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ORIGINAL ARTICLE

Stress levels and the factors associated with perceived stress among medical students

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ABSTRACT

Introduction: The life of a medical student is stressful due to a variety of known and modifiable factors that tend to affect their academic output. Identification and amelioration of these stressors would go a long way to improve medical education.

Objective: To assess stress levels and factors associated with perceived stress among medical students.

Materials & Methods: A cross sectional study was conducted from March 2022 to June 2022 on 409 randomly selected preclinical and clinical students of different medical colleges of Faisalabad, Punjab, Pakistan. A structured questionnaire was used for data collection about socio-demographic characteristics and potential risk factors (personal, environmental, academic) related to stress. The Kessler Psychological Distress Instrument (K10) was used for assessment of perceived stress levels. Data analysis was done with SPSS version 21 for descriptive statistics.

Results: Most students were of the age group of 18-20 years (46.7%) with 55.3% males and 44.7% females. Majority of students (59.2%) students were day scholars with 40.8% resident in hostels. According to K10 scale, 7.8% students were normal, 49.6% had mild stress, and 32.1% had moderate stress. Severe stress was present in 10.5% of medical students. Levels of stress were positively associated with Academic, Psychosocial, Environmental, and Health Related stressors.

Conclusion: Medical students of the selected colleges in Faisalabad suffered considerable levels of stress related to a number of modifiable factors that affected their academic performance.

Keywords: Stress, Psychological; Students, Medical; Education, Medical; Life Style; Lifestyle Factors.

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INTRODUCTION

Regardless of cultural background or human race in the lives of every person/individual, stress can be a common element.[1] In daily routine of our lives due to various unstable and straining tasks, stress is the insistent outcome. For students of a medical college and university, the changeover from adolescent to adulthood is a complicated journey. They may experience inaptness and mandatory compliance during these fast mental, social and physical changes. Medical students face complications and inconveniences because of adaptation to a new learning environment, heavy academic pressure, attaining social acquaintances, fear of failure, inferiority, and struggle to become successful.[2]

As compared to general schooling, medical college life and environment is quite different, more difficult, challenging, provoking, and demanding, due to different responsibilities and variable study patterns. With less involvement of parents/family, students may have to stay away from them in hostels due to medical education; additionally changes in sleeping patterns, eating habits, mood changes due to hormonal changes from childhood to adultness, time management in changing medical environment, are factors that appear to be causes of stress principally at the start of medical education.[3,4] At university level, the psychological, emotional, and physical suffering of medical and nursing students may be directly influenced by the high levels of workload since they must perform both theoretical tasks and patient-related activities, which makes them more susceptible to stress, anxiety and depression. Catastrophic outcomes like poor academic performance, diminished competency, medical errors, and dropout rates from medical school can result from this.[5]

The vulnerability to stress for medical students is quite easy due to various stress-imposing situations, and because of their young age most of time they are unable to manage it. The stress related factors (academic, personal, environmental, socio-economic) can generate excessive levels of stress among medical students (pre-clinical, clinical).[6] Medical school students' ability to learn and function cognitively can be negatively impacted by high levels of stress, which is regarded to be a challenging aspect of medical education.

Stressor exposure is linked to depression, burnout, somatic suffering, declines in empathy, severe thoughts about dropping out of medical college, suicide ideation, and poor academic performance in medical students. This further reinforces anxiety, stress and depression. The issues of stress, anxiety or depression among medical students has been a main focus for many researchers since the past decade. Unstable mental conditions can elevate the stress levels among medical students which results in weak health and academic performance.[7] Due to inadequate counseling and poor stress coping strategies, high levels of stress, depression and emotional disturbance was identified according to a survey in Europe and United States.[8] In recent years, there has been an increase in stress levels among medical students especially in Asian countries like Pakistan.[9] There is a significant need of stress coping strategies in medical institutions. Student counseling, empowering and encouraging initiatives, are urgently needed. With stress coping techniques medical students can undo the distressing impact of stress on their mental and physical health.[10] The current study was designed for assessment of perceived stress levels and to identify risk factors leading to stress among medical students in the city of Faisalabad, Punjab, Pakistan.

MATERIALS AND METHODS

A cross-sectional survey was undertaken from March 2022 to June 2022 on the student population of different medical colleges of Faisalabad. A structured questionnaire was used for data collection about socio-demographic characteristics and potential risk factors (personal, environmental, academic) related to stress. A sample of 409 undergraduate students of both pre-clinical and clinical years was selected through random sampling technique. The standard Kessler Psychological Distress Instrument (K10) for assessment of perceived stress levels was used. It consists of 10 questions; all questions were scored as 1 to 5 based on responses from "none of the time" to "all of the time" according to stress regarding symptoms. To get the total stress score all questions were collated. Total score was interpreted as Severe Stress (score of 30-50), Moderate Stress (score of 25-29), Mild Stress (score of 20-24), and No Stress (score < 20). With a Cronbach's alpha of 0.70, the K10 questionnaire was observed to have upright psychometric properties. Data were analyzed for descriptive statistics using SPSS version 21.

RESULTS

Demographic characteristics of the respondents

Table 1 shows the demographic characteristics of the students. Of the 409 students included, 55.3% were males and 44.7% were females. The maximum respondents were in the age group of 18-20 years (46.7%). Distribution of students by academic years was not uniform, with most students (26.2%) studying in 2nd year MBBS, and the least (12%) studying in final year MBBS; most (70.2%) belonged to MBBS years 1-3. Regarding residency status, 59.2% were non-Hostelites (Day Scholars) and 40.8% were residents of hostels. Counselling services were not available to the majority (83.1%). Satisfaction with their study environment was indicated by 60.8%, with the remaining 39.2% stating that they were not satisfied with their study environment.

Table 1: Demographics of participating students (n=409).

Characteristics	Frequency	Percentage
Age (years)		
18-20	191	46.7
21-23	147	35.9
24-26	71	17.4
Medical Year		
1st	90	22.0
2nd	107	26.2
3rd	90	22.0
4th	73	17.8
5th	49	12.0
Residential status		
Hostelites	167	40.8
Non-Hostelites	242	59.2
Gender		
Male	226	55.3
Female	183	44.7
Availability of counseling service		
Yes	69	16.9
No	340	83.1
Satisfaction with study environment		
Very satisfactory	60	14.5
Satisfactory	189	46.3
Not quite satisfactory	118	28.9
Unsatisfactory	42	10.3

Prevalence of perceived stress

Prevalence of perceived stress was divided into 4 categories as shown in Table 2; these are: Normal/No Stress, Mild, Moderate and Severe. According to Kessler Psychological Distress Scale (K10), only 7.8% students could be considered Normal/No Stress, 49.6% as having Mild Stress, and 32.1% as having Moderate Stress. However, 10.5% of medical students reported having severe stress.

Table 2: Prevalence and levels of perceived stress (n=409).

Stress Categories	Number (%)
No stress	32 (7.8)
Mild	203 (49.6)
Moderate	131 (32.1)
Severe	43 (10.5)

Sources and self-rated severity of stressors

The most frequently occurring sources of academic stress reported by students were pressure of studies (81.4%), extensive course loads (84.1%), stress of passing examination (81.4%), stress of understanding medical subjects (74.8%), and long duration of exams (59.4%). Among Psychosocial and Environmental Stressors, main sources of stress were poor time management for studies (75.1%), cluelessness about future choices of specialty (72.1%), parental pressures and teachers' expectations (75.1%), difficulty in organizing work (65%), and living conditions in hostels (57.2%). In health related stressors, main sources of stress were unhealthy nutrition due to examination stress (84.4%), change in sleeping pattern (68.9%), lack of physical exercise (52.1%), and Mess food quality (55.9%), as represented in Table 3.

Table 3: Response pattern of the sources of stress reported by the students (n=409).

Sources of Stress	Frequency of occurrence	
	Yes (%)	No (%)
Academic Stressors		
Stress and pressure of studies	**333 (81.4)**	76 (18.6)
Excessive study hours	281 (68.7)	128 (31.3)
Extensive course loads	**344 (84.1)**	65 (15.9)
Stress of passing examinations	**333 (81.4)**	76 (18.6)
Stress of missing lectures	242 (59.2)	167 (40.8)
Stress of understanding medical subjects	**306 (74.8)**	103 (25.2)
Stress of low grades	192 (46.9)	217 (53.1)
Long duration of exams	243 (59.4)	166 (40.6)
Psychosocial and environmental Stressors		
Cluelessness about future choices of specialty	**295 (72.1)**	114 (27.9)
Missing family / away from home	143 (35.0)	266 (65.0)
Unrealistic expectations	**281 (68.7)**	128 (31.3)
Poor time management	**307 (75.1)**	102 (24.9)
Difficulty in organizing work	**266 (65.0)**	143 (35.0)
Parental pressures and teachers' expectations	**307 (75.1)**	102 (24.9)
Living conditions in the hostel	234 (57.2)	175 (42.8)
Family Problems	133 (32.5)	276 (67.5)
Financial difficulties	92 (22.4)	317 (77.6)
Health Related Stressors		
Health issues	165 (40.3)	244 (59.7)
Change in sleeping habits	**282 (68.9)**	127 (31.1)
Unhealthy nutrition due to examination stress	**345 (84.4)**	64 (15.6)
Lack of physical exercise	213 (52.1)	196 (47.9)
Class attendance	201 (49.2)	208 (50.8)
Mess food quality	229 (55.9)	180 (44.1)

DISCUSSION

Perceived stress among medical students was evaluated in this study including levels of stress and factors responsible for stress. In previous studies, excessive, moderate, or mild levels of perceived stress have also been reported which also concur with this study results. According to different studies, data suggest that medical school/college settings, examination criteria, study hours, extensive course load, hostel environment, nutritional changes, lack of sleep, and curriculum, are some of the factors that can lead to perceived stress. Varying levels of stress have been reported by previous studies due to these factors.[11-13] More than 90% of students reported/experienced stress due to academic pressure and unhealthy life style in a study conducted at Aga Khan University, Karachi, Pakistan.[14] Similarly, during medical schooling in India, 73% of medical students experienced perceived stress at some point or other.[15] Overall prevalence of perceived stress, anxiety, and depression, in medical students is higher as compared to non-medical students according to a systemic review which comprises 40 studies.[16] In a cross-sectional study among Romanian medical students, Mild, Moderate and Severe levels of stress were found in 36.73%, 22.44%, and 13.26% of students on the K10 scale. The most stressful factors in students' opinion were the academic stressors (88.77%) followed by psychosocial factors (25.51%) and health-related factors (9.18%).[17] In another survey it was found that 31.7% of medical students reported feeling stressed out on a regular basis. The primary causes of stress were the frequency of exams, the volume of work, deadlines, and the dread of failure. At least one source of stress that was both teaching- and psychosocial-related was indicated by one-third of the students.[18]

In this study, the reason of reported perceived stress was significantly associated with Academic, Psychosocial and Environmental stressors, and health related stressors. Extensive course loads, examinations, and stress of studies were among the chief factors causing perceived stress. This is despite the fact that exams/tests play an important role in assessment and evaluation of medical and clinical training of students. It also helps teachers to assess students and maintain fair medical education standards. But the examination and academic burden also causes excessive stress among students which should be addressed properly. To make it less stressful for medical students, evaluation / examination system should be revisited. Prevalence of excessive stress in medical students can generate negative outcomes (cheating during examinations, self-medication, absenteeism from class, negligence, lack of concentration in studies, diminished attention & focus, and increased incidence of errors). In our study, other important factors causing stress were also related to health related stressors.[19] Main factors were lack of sleep, unhealthy nutrition due to examination stress, lack of physical exercise and poor quality of cafeteria (Mess) food among hostelites. Our results were consistent with previous studies that show health related stressors to be the cause of stress, anxiety and depression. Excessive levels of stress were found among hostelites due to multiple stress factors e.g. home sickness, Mess issues, food quality, peer pressure, missing family members, and their social relationships.[20]

LIMITATION OF STUDY

This study cannot be generalized, as it only assessed the perceived stress among students of medical colleges in Faisalabad only.

CONCLUSION

Medical students of Faisalabad experience significant stresses due to a variety of modifiable factors that affects their academic performance, for which the college administration may be made accountable.

RECOMMENDATIONS

After identification of stress related factors among medical students the next important step is to address and solve these issues.

1. Medical colleges should hire professional health counselors for students so that they can resolve these root cause problems (social, academic and mental pressure, frustration, changes in moods and emotions) causing perceived stress and depression.

2. Identification of these stress causing factors (academic, health, psychosocial & environmental stressor) at early stage in the medical students will prevent them from entering into devastating psychosocial and mental issues which otherwise could lead to grave outcomes including suicidal attempts.

3. There should be awareness programs (workshops, seminars) regarding stress and depression along with mental health services and professional psychologist who would provide necessary knowledge and information about how to deal and cope with perceived stress.

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