school. Academic medicine: journal of the Association of American Medical Colleges. 1997;72(6):542-6.
2. Dahlin M, Joneborg N, Runeson B. Stress and depression among medical students: a cross-sectional study. Medical education. 2005;39(6):594-604.
3. Wilkinson TJ, Gill DJ, Fitzjohn J, Palmer CL, Mulder RT. The impact on students of adverse experiences during medical school. Medical teacher. 2006;28(2):129-35.
4. Styles WM. Stress in undergraduate medical education: 'the mask of relaxed brilliance'. The British journal of general practice: the journal of the Royal College of General Practitioners. 1993;43(367):46-7.
5. Firth-Cozens J. Emotional distress in junior house officers. British medical journal (Clinical research ed). 1987;295(6597):533-6.
6. Willcock SM, Daly MG, Tennant CC, Allard BJ. Burnout and psychiatric morbidity in new medical graduates. The Medical journal of Australia. 2004;181(7):357-60.
7. Yusoff MS, Abdul Rahim AF, Baba AA, Ismail SB, Mat Pa MN, Esa AR. The impact of medical education on psychological health of students: a cohort study. Psychology, health & medicine. 2013;18(4):420-30.
8. Dyrbye LN, Thomas MR, Shanafelt TD. Medical student distress: causes, consequences, and proposed solutions. Mayo Clinic proceedings. 2005;80(12):1613-22.
9. Dyrbye LN, Thomas MR, Massie FS, Power DV, Eacker A, Harper W, et al. Burnout and suicidal ideation among U.S. medical students. Annals of internal medicine. 2008;149(5):334-41.
10. Dyrbye LN, Thomas MR, Shanafelt TD. Systematic review of depression, anxiety, and other indicators of psychological distress among U.S. and Canadian medical students. Academic medicine: journal of the Association of American Medical Colleges. 2006;81(4):354-73.
11. Akvardar Y, Demiral Y, Ergor G, Ergor A. Substance use among medical students and physicians in a medical school in Turkey. Social psychiatry and psychiatric epidemiology. 2004;39(6):502-6.
12. Yusoff MSB, Esa AR, editors. Stress Management for Medical Students: A Systematic Review2012.
13. Yusoff MS, Abdul Rahim AF, Yaacob MJ. Prevalence and Sources of Stress among Universiti Sains Malaysia Medical Students. The Malaysian journal of medical sciences : MJMS. 2010;17(1):30-7.
14. Moridi M, Ozgoli G, Kariman N, Ebadi A. Validity and Reliability of the Persian Version of Medical Student Stressor Questionnaire. Iranian Journal of Medical Education. 2018; 18 :474-486.
15. Nader M, Yousefi M, Khadem-Rezaiyan M. The Study on the Prevalence of Stressful

Factors among Medical Students of Mashhad University of Medical Sciences in 2020. jmed. 2022; 16 (4) :244-256

16. Bolhari J, Ehsanmanesh M, . Karimi Kaisami E. Relationship between the stressors, stress symptoms, and reliance on God (Tavakkol) in Medical students. IJPCP. 2000; 6 (1) :20-25
17. Stewart SM, Betson C, Marshall I, Wong CM, Lee PW, Lam TH. Stress and vulnerability in medical students. Med Educ. 1995 Mar;29(2):119-27.
18. Alsaggaf MA, Wali SO, Merdad RA, Merdad LA. Sleep quantity, quality, and insomnia symptoms of medical students during clinical years: relationship with stress and academic performance. Saudi medical journal. 2016 Feb;37(2):173.
19. Ahangarzadeh Rezaei S, Esmaeili R, Habibzadeh H. Assessment Frequency of Stressors in Clinical Education of Students in Nursing & Midwifery Faculty. Nursing and Midwifery Journal 2015; 13(1): 1 -8.
20. Bakhshi H, Mohammadi M. Investigating stress factors in students of Rafsanjan University of Medical Sciences 2001. Iranian Journal of Medical Education. 2001; 4(8): 10-25.
21. Yazdankhah Fard M, Pouladi S, Kamali F, Zahmatkeshan N, Mirzaie K, Akaberian S, et al. The Stressing Factors in Clinical Education: The Viewpoints ofStudents. Iranian Journal Medical Education 200 9; 8(2): 341 - 50.
22. Nazari R, Beheshti Z, Arzani A, Hajihossaini F, Saatsaz S, Bigzani A. Stressing factors in clinical education of Amol nursing faculty nursing student. Journal of Babol University Medical Sciences 2007 ; 9(2): 45 -50.
23. Abazeri F, Abbaszadeh A, Arab M. Stress rate and stressors in nursing students. Strides in Development of Medical Education 2003; 1(1): 23 -31.
24. Jeyhani N, Akbarzadeh B, Hasanmoradi N, Sahebalzamani M. Comparative study of stressors in medical and non-medical students of Tehran Islamic Azad University. MEDICAL SCIENCES. 2021; 31 (4) :442-449
25. Izadpanah AM, Tabiee SH, Sharifzadeh GHR. Comparison of stress factors in second year and final year nursing students of Birjand University of Medical Sciences. Journal of modern care. 2011; 8(4): 221-229.
26. Moutinho IL, Maddalena ND, Roland RK, Lucchetti AL, Tibiriçá SH, Ezequiel OD, Lucchetti G. Depression, stress and anxiety in medical students: A cross-sectional comparison between students from different semesters. Revista da Associação Médica Brasileira. 2017;63:21-8.
27. Forney MA, Forney PD, Sheets K, Sitorius M, RIXEY S, McGINTY DE, SMITH S, YATES ML. The relationship between stress and substance use among first-year medical students: An exploratory investigation. Journal of Alcohol and Drug Education. 1990 Apr 1:54-65.

Tables

Table 1: Average stress factors in medical students of Jahrom University of Medical Sciences

Questionnaire items	**Mean±SD**
Tests / Exams	2.64±1.09
Fall behind the study schedule	2.69±1.20
A large amount of material to be learned	2.99±1.07
Lack of time to review learned material	2.89±1.11
Heavy workload	2.71±1.15
Participating in classroom presentations	1.65±1.22
The need to do things properly and correctly (being under pressure from others)	2.19±1.10
A feeling of inadequacy	2.02±1.39
Inability to answer patients' questions	2±1.14
Talking to patients about personal problems*	1.08±1.16
Dealing with illness or death of patients*	2.13±1.34
Verbal or physical violence by other students	1.88±1.25
Verbal or physical violence by teachers	2.55±1.26
Verbal or physical violence by employees	2.07±1.27
Conflict with professors	2.82±1.24
Reluctance to study medicine	1.83±1.44
Parents wish for your medical education	1.47±1.34
Not getting enough feedback from professors	1.91±1.25
The ambiguity of what is expected of me	2.05±1.23
Lack of recognition to do the work	2.44±1.09
Average total tension of students	2.20±0.66