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Stress levels among pre-clinical medical students and their coping strategies

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ABSTRACT

BACKGROUND & OBJECTIVE: Stress is no doubt prevalent among medical students. Insight into how different personality types cope with this challenge might give the opportunity to healthcare authorities to devise a more standardized guideline for conducting a psychological aptitude test at the time of intake into medical school. Our objective is to look at the stress and anxiety among medical students and how different personality types cope with stress.

METHODOLOGY: A cross-sectional descriptive study was carried out at CMH Kharian Medical College from November 2020 to May 2021. Agha Khan University, Anxiety and Depression Scale was employed to assess stress and anxiety levels among medical students. Myers–Briggs Type Indicator (MBTI) was used to identify personality traits, and the "Brief COPE Inventory Scale" was employed to investigate stress coping styles(approach or avoidant) among students. SPSS was used to analyze the results.

RESULTS: Out of 158 participants, 108(68.4%) were females, and 50(31.6%) were males. More than half of the preclinical medical students, 93(58.86%) were having stress [females 73(67.59%), males 20(40%)]. Personality types showed that 100(63.3%) students belonged to the introvert group, while 58(36.7%) students belonged to the extrovert group. Most participants, 144(91%) students, adopted approach coping styles rather than avoidant ones (14 (8.86%). Stress was significantly associated with personality types (p=0.021), coping style (p=0.007), and gender (female) (p=0.001). However, we did not find any association between personality types & coping styles (p=0.936).

CONCLUSION: High level of stress and anxiety (58.86%) was found among students and was more prevalent among females and extroverted medical students. Both personality types (extroverts and introverts) used approach coping styles rather than avoidant trends.

KEYWORDS: Personality types, Stress, Coping style, Myers–Briggs Type Indicator (MBTI).

INTRODUCTION

Studying medicine is a challenging field because it needs a lot of dedication, concentration, and long study hours [1]. Moreover, the transition from premedical school to medical college leads to some level of stress among medical students [2]. Minor stress makes students more motivated and better performers. On the contrary, chronically high stress can lead to significant psychological and physical issues [3, 4].

According to a recent review article, the overall prevalence of depression or its symptoms ranged from 1.4 percent to 73.5 percent among medical undergraduates [5]. A Pakistani study has reported that 71% of medical students had depression, which was primarily brought on by academic pressure [6]. A Saudi study described that 55.8% of Saudi medical students suffer from depression [5]. Mirza et al, discovered that educational success was the most powerful and notable predictor of depression symptoms, followed by friendships, emotional lives, and general health [7].

Concurrently, stress experienced during medical school compels students to acquire specific competencies, means, and techniques to deal with stressful conditions, a phenomenon known as coping [8]. The term "coping" denotes the unique cognitive and behavioural techniques used by individuals to manage, lessen, or tolerate the demands of stressful events [9].

These coping strategies could be positive or negative.

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Positive coping is an active coping strategy related to problem-solving activity and successful emotional management [10]. Negative coping, on the other hand, is a passive strategy characterized by derogatory judgments and emotional expression, fleeing from difficult circumstances, and isolating oneself from social interaction [10]. Wu L et al, observed that medical students use both coping strategies [11].

Knowing students coping mechanisms is as crucial as knowing the challenges they experience. Stress is unavoidable during medical students' undergraduate education, but it can have advantageous effects like boosting motivation. The only condition where stress has a detrimental impact on cognitive abilities like focus and decision-making as well as on emotional and physical health is when it is excessive or goes unresolved (due to inadequate coping mechanisms) [12]. It has been demonstrated that personality traits are reliable indicators of academic success during medical school [13]. Several studies have revealed that certain personality traits may make people more susceptible to depression [14] & adverse mental well-being [15].

As a medical educator, it is critical to recognize the personality traits and coping styles of depressed preclinical medical students; to provide them with the necessary medical and social support while avoiding negative effects on their health, academic achievements, and career accomplishments [16].

A literature search indicated that a lot of research had been published regarding personality types and coping styles of depressed preclinical medical students. At the same time (However), there is a lack of research on this topic in Pakistan. Therefore, the current study was designed to investigate the associations between personality type and depression. We also determined the coping styles of depression in medical students.

METHODOLOGY

The present cross-sectional descriptive study was carried out at CMH Kharian Medical college CKMC), Pakistan from November 2020 till May 2021. Ethical approval was taken from the ethics committee of the CKMC (Ref No. D/No-784dt 29/09/20). The participating students were from both genders and were medical students of CKMC. This primary quantitative research was conducted via three validated questionnaires: Agha Khan University Anxiety and Depression Scale [17], The Brief COPE Inventory–NovoPsych[18] by The University of Miami, and Myers–Briggs Type Indicator(MBTI)[19] (All questionnaires are attached as supplementary files). Students were invited to participate voluntarily, and convenience sampling was used. The researchers briefly explained the research objectives to the participants, and written consent was taken from all students prior to filling out the forms. These questionnaires were distributed among 200 students of 1st year and 2nd-year medical students(MBBS), out of which 161 students agreed to participate in this study. The response rate was 80.5%. Agha khan University's anxiety and depression scale was used to identify the prevalence of stress among participants. The questionnaire has 25 items, 13 psychological and 12 somatic questions. A score of 20 was set to rule out depressive students.

The MBTI is an introspective self-reported questionnaire to indicate differing psychological preferences in how people perceive the world around them and make decisions. Its results are presented through four dichotomies: Extraversion/Introversion, Sensing/Intuition, Thinking/Feeling, and judging/perceiving. These four dimensions lead to 16 different possible types. However, in the present study, a single dimension as a basis to divide our study sample into two main personality types, i.e., extrovert and introvert. The extroverts described themselves as talkative and outgoing, enjoy being the center of attention, and tend to work out ideas with others. On the other hand, introverts described themselves as reserved, private, and someone who would rather observe instead of being the center of attention.

Coping strategies employed in the past month by participants screened for depression and anxiety were determined with the Brief COPE Inventory. The abridged version of the original COPE Inventory assesses 14 coping types with 28 questions.

The "Brief COPE Inventory" scores are reported for the two major coping styles: approach and avoidant. The subscales of avoidant coping include "denial, substance use, venting, behavioral disengagement, self-distraction, and self-blame." It has been demonstrated to be less useful in reducing anxiety. The subscales of approach coping are "active coping, positive reframing, planning, acceptance, seeking emotional support, and seeking informational support." It is linked to more beneficial reactions to adversity, such as adaptable realistic modification, better results for physical health, and more steady emotional responses.

Data was analyzed on SPSS.21 software. The categorical variables were represented in frequencies and percentages. The Chi-square test was employed to find out the association between variables. A p-value <0.05 was considered significant.

RESULTS

Out of a total 161 students, 158 students submitted a completely filled out questionnaire. Out of 158 participants 108(68.4%) were females and 50(31.6%) were males. More than half of the preclinical medical students [93 (58.86%)] were having stress [females 73(67.59%), males 20(40%)]. Personality types showed that 100 (63.3%) students belonged to the introvert group [male 33(66%) and female 67(62%)], while 58(36.7%) students belonged to the extrovert group [male 17(34%) and female 41(38%)]. Analysis of coping styles among the participants showed that most of the students [144 (91%)] adopted 'approach' coping styles rather than 'avoidant' coping styles [(14 (8.86%)] (Table-I).

Stress was significantly associated with personality types (p=0.021), coping style (p=0.007), and gender (female)

(p=0.001) (Table-I). However, we did not find any association between personality types & coping styles (p=0.936) (Table-II).

Table-I: Association of Stress with personality types, coping style and gender.

Variable	Stress n (%)		Total	p-value
	Yes	No		
Personality types				
Introvert	52 (52)	48 (48)	100 (63.29)	
Extrovert	41(70.68)	17 (29.31)	58 (36.70)	0.021
Total	93(58.8)	65(41.2)	158(100)	
Coping style				
Approach	80 (86)	64 (98)	144(91.13)	
Avoidant	13 (13)	1 (1.5)	14(8.86)	0.007
Total	93(58.8)	65(41.2)	158(100)	
Gender				
Female	73(67.59)	35(32.40)	108(68.53)	
Male	20(40)	30(60)	50(31.64)	0.001
Total	93(58.8)	65(41.2)	158(100)	

Table-II: Association between personality types and coping style.

Personality types	Coping style		p-value
	Approach n (%)	Avoidant n (%)	
Personality types			
Introvert	91 (91)	9 (9)	
Extrovert	53 (91.4)	5 (8.6)	0.936
Total	144(91.1)	14(8.9)	

DISCUSSION

Our results showed that more than half of the preclinical medical students (58%) had stress and stress was more prevalent among female students (p=0.001). Our students' high rates of psychological illness are alarming, although comparable to rates reported in other studies among medical students in other parts of the world [20,21]. A UK study reported that 44% of UG students were depressive, and female medical students were more stressed during the first two years [20]. The most likely cause of this high level of mental morbidity in Pakistan is that students come from various schools and colleges located in small villages and towns to a medical college located in a big city, and this sudden transition and coping with the city lifestyle may cause stress and anxiety among many students. Furthermore, medical colleges' long study hours, frequent assessments, problem-based and case-based learning, fewer social activities, being away from family, high cost of medical education, increased expectations, and competitive environment could be a few of the most likely causes of this high-level mental morbidity among medical students. The students counseling unit should be activated in all medical colleges so students can approach the concerned person without hesitation.

Investigating the causes of high levels of psychological illness and perceived stress was not the current study objective. However, several other studies have mentioned academic pressure, frequent assessment [1], educational achievement pressure [7], financial burden, and poor sleep quality as contributing factors [21].

According to a mixed-method study conducted in Pakistan, one of the key reasons for the significant mental anguish is the enormous volume of knowledge and the demanding needs of medical courses. They also discovered that they had very little time for sleep or other social activities, which only upset the situation [6]. It's necessary to address medical students' mental health and wellbeing [21]; otherwise, it may influence their academic achievements and future careers.

Personality types showed that 63.3% of students belonged to the introvert group, while 58(36.7%) students belonged to the extrovert group. Our results showed that 70.68% of extroverts were suffering from stress and anxiety, compared to 52% of introverts, and stress and anxiety was associated with personality types (extroverts). Contrary to our results, several studies showed more depression among introverts [22]. Another study also reported a negative association between depression and extroverts [23]. They argued that extroverts being more social, handle stress better by letting off their worries. Introverts, on the other hand, keep their burdens with them, leading to more anxiety and depressive illnesses [22]. One of the reasons of our finding could be that the present study was carried out amid the COVID-19 pandemic, and social interactions were not very frequent for the extroverts, and staying socially isolated during pandemic times might have resulted in an increased element of depression among extroverts, while introverts were more at ease in isolation.

Coping style analysis showed that most participants (91%) adopted 'approach' coping styles while a small number of students (8.86%) adopted 'avoidant' coping styles. Similar to our results, a study found that among preclinical year UGMS, the most common coping techniques were problem-focused; active coping and planning like pondering over what actions to take to alleviate a difficult circumstance [21]. Literature suggests an inverse association between mental illness scores and active coping and relationships between increasing mental illness scores and problematic coping mechanisms (such as utilizing substances, denial, and disconnection) [20].

The present study results showed that stress and anxiety was associated with personality type (extrovert), coping style (approach), and gender (female). However, we did not find any association between personality types & coping styles. The present study results showed that 98% of the non-stressed students used the 'approach' style compared to 86% of those who are stressed. On the other hand, in the stressed group, 13% used avoidant style compared to 1% in the non-stressed group. So, it shows that the 'approach' style is better for tackling stress and anxiety. Another study reported a negative association between depression and problem-solving focus among youngsters [23].

Similarly, an American study reported a negative association between depression and approach coping style [24]. A Chinese

study found that depressive and anxiety symptoms among medical students were significantly correlated with social support, family functioning, and coping mechanisms [21]. Two Chinese studies' results reported that coping styles were independent predictors of psychological symptoms [21]. Contrary to these results, a Brazilian study reported that both positive and negative coping styles were associated with depression [25] while an American study reported insignificant effects of coping styles on mental health [26].

These differences in coping styles and mental health could be because of the difference in each country's educational system, culture, social norms, and financial status of the students. It may be suggested that individuals with stress coping approach may have better mental health and might be considered more resilient. Resilient people can deal with academic and professional challenges, including failures, work overload, and anxiety, in a healthy and composed manner [27].

Each undergraduate should be educated on the need to understand their personality traits and how that can predispose them to depression [28].

Effective interventions customized to distinct groups of students are needed to assist students in developing adaptive coping mechanisms and promoting good mental health [20].

The present study had several drawbacks. First, the sample size was small and gives a snapshot of the preclinical students at a single medical college. Second, the current study, being cross-sectional, cannot provide a cause-and-effect relationship. Third, our study's findings were based on students' impressions at a private medical institution, which may not have accurately mirrored reality. Therefore, study results cannot be generalized. Nevertheless, the study provides a framework for future extensive studies.

CONCLUSION

Stress and anxiety was associated with gender, personality types, and coping styles. Stress and anxiety (58.86%) was found among preclinical students and was more prevalent among females and extroverted medical students. Both personality types (extroverts and introverts) used 'approach' coping styles rather than 'avoidant' trends.

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Author's Contribution:

Muhammad Hasnat Akhtar: Conceptualized the study, collected and analyzed data, formulated initial draft and proof read the final copy.
Anum Ashfaq: Drafting the work or revising it critically for important intellectual content.
Ahmed Murtaz Khalid: Acquisition, analysis, or interpretation of data for the work.
Mukhtiar Baig: Final approval of the version to be published.

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