RESEARCH ARTICLE

Psychological distress in students appearing for the medical school entrance examination in Peshawar

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Abstract

Objective: To explore psychological distress in terms of depression, anxiety, social dysfunction, depressive and somatic symptoms among students appearing for medical school entrance examination.

Methods: The cross-sectional study was conducted at Peshawar Medical College, Peshawar, Pakistan, from August 2015 to May 2016, and comprised all students who appeared in the written test. The subjects were asked to fill the General Health Questionnaire for the evaluation of psychological distress. Those who scored 24 and more and were called for the entrance interview were further assessed on Hamilton Rating Scale for Depression. SPSS 20 was used for data analysis.

Results: Of the 1334 subjects, 745(55.8%) were males and 589(44.2%) were females. The mean age was 18.9±1.41 years and 182(13.6%) subjects had psychological distress. On the four subscales of the questionnaire, 472 (35.4%) students had somatic symptoms, 560 (42%) had anxiety/insomnia, 819 (61.4%) had social dysfunction and 323 (24.2%) had depressive symptoms. Amongst the 322(24%) students who were called for interviews, 73(22.7%) had psychological distress based on the questionnaire and 9 (2.8%) had depression on the Hamilton scale. There was a significant correlation between female gender and psychological distress based on the questionnaire scores ($p<0.05$). Among those who had both the assessments, there was no significant gender-based correlation ($p>0.05$). No significant correlation was found between academic performance and either of the assessment tools ($p>0.05$ each).

Conclusion: A significant proportion of students at the medical school entrance examination level had psychological distress.

Keywords: Psychological distress, Medical school, General Health Questionnaire, GHQ, Hamilton Rating Scale for Depression, HAM-D, Depression. (JPMA 68:1603; 2018)

Introduction

Higher education students are known to experience greater psychological distress than the general population and more so in case of students of health sciences.[1,2] Students learn to adapt to this psychological distress (PD), which has become the milieu of their professional education but if the level of PD goes beyond their coping capacity it can not only adversely affect their academic performance but can also negatively impact their health and bear long-term consequences.[1]

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The demanding nature of medical profession with challenging workload, stressful environment, competitive academics, and inevitable exposure to human tragedy and suffering renders the medical student vulnerable to PD.[3] Previous studies have revealed PD among medical students in a frequency ranging from 21.6 - 50%.[4-6] Students are most vulnerable at transitional periods such as their first year of medical school and during a period of adjustment to the new environment of medical clerkship.[4-6] Studies show that PD among medical students is associated with physical and mental health problems,[3,7] interpersonal conflict,[8] sleeping problems,[9] and lower academic and clinical performance.[10] Therefore, timely recognition of the unrecognised PD in the beginning of health profession's education can assist the students in

coping with the PD successfully and maintaining good academic performance and personal health.

The current study was planned at a crucial point in the medical education of a student i.e. the entrance level.

Subjects and Methods

The cross-sectional study was conducted at Peshawar Medical College, Peshawar, Pakistan, from August 2015 to May 2016, and comprised all students who appeared in the annual medical school entrance examination. Demographic information was collected through the entrance test application form. The entrance examination was a written assessment followed by interview of short-listed candidates based on their academic score. All the students who had the written assessment also undertook the General Health Questionnaire (GHQ) for PD evaluation. Those who scored 24 or more on the GHQ and were called for the entrance interview were further assessed on Hamilton Rating Scale for Depression (HAM-D). A similar, two-tier methodology was used on a sample with distinctly different variables.[11]

GHQ was developed by Goldberg in 1978 as a screening tool to detect those likely to have or to be at risk of developing PD. It is a 28-item measure of emotional distress. It has been divided into four subscales: somatic symptoms (items 1-7); anxiety/insomnia (items 8-14); social dysfunction (items 15-21), and severe depression (items 22-28).[12] The questions in GHQ are scored from 0 to 3 with a total possible score ranging from 0 to 84. A total score of 23/24 is the threshold for the presence of PD. On a subscale level, any score above 4 indicates the presence of PD or 'caseness' in that subscale. Inter-rater and intra-rater reliability have both been shown to be excellent (Cronbach's $\propto$ 0.9-0.95) and Test-retest reliability has been reported to be high (0.78 to 0 0.9).[13] It takes 5 to 10 minutes to complete GHQ.

HAM-D is a multiple-item questionnaire developed by Max Hamilton to assist in the diagnosis and rating of depression, and as a guide to evaluate recovery.[14] It generally takes 15-20 minutes to complete HAM-D.

Collected data was analysed using SPSS 20. The analysis of the basic variables was carried out using descriptive statistics. Chi-squared test was used to estimate any significant relationship of demographic details on the GHQ and HAM-D scores. Spearman correlation was calculated to identify any significant association between the student's academic scores in terms of matriculation, intermediate, Education Testing and Evaluation Agency (ETEA) and GHQ and HAM-D scores. The results were considered significant at $p<0.05$ level.

The participating students of this study will be followed up during the course of their medical education for PD.

Results

Overall 1405 students had applied for the entrance test, but 27(1.9%) were absent on the day and 44(3.1%) students did not fill the questionnaire. The mean age of the remaining 1334(95%) students was 18.9±1.41 years. There were 745(55.8%) male and 589(44.2%) female students.

Overall, 182(13.6%) students had PD, 472(35.4%) had somatic symptoms, 560(42%) had anxiety/insomnia, 819(61.4%) had social dysfunction, and 323(24.2%) had depressive symptoms. Cronbach's α for GHQ was 0.843.

Screening showed that female students and those belonging to southern Khyber Pakhtunkhwa (KP) had significantly higher rates of PD (Table-1).

There was significant correlation between academic performance on ETEA and PD based on GHQ scores (Table-2).

Of the total who undertook the GHQ, 322(24%) were called for the entrance assessment interviews. Of them, 189(58.7%) were females. The overall mean age of the subset was 18.9±1.03 years.

Table-1: Demographic variables and General Health Questionnaire (GHQ) based psychological distress (n=1334).

Variables		General Health Questionnaire (GHQ)-Based Psychological Distress	
		Yes (%)	No (%)
Gender			
	Male	81 (6.1)	664 (49.7)
	Female	101* (7.6)	488 (36.6)
Age (in years)			
	< 20	143 (10.7)	886 (66.5)
	≥ 24	39 (2.9)	266 (19.9)
Residence			
	#South Khyber Pakhtunkhwa	26* (1.9)	94 (7.1)
	##North Khyber Pakhtunkhwa	162 (12.1)	986 (73.9)
	###Outside Khyber Pakhtunkhwa	12 (0.9)	54 (4.1)

*= p<0.05, ** = p<0.01 Yes on GHQ means having general health issues or distress (score of 24 or more), and No means no distress. # South Khyber Pakhtunkhwa includes Bannu, Dera Ismail Khan, Hangu, Karak, Kohat, Tank & Lakki Marwat. ## North Khyber Pakhtunkhwa includes Abbottabad, Batagram, Buner, Malakand, Charsadda, Haripur, Pabbi, Kohistan, Dargai, Lower Dir, Mansehra, Mardan, Sakhakot, Nowshera, Peshawar, Shangla, Swabi and Swat. ### Outside Khyber Pakhtunkhwa includes FATA, Islamabad, Lahore, Dubai, Saudi Arabia, England & Afghanistan.

Frequency distribution of subtypes of GHQ showed that 98 30.4%) students had somatic symptoms, 127(39.4%) had anxiety/insomnia, 205 (63.7%) had symptoms of social dysfunction, and 73(22.7%) students showed severe depressive symptoms. Out of the 322 students, 73(22.7%) had overall PD based on GHQ, while only 9(2.8%) had depression on HAM-D (Table-3).

Spearman correlation showed no significant correlation between academic indicators and GHQ / HAM-D (Table-4).

Table-2: Spearman Correlation between Academic Performance and GHQ (n=1334).

Variables	GHQ (*p*-value)	Matriculation (*p*-value)	Intermediate (*p*-value)	ETEA (*p*-value)
General Health Questionnaire (GHQ)	1			
Matriculation	0.12 (0.660)	1		
Intermediate	0.11 (0.675)	0.599** (0.000)	1	
ETEA	-0.071** (0.010)	0.359** (0.000)	0.478** (0.000)	1

Note: * =p<0.05, **= p<0.01
ETEA: Education Testing and Evaluation Agency

Table-3: Comparison of demographic variables with GHQ and HAM-D (n= 322).

Variables		GHQ-Based psychological distress		HAM-D	
		Yes (%)	No (%)	Yes (%)	No (%)
Gender	Male	8 (2.5)	125 (38.8)	2 (0.6)	131 (40.7)
	Female	32* (9.9)	157 (48.8)	7 (2.2)	182 (56.5)
Age (in years)	< 20	32 (9.9)	217 (67.4)	5 (1.6)	244 (75.8)
	20-24	8 (2.5)	65 (20.2)	4 (1.2)	69 (21.4)

Note: *= p<0.05, ** = p<0.01
GHQ: General Health, HAM-D: Hamilton Rating Scale for Depression
Note: < 24 on GHQ means having no distress, and
≥ 24 means general health issues or distress.
Yes on GHQ means having general health issues or distress, and No means no distress.
Yes on HAM-D means having depressive illness whereas No means no depression.

Table-4: Spearman Correlation among Academic Performance, GHQ and HAM-D (n=322).

Variables	Matriculation (p-value)	Intermediate (p-value)	ETEA (p-value)
General Health Questionnaire (GHQ)	0.054 (0.335)	-0.007 (0.901)	-0.025 (0.657)
Hamilton Rating Scale for Depression (HAM-D)	0.030 (0.587)	0.003 (0.957)	0.015 (0.786)

Note:* =p<0.05, **= p<0.01
GHQ: General Health, HAM-D: Hamilton Rating Scale for Depression,
ETEA: Education Testing and Evaluation Agency.

Discussion

A profession that cherishes in preventing disease and promoting health in all its psychosocial, physical and metaphysical dimensions is inadvertently faced with the challenge of securing the mental health and well-being of its own members.[3] A number of studies have focussed on the assessment of PD in the first year of medical education as this is the most vulnerable period in a medical student's life.[6,15] The current study focused on the assessment of students for PD as they embark upon their medical education, a step prior to their first year. With regard to the general challenges posed by medical education and specific challenges of the first year if the students are screened at entrance level, those who are most vulnerable can be identified and guided accordingly. Currently in most of the medical and dental education institutions of the country, psychological evaluation is not a routine practice. In this regard, this study is a pioneer effort. In this study, a significant number of students were identified with various PD indicators, a finding which is in agreement with previous studies involving students of higher education and health sciences.[2,3] In our study, female students were found to experience PD more frequently. These findings are in accordance with the results of previous studies.[3,16] Similarly, other related studies have reported higher PD among females but the difference was not statistically significant.[17,18] Studies conducted in Canada, United States, and Pakistan using scales other than GHQ for identifying PD, also showed similar findings.[19-21] However, some studies based on a variety of scales showed non-significant difference between both genders, thus not conforming to the results of our study.[17-18]

Our results showed that students belonging to southern KP had more general health issues compared to individuals from other regions. However, studies have indicated that the scoring on the GHQ is not influenced by the area of residence.[12] This finding needs to be explored further.

The results of the current study are in accordance with similar studies, showing that there is a negative relationship between academic scores and GHQ. A study showed that academic pressure was one of the main sources of stress among medical students.[22] Another study also supported the result that students who were academically less successful in medical school reported somewhat higher levels of depressive symptoms and vice versa.[23] In another study, the magnitude of schoolwork

among medical students in Nigeria was found to be one of the most important factors affecting the GHQ-12 scores.[24]

Numerous stressors affect the well-being of medical students and depression remains a significant issue for medical students because students experience major changes in their behaviour, social environment and study hours during their medical schooling.[25,26] A study from Pakistan also indicated the presence of depression and anxiety in medical students.[27]

Our result showed no significant correlation between academic performance and depression as measured by HAM-D. Other studies analysed the correlation between academic achievement and anxiety and depression levels of medical students and described no statistically significant correlation.[28-29]

The current study has highlighted the magnitude of PD at entrance level in medical students and its correlation with academic performance. In view of the reported future implications of PD for a medical student in terms of burnout, mental ill-health, poor academic performance, social issues like academic dishonesty, substance abuse, and even lack of empathy for patients, it is imperative to conduct prospective studies about aetiological factors related to PD and how students can be helped to minimise and cope with it effectively.[3]

The present study has its limitations. The cross-sectional nature, although it provides a baseline, does not allow insight into the factors that contribute to the development of PD in students and how do they cope with it. In addition, the study did not assess other influencing factors that could have affected the mental health of the students like their socio-economic status, relationship status (e.g., within the family), exposure to any stressful life events, etc. We suggest considering these factors in future researches and conducting prospective studies.

Conclusion

A significant proportion of students at the medical school entrance examination level had PD and female gender had positive correlation with PD. Academic performance indicators were also correlated with the occurrence of PD. No significant correlation was seen between academic performance and depression in students.

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