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Comparison of level of stress among medical students of private and government medical college in Pakistan

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Original Article

Comparison of level of stress among medical students of private and government medical college in Pakistan

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Abstract

Background: The medical profession is considered one of the most stressful professions owing to its never ending pressures, critical decisions and hectic working hours. Medical education is no exception either and published medical literature documents a considerable amount of stress in medical students across the globe. Furthermore, researches also claim that medical students experience more stress than non-medical students and the sources of stress stem from all the three spheres of life, i.e., academic, financial and social. **Subjects and Methods:** It is a descriptive cross-sectional study which was conducted at Rawalpindi Medical University and Foundation University Medical College. 300 medical students were included in the study population by simple random sampling. 150 medical students were recruited from each college (30 students from each class). A structured questionnaire was filled by the medical students. The level of stress in medical students was measured by using Kessler stress scale. The data was analyzed by using SPSS version 22.0. **Results:** This study established overall stress in 42% of the students of which 45.2% were mildly stressed, 34% moderately stressed and 20.6% were severely stressed. Furthermore, the students of Rawalpindi Medical University (38%) were less stressed than the students of Foundation University Medical College (46%). **Conclusion:** The study documented a profound amount of stress in medical students. This calls for regular evaluation of stress in medical students followed by regular counselling sessions of stressed students. Furthermore, causes of stress need to be addressed and evaluated accordingly.

Key words: Kessler Distress Scale, medical students, stress

Introduction

Stress is a universal phenomenon that is developed via self-cognition on interaction with one's environment and is experienced by many people in various social, academic and workplace settings.[1] It can affect any individual's capabilities in the positive or the negative direction; when it improves the performance it's called "Eustress" and when it decreases it, it becomes "distress."[2] Studies have documented that medical students face a considerable amount of distress in their undergraduate training. This high amount of distress produces a negative effect on the academic performance and physical health of the students on one hand[3] and makes them more prone to mental illness, depression and substance abuse on the other.[4] Medical literature has classified the sources of stress in medical students into three broad categories; academic, social and financial. A study done in Iran identified medical curriculum, performance in examination and living in the hostel as some of the leading sources of stress in medical students[5] while a US based study concluded that financial and academic sources are the most important ones.[6]

The review of the published medical literature states a high prevalence of stress in medical students throughout the globe. A study done in Iran revealed that 66.1% medical students were under stress[7] while the University of Kebangsaan Malaysia depicted that overall prevalence of stress

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was 49% in medical students.[8] The situation in Pakistan is not much different as is evident from a study conducted in Allama Iqbal medical college, Lahore which proclaimed that 20.8% students had high level of stress, 71.6% had moderate stress and 7.6% had low stress.[9] Moreover, a study conducted in medical college of Karachi reported that 39.5% of medical students had poor sleep[10], while another done at CMH Lahore medical college sculpted that 32.7% medical students had anxiety and 10.9% had depression.[11] Furthermore, it was found that female medical students had preponderance for anxiety[9,11] whereas depression, if present, was more prevalent in male medical students.

The twin cities of Rawalpindi and Islamabad have ten medical colleges of which one is a military college, eight are private medical colleges and there only one is a government medical institute, that is, Rawalpindi Medical University (RMU) which makes both RMU and its students, highly significant. Despite this importance, the existing medical literature is grossly deficient as far as stress in medical students of RMU is concerned. So, keeping in view this need of the hour, the current study aims at assessing the level of stress in medical students of RMU and also comparing it with the stress level of medicals students of a private medical college of the area. The results generated thereby, will not only unfold the situation in both the institutions but will also be helpful in devising policies that can alleviate the level of stress in medical students and eventually improve medical education.

Objective

To compare the level of stress in medical students of Rawalpindi Medical University (Rawalpindi) and Foundation University Medical College (Rawalpindi)

Operational definition

Stress in medical students was classified into none, mild, moderate and severe by using Kessler Distress scale. The scale ranges from 10 to 50.[12]

Scale 10-19 = Likely to be well

a) Scale 20-24 = Likely to have a mild disorder
b) Scale 25-29 = Likely to have a moderate disorder
c) Scale > 30 = Likely to have a severe disorder

Materials and methods

This comparative cross-sectional study was done at Rawalpindi Medical University and Foundation University Medical College. Rawalpindi Medical University is a government university located in the heart of Rawalpindi city. It produces almost 350 doctors every year, of which, 70% are females and 30% are males. The university has three tertiary care government hospitals under its umbrella. The Foundation University Medical College is a private sector medical college located at another central point in Rawalpindi city. It is affiliated with Foundation University and has a well-equipped tertiary care hospital attached to it. This institute adds about 100 doctors to the community every year in a similar female to male ratio, i.e., 70:30.

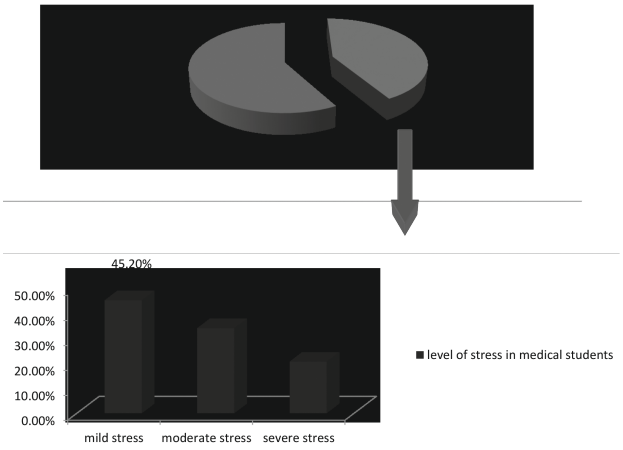
All medical students of both genders between the ages 18 to 24 years were included in the study. The final year medical students who had completed their academic year and were preparing for their final professional examination were excluded from the study. The students who were having mental ailments were also excluded from the study. Both of the institutions have a tradition of carrying out a detailed physical and mental examination of first year medical students after admission. RMU has a separate Institute of Psychiatry which is also a WHO Collaborating Center for Mental Health. A team of qualified psychiatrists assesses each student individually and any student depicting any sign of mental illness is enrolled with the institute of psychiatry and is followed up thereafter. So, the psychiatric records of students from the said institute were obtained and they were excluded. The same process was repeated in FUMC. A simple random sampling was done to collect the sample after getting the list of students from the administration department. The sample size calculation was done by using WHO calculator as follows:

Confidence interval: 95%
Anticipated population proportion: 7.6 [9]
Absolute precision required: 3
Total sample size: 300

The medical students were approached by visiting Rawalpindi Medical University and Foundation

University Medical College. The complete lists of the students were obtained from the student wing of administration departments of both the institutions. A random number generator was used to randomly select the roll numbers of the students for study. An equal number of students (150) were taken from each medical college and an equal contribution taken from each academic year (30).The data was collected by getting a structured questionnaire filled by every study participant. The questionnaire was prepared in English. A verbal consent was taken prior to data collection. Confidentiality of the information was maintained and due respect was given to them. They were asked about their academic year, whether they were a boarder or not, family history of any mental disorder and socioeconomic status, education and profession of parents. The level of stress in medical students was measured by using the Kessler Distress scale. The data was analyzed by using SPSS version 22.0. The descriptive statistics were used to calculate qualitative and quantitative variables. For the quantitative variables like age, mean and standard deviation were calculated. For the qualitative variables like severity of stress, sex, being a boarder or non-boarder, decision of getting into a medical college, socioeconomic status, education of parents, profession of parents, year of MBBS, family history of a mental disorder frequencies and percentages were calculated. Chi-square test was used to compare the frequency and severity of stress between the medical students of a government medical university (Rawalpindi Medical University) and a private medical college (Foundation University Medical College). The effect modifiers like age, gender, being a boarder and non-boarder, decision of getting into a medical college, socioeconomic status and profession of parents, education of parents, year of MBBS and family history of a mental disorder and severity of stress were controlled by stratification and p-value ≤ 0.05 was taken as the significant.

Results



In this study, 300 students were included, of which, 150 belonged to Rawalpindi Medical University and 150 belonged to Foundation University Medical College. The 60 students represented

Table 1: Sociodemographic features of medical students

(RMU+FUMC)

VARIABLE	RMU (Rawalpindi Medical University) [n=150]			FUMC(Foundation University Medical College) [n=150]		
Age	17-19 yrs 10.7% (n=16)	20-22 yrs 64% (n=96)	23-25 yrs 25.3% (n=38)	17-19 yrs 28% (n=42)	20-22 yrs 52.7% (n=79)	23-25 yrs 19.3% (n=29)
Gender	Male 36% (n=54)	Female 64% (n=96)		Male 38.7% (n=58)	Female 61.3% (n=92)	
Boarder/ non-boarder	Boarder 43.3% (n=65)	Non-boarder 56.7% (n=85)		Boarder 49.3% (n=74)	Non-boarder 50.7% (n=76)	
Socioeconomic status	High 85.3% (n=128)	Middle 9.3% (n=14)	Low 5.3% (n=8)	High 84.7% (n=127)	Middle 12.7% (n=19)	Low 2.7% (n=4)
Decision of getting into medical college	My decision 82.7% (n=124)	Parents' decision 17.3% (n=26)		My decision 84% (n=126)	Parents' decision 16% (n=24)	

VARIABLE	RMU (Rawalpindi Medical University) [n=150]			FUMC(Foundation University Medical College) [n=150]		
Education of mother	Illiterate 7.3% (n=11)	≤Matriculation 16% (n=24)	>Matriculation 76.7% (n=115)	Illiterate 10.7% (n=16)	≤Matriculation 16% (n=24)	>Matriculation 73.3% (n=110)
Education of father	Illiterate 1.3% (n=2)	≤Matriculation 8% (n=12)	>Matriculation 90.7% (n=136)	Illiterate 2.7% (n=4)	≤Matriculation 8.7% (n=13)	>Matriculation 88.7% (n=133)
History of mental ailment in family	Yes 9.3% (n=14)	No 90.7% (n=136)	-	Yes 7.3% (n=110	No 92.7% (n=139)	-

Table 2: Stratification of frequency of stress in medical students of RMU and FUMC with respect to ststistically significant demographic features

		MEDICAL	STRESS		TOTAL (n=300)	
VARIABLE	STRATAS	COLLEGE	No stress n (%)	Stress n (%)	RMU (n=150) FUMC (n=150)	p-value
Age	17-19 yrs	RMU FUMC	12 (75%) 28 (66.7%)	4 (25%) 14 (33.3%)	16 (100%) 42 (100%)	0.540
	20-22 yrs	RMU FUMC	55 (57.3%) 33 (41.8%)	41 (42.7%) 46 (58.2%)	96 (100%) 79 (100%)	*0.041*
	23-25 yrs	RMU FUMC	22 (57.9%) 13 (44.8%)	16 (42.1%) 16 (55.2%)	38 (100%) 29 (100%)	0.289
Socio- Economic status	High	RMU FUMC	80 (62.5%) 59 (46.5%)	48 (37.5%) 68 (53.5%)	128 (100%) 127 (100%)	**0.010**
	Middle	RMU FUMC	4 (28.6%) 12 (63.2%)	10 (71.4%) 7 (36.8%)	14 (100%) 19 (100%)	**0.049**
	Low	RMU FUMC	5 (62.5%) 3 (75%)	3 (37.5%) 1 (25%)	8 (100%) 4 (100%)	0.665
Education of Mother	Illiterate	RMU FUMC	5 (45.5%) 9 (56.3%)	6 (54.5%) 7 (43.8%)	11 (100%) 16 (100%)	0.581
	≤matriculation	RMU FUMC	16 (66.7%) 13 (54.2%)	8 (33.3%) 11 (45.8%)	24 (100%) 24 (100%)	0.376
	>matriculation	RMU FUMC	68 (59.1%) 52 (47.3%)	47 (40.9%) 58 (52.7%)	115 (100%) 110 (100%)	**0.075**
History of mental ailment in family	Yes	RMU FUMC	5 (35.7%) 7 (63.6%)	9 (64.3%) 4 (36.4%)	14 (100%) 11 (100%)	0.165
	No	RMU FUMC	84 (61.8%) 67 (48.2%)	52 (38.2%) 72 (51.8%)	136 (100%) 139 (100%)	**0.024**

each class which was further dissected into 30 students of each class from every college. The details of sociodemographic features are given in Table 1. The study established stress in 42% of the students while the remaining 58% were not stressed (Figure 1). Interestingly, stress was most frequent in 2nd year MBBS students (56.7%) while the bifurcation of stress in students on the basis of medical college revealed that frequency of stress was more in students of FUMC (50.7%) and RMU (40.7%). A cross-tabulation was done to find out the relationships of stress with variables like age, sex, year of MBBS, socioeconomic status, education of parents, family history of a mental disorder, decision of getting into a medical college and being a boarder/non-boarder. The stratification of stress as per medical college is shown in Table 2 while Table 3 depicts the stratification of level of stress. Chi-square test was applied on the cross tabulations and p-value < 0.05 was considered as significant and p

Table 3: Stratification of severity of stress in medical students with respect todemographic features

VARIABLE	STRATAS	Level of stress			p-value
		Mild stress n (%)	Moderate stress n (%)	Moderate stress n (%)	
Age	17-19 years 20-22 years 23-25 years	10 (55.6%) 36 (41.4%) 20 (62.5%)	6 (33.3%) 34 (39.1%) 5 (15.6%)	2 (11.1%) 17 (19.5%) 7 (21.9%)	0.133
Gender	Male female	21 (52.5%) 45 (46.4%)	17 (42.5%) 28 (28.9%)	2 (5%) 24 (24.7%)	**0.022**
Boarder/non-boarder	Boarder Non-boarder	36 (60%) 30 (39%)	18 (30%) 27 (35.1%)	6 (10%) 20 (26%)	**0.019**
Decision of getting into med college	My decision Parents' decision	53 (47.7%) 13 (50%)	41 (36.9%) 4 (15.4%)	17 (15.3%) 9 (34.6%)	**0.028**
Socioeconomic status	High Middle Low	54 (46.6%) 10 (58.8%) 2 (50%)	39 (33.6%) 4 (23.5%) 2 (50%)	23 (19.8%) 3 (17.6%) 0	0.715
Education of mother	Illiterate ≤matriculation >matriculation	9 (69.2%) 12 (63.2%) 45 (42.9%)	3 (23.1%) 3 (15.8%) 39 (37.1%)	1 (7.7%) 4 (21.1%) 21 (20%)	0.176
Education of father	Illiterate ≤matriculation >matriculation	2 (66.7%) 5 (83.3%) 59 (46.1%)	1 (33.3%) 1 (16.7%) 43 (33.6%)	0 0 26 (19%)	0.380
History of mental ailment in family	Yes No	7 (53.8%) 59 (47.6%)	4 (30.8%) 41 (33.1%)	2 (15.4%) 24 (19.4%)	0.899

> 0.05 was rendered as insignificant. The results of chi-square test identified a significant relationship of stress with age, socioeconomic status, education of mother and history of mental ailment in family while stratification and cross-tabulation for level of stress generated significant relationship with gender, being boarder or non-boarder and decision of getting into a medical college.

Discussion

Stress is as old as is man himself and has affected human lives in various ways. However, the frequency and severity of stress in the current era has reached the maximum level and has affected people from all cultures, religions, genders, ages and professions and thus, student life is no exception. As depicted in the literature review, medical students come off as the ones most prone to stress when the stress in students is dissected further.

The current study which was aimed at assessing the level of stress in medical students of Rawalpindi Medical University and Foundation University Medical College depicted that overall, 42% of the medical students were stressed; of which, 20.6% had severe stress and females were more stressed (47.9%) than males (32.1%). A study conducted on the medical students of Lahore Medical and Dental College generated similar results, showing that 28% students were severely stressed. However, the study sharply contrasted with our study in the prospect that our study showed a significant relationship in level of stress and gender (p=0.022) while it was not significant in the said study (p=0.34). This can be explained on the basis of the fact that in our study equal number of participants was taken from each year while in the latter, the number of students taken from each class was not fixed which resulted in one class having too much representation, while the other having very less representation. This might have led to aberrant results.[13]Another study conducted in Allama Iqbal Medical College (Lahore), in 2010 also claimed that females were more stressed than males. 30% females were severely stressed while 11% males were severely stressed.[9] This trend replicates in almost all parts of the globe. A study conducted in Saudi Arabia delineated that the frequency of stress was 75% and 57% in females and males respectively[14] while a study conducted in Sweden revealed that the prevalence of depressive symptoms among students was 12.9%, significantly higher than in the

general population, and was 16.1% among female students versus 8.1% among male students.[15]This high level of stress in medical students all over the globe can be linked to many factors like huge syllabus, competitive environment, negative attitude of teachers and consultants, lack of recreational facilities and high parental expectations.

The medical students of 2nd year MBBS came out to be the most stressed in our study (51.6%). A study conducted on Malaysian medical students generated similar results and depicted 36.5%.[16]The relationship was significant in both the studies, i.e., $p<0.05$. Another study conducted in King Saud University, Saudi Arabia[3] however, depicted highest amount of stress in 1st year medical students (70.6%) and also presented a significant relationship between level of stress and year of MBBS ($P<0.0001$). This high level of stress in the first two years of MBBS can be due to adjustment issues, sudden change in the style of academics and examination system.

Our study also established a significant relationship between level of stress and being a boarder or non-boarder ($p=0.01$). A study conducted at Agha Khan University Karachi also depicted that level of stress was more in non-boarders than boarders.[17]

This study grippingly depicted that the medical students of a private medical college (50.7%) were more stressed than a government medical college (40.7%). However, a comparative study done in Bangladesh sharply contrasted the results of our study by claiming that government medical students suffer more stress than private medical students ($p=0.005$).[18] This contrast can be attributed to the fact that the mentioned study was done on 2 government and 6 private medical colleges and this difference in the selection of public and private medical colleges might have led to this contrast. A qualitative data analysis of a mixed study conducted on all of the UHS (University of Health Sciences) affiliated medical colleges of Punjab indicated that number of examination, curriculum, teaching methodology, teacher and peer related stressors were present without discrimination in students of both private and government sectors.[19] This dissimilarity can be ascribed to the difference in study design of the two studies.

Conclusion

Our study concluded that almost half of the medical students in our study were stressed, of which, almost one-third were severely stressed. Furthermore, stress is higher in the medical students of a private medical college (Foundation University Medical College) than those of a government medical college (Rawalpindi Medical College).This makes it the need of the hour to probe into the matter and devise strategies that can help in reducing the level of stress in medical students. A change in examination system, better teaching strategies, better jobs security, flexible working hours, coping strategies and recreation facilities can all contribute to alleviate this high level of stress which can have devastating consequences.

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