

Prevalence of Psychological distress among medical students in different levels of training and other associated factors in Riyadh

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Received: February 2023 Accepted: February 2023; Published: March 1, 2023.

Citation: Khalid A. Bin Abdulrahman et al. Prevalence of Psychological distress among medical students in different levels of training and other associated factors in Riyadh. World Family Medicine. March 2023; 21(2): 33-40.

DOI: 10.5742/MEWFM.2023.95256060

Abstract

Background: Medical school is commonly perceived as a demanding environment that can negatively affect a student's academic performance, physical fitness, and mental well-being. According to a study, 23 percent of undergraduate clinical college students in the United States had clinical depression, and 57 percent were under mental stress. Our main aim of this study is to assess the mental health of medical students in different levels of training to see if a certain level plays a higher role in developing mental health issues.

Methodology: This quantitative study is a descriptive cross-sectional study conducted among medical students in different universities in Riyadh region. The study depended on a self-reported questionnaire that included validated GHQ-12 for the Arab population that was used for assessing psychological distress.

Results: In the current study, we collected data from 617 medical students from four universities in Riyadh region, Saudi Arabia. Among the students, 56.7 % of the participants were males, and 42.1 % were

aged between 20-21 years old, and 91.6 % of them were single. According to the GHQ-12, 368 students were classified as GHQ- cases having symptoms of depression and psychiatric disorders (59.6 %). The prevalence of psychological distress among female students was significantly higher than among males (68.9 % vs. 52.6 %, $P=0.000$). Furthermore, we found that the prevalence of distress was the lowest among students who reported higher than 30000 SR monthly income ($P=0.015$). Concerning educational level, the results of the current study did not show any significant difference in the prevalence of distress among students of different levels ($P=0.096$); however, students of the first level showed the highest level of distress (72.2 %).

Conclusion: The current study confirmed the previous studies on the high prevalence of psychological distress among medical students, which was significantly higher among females, students of low income, and students with lower GPAs. Moreover, the study showed that first-level students were the most affected by psychological distress.

Keywords: Mental health, psychological distress, medical students, medical education, Saudi Arabia

Introduction

Medical school is commonly perceived as a demanding environment that can negatively affect a student's academic performance, physical fitness, and mental well-being. According to a study, 23 percent of undergraduate clinical college students in the United States had clinical depression, and 57 percent were under mental stress [1].

Burnout, social isolation, cynicism, and medical doctor impairment are only some of the intense emotional repercussions of intellectual illness. If intellectual fitness problems remain neglected or untreated, they will persist into adulthood. Furthermore, in psychologically and emotionally afflicted clinical college students, harmful coping mechanisms, which include substance misuse, alcohol usage, smoking, and self-and other damage, can be noted [2].

The atmosphere in many clinical colleges creates all-pervasive stressful conditions condition. Students are subjected to an authoritarian, restrictive environment that promotes competitiveness over collaboration among college students [3]. Stressful environments permeate not just the undergraduate schooling period but all through internship, the postgraduate observation period, and even later within the physician's working life [4]. According to well accepted studies, college students' intellectual fitness deteriorates as their education proceeds. As college students progress in their studies, they're much more likely to be subject to burnout [5]. Another observation discovered a better outcome of burnout toward the start of the healing cycle. Except for the last 12 months of observation, carried out at King Saud University in Saudi Arabia, it was observed that the extent of strain dropped as the 12 months of observation progressed. Some strain can assist in gaining knowledge in the clinical faculty. "Favorable strain" is defined as strain that promotes gaining knowledge, whereas "destructive strain" is described as strain that inhibits gaining knowledge.

On this subject, some studies have been undertaken in several situations. These intellectual morbidities are widespread, consistent with an intensive evaluation of the levels of depression, anxiety, and misery amongst clinical college students in North America [4].

We set out to discover the level of intellectual fitness issues and some of their relationships within this cohort because, to our knowledge, there is no published study analyzing intellectual fitness at exceptional levels among Saudi Arabian clinical college students.

Methodology

Study design and sample selection: This is a quantitative study scoped to a descriptive cross-sectional study. Descriptive cross-sectional studies describe the prevalence of one or more health outcomes in a given group. This kind of research is the most effective for determining the prevalence and studying the relationships between numerous exposures and outcomes [7]. This study has been conducted before on a middle eastern sample [3].

Our sample demographic is Saudi Arabia's medical students, specifically in the capital city of Riyadh. The sampling is random, and these institutions were picked based on the number of students enrolled, academic excellence, and popularity among Saudi Arabian universities in Riyadh. The universities chosen were King Saud University, Alfaisal University, Al-imam Muhammad Ibn Saud Islamic University, and King Saud bin Abdulaziz University for Health Sciences, focusing primarily on medical students in different levels of training. After obtaining the IRB, the universities' administration was responsible for distributing the survey through email.

Materials/instruments: Psychological distress was measured on a validated GHQ-12 for the Arab population. The GHQ-12 is a quick, basic, and easy-to-complete assessment, and its use as a screening tool in research contexts is widely established. The instrument consisted of 12 questions, six positively phrased and six negatively worded. On a four-point scale, each item is graded (less than usual, no more than usual, rather more than usual, or much more than usual). The scale asks if the responder has lately encountered a particular symptom or behavior. The answers were coded as 0-3 points, in which higher scores indicate an increase in distress, which leads to a decrease in quality of life. To assess the prevalence of psychological distress, the answers were coded as 0,0,1,1, where participants scoring a mean of more than four are considered "psychiatric cases" [8,9].

Procedure: Between April 2022 and May 2022, it was distributed via a Google forms survey. The medical students were asked to complete the self-rated GHQ-12 questionnaire and a brief questionnaire comprising demographic information such as the university they are attending, their age, gender, GPA, and training level. All participants assured confidentiality and provided consent via the form.

Analysis: The demographic data and GHQ-12 scores were presented using descriptive statistics. Frequency and percent were used to describe categorical variables such as age, gender, marital status, and university level. In contrast, mean and standard deviation were used to describe continuous variables as GHQ-12 results. Statistical tests, such as linear or logistical regression, were utilized depending on the variables to help predict psychological distress. The student's t-test and one-way variance analysis were used for comparison.

Results

In the current study, we were able to collect data from 617 medical students gathered from four universities in Riyadh region, Saudi Arabia, where 27.9 % of the students were from Imam Mohammad Ibn Saud Islamic university, 25.1 % were at King Saud bin Abdulaziz for Health Science University, 24.8 % were at King Saud University, and 22.2 % were at AL Faisal University. Moreover, 56.7 % of the participants were males, 42.1 % were aged between 20 and 21, and 91.6 % were single. Furthermore, 27.4 % of the participants were at the 2nd level, 21.4 % were at the 3rd level, and 15.7 % were at the 1st level. Considering current GPA, 45.9 % of the students reported having a GPA of 4.5 points or more (out of 5), while 30.0 % reported having GPA between 4-4.5 points. Moreover, 38.6 % of the participants reported having a household income of more than 30000 SR (Saudi Riyal), while 12.8 % reported less than 10000 SR (Table 1).

Table 1: Demographic factors of the participants (N=617).

		Count	Column N %
Gender	Male	350	56.7%
	Female	267	43.3%
Age	18-19	86	13.9%
	20-21	260	42.1%
	22-23	177	28.7%
	24 or older	94	15.2%
Marital status	Never married	565	91.6%
	Married	33	5.3%
	Divorced	10	1.6%
	Widowed	9	1.5%
Current educational level	1st year	97	15.7%
	2nd year	169	27.4%
	3rd year	132	21.4%
	4th year	71	11.5%
	5th year	74	12.0%
	Intern	74	12.0%
University	King Saud University	153	24.8%
	Alfaisal university	137	22.2%
	Imam Mohammad Ibn Saud Islamic University	172	27.9%
	King Saud bin Abdulaziz for Health Sciences University	155	25.1%
Current GPA (Grade Point Average) out of 5	Below 2.50	18	2.9%
	2.50 - <3.00	30	4.9%
	3.00 - <4.00	101	16.4%
	4.00 - <4.50	185	30.0%
	4.50 or above	283	45.9%
Household Income	<10000 SR	79	12.8%
	10000 - <20000 SR	148	24.0%
	20000 - <30000 SR	152	24.6%
	>30000 SR	238	38.6%

Among the participants, only 163 students had reported that they had completed any clinical psychiatry rotations before (26.4 %), while 454 students reported never completing any clinical psychiatry rotations before (73.6 %) (Figure 1).

According to the GHQ-12, 368 students were classified as GHQ- cases having symptoms of depression and psychiatric disorders (59.6 %).

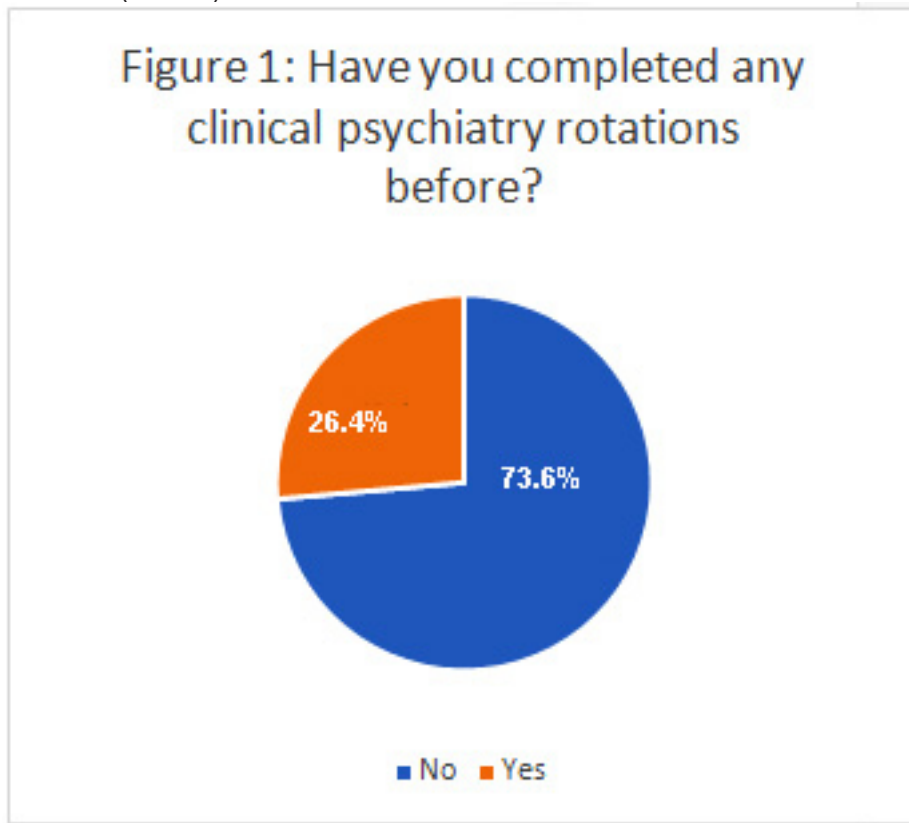


Table 2 shows a significant difference between male and female students in the prevalence of psychological distress (GSQ case), where the prevalence of psychological distress among female students was significantly higher than among males (68.9 % vs. 52.6 %, $P=0.000$). Moreover, no significant difference was found between students of different ages ($P=0.414$); however, younger students (18-19 years old) showed the highest prevalence of distress (67.4 %), which reduced to 57.3 % of students aged between 20-21 years and 58.8 % in students aged 22-23 years old and slightly increased to 60.6 % of students older than 24 years old. Furthermore, marital status was found to have no significant impact on the prevalence of distress among students ($P=0.119$); however, married students showed the highest prevalence (78.8 %). Moreover, it was found that the prevalence of distress was the lowest among students at Imam Mohammad Ibn Saud Islamic University (50.6 %) and the highest among students of AL Faisal university (65.7 %). Furthermore, we found that the prevalence of distress was lowest among students who reported higher than 30000 SR monthly income ($P=0.015$). Moreover, the prevalence of distress was found to decrease with the increase in GPA of the students ranging between 77.8 % in students with a GPA of below 2.5 to 52.7 % in students who had a GPA of more than 4.5 ($P=0.003$) (Table 2).

Concerning educational level, the results of the current study did not show any significant difference in the prevalence of distress among students of different levels ($P=0.096$); however, students of the first level showed the highest level of distress (72.2 %). Completing clinical psychiatry rotations did not affect the prevalence of distress among students (59.5 % vs. 59.7 %, $p=0.968$) (Table 3). According to Table 4, the prevalence of distress in all students of each level is significantly lower than in level one except for level five. No significant difference in the prevalence of distress was noticed between students of levels two and interns.

Table 2: The relation between demographic factors of the students and the prevalence of psychological distress

		GHQ Cases (GHQ \geq 4)				P-value
		No		Yes		
		Count	Row N %	Count	Row N %	
Gender	Male	166	47.4%	184	52.6%	0.000*
	Female	83	31.1%	184	68.9%	
Age	18-19	28	32.6%	58	67.4%	0.414
	20-21	111	42.7%	149	57.3%	
	22-23	73	41.2%	104	58.8%	
	24 or older	37	39.4%	57	60.6%	
Marital status	Never married	234	41.4%	331	58.6%	0.119
	Married	7	21.2%	26	78.8%	
	Divorced	5	50.0%	5	50.0%	
	Widowed	3	33.3%	6	66.7%	
University	King Saud University	59	38.6%	94	61.4%	0.033*
	AL Faisal university	47	34.3%	90	65.7%	
	Imam Mohammad Ibn Saud Islamic University	85	49.4%	87	50.6%	
	King Saud bin Abdulaziz for Health Sciences University	58	37.4%	97	62.6%	
Household Income	<10000 SR	31	39.2%	48	60.8%	0.015*
	10000 - <20000 SR	55	37.2%	93	62.8%	
	20000 - <30000 SR	49	32.2%	103	67.8%	
	>30000 SR	114	47.9%	124	52.1%	
Current GPA (Grade Point Average) out of 5	Below 2.50	4	22.2%	14	77.8%	0.003*
	2.50 - <3.00	7	23.3%	23	76.7%	
	3.00 - <4.00	31	30.7%	70	69.3%	
	4.00 - <4.50	73	39.5%	112	60.5%	
	4.50 or above	134	47.3%	149	52.7%	

Table 3: The relation between educational level and prevalence of psychological distress

		GHQ cases (GHQ \geq 4)				P-value
		No		Yes		
		Count	Row N %	Count	Row N %	
Current educational level?	1st year	27	27.8%	70	72.2%	0.096
	2nd year	71	42.0%	98	58.0%	
	3rd year	58	43.9%	74	56.1%	
	4th year	33	46.5%	38	53.5%	
	5th year	27	36.5%	47	63.5%	
	Intern	33	44.6%	41	55.4%	
Have you completed any clinical psychiatry rotations before?	No	183	40.3%	271	59.7%	0.968
	Yes	66	40.5%	97	59.5%	

Table 4: Difference between psychological distress between students of different years

	1st year	2nd year	3rd year	4th year	6th year	Intern
1st year	Reference					
2nd year	0.532 [0.31: 0.91], P= 0.022*	Reference				
3rd year	0.492 [0.28: 0.86], P=0.013*	0.924 [0.58: 1.46], P=0.737	Reference			
4th year	0.444 [0.23: 0.84], P=0.014*	0.834 [0.47: 1.45], P=0.524	0.903 [0.51: 1.61], P=0.728	Reference		
5th year	0.67 [0.35: 1.28], P=0.229	1.261 [0.72: 2.22], P=0.419	1.36 [0.76: 2.44], P=0.297	1.512 [0.77: 2.93], P=0.223	Reference	
Intern	0.479 [0.25: 0.91], P=0.024*	0.900 [0.52: 1.56], P=0.708	0.974 [0.55: 1.73], P=0.928	1.07 [0.56: 2.07], P=0.819	0.714 [0.37: 1.37], P=0.316	Reference

Discussion

The general population has always considered medicine a popular tertiary education choice. Moreover, due to excess applicants, only those with excellent academic achievement are successfully accepted to medical schools. Therefore, medical programs are even more competitive and pose a highly stressful environment for accepted students [10]. If this stress is ignored, it will cause further tensions in the students' life [11]. In the current study, we aimed to assess the mental health of medical students at different levels of training to see if a certain level plays a higher role in developing mental health issues.

In the current study, the prevalence of psychiatric distress among medical students of different levels and universities was 59.6 %. This is higher than reported in a survey by Ahmad N et al., who reported a prevalence of psychiatric distress among medical students in Malaysia and India of 33.0 % [9]. Moreover, the study of Yusoff M. et al. among Malaysian medical students reported a prevalence of psychiatric distress of 50 % [12]. Furthermore, another study conducted among Iranian medical students reported that nearly half scored above the threshold on the GHQ-12 [3]. In addition, another study conducted by Aktekin et al. reported a prevalence of psychological distress of 48 % in second-year Turkish medical students [13].

In comparison, a survey by Sreeramareddy C et al. reported a prevalence of 21 % among Nepalese medical students [14]. Some other studies reported a higher prevalence of psychiatric distress, including the study of El Gabry D et al., which reported that 64% of Egyptian medical students reached the threshold as cases on the GHQ-12 [15], and the study of Chau S et al., which reported that 87 % of medical students in Hong Kong were positive on the GHQ-12 [16]. In addition, another study conducted among final-year medical students at a Sri Lankan university reported that 62.9 % had psychological distress [17]. In Saudi Arabia, a previous study conducted by Alghamdi T et al. among undergraduate medical students at Majmaah university showed that more than half of the students reported psychological distress [18]. Compared with the prevalence of psychological distress among non-medical students reported in different studies, the results showed that medical students had a higher level of psychological distress [17,19,20].

In the current study, we found that the prevalence of psychological distress was significantly higher among female medical students than males. This is similar to the results of Jafari et al., which showed that psychological disturbance was more frequent in females than males [3], as well as studies of Dyrbye LN et al. [21], Sherina MS et al. [1], and Assadi SM et al. [22] which reported higher mental health problems among females. Moreover, this result is similar to previous studies indicating that women usually show higher levels of psychological distress than men in the general population [23]. Furthermore, another study revealed that since female students feel less social support, they might suffer from a decreased sense of

coherence, a vital explanatory variable for psychological distress among medical students in general and in female students in particular [24].

Moreover, the current study showed a higher incidence of psychological distress among students with lower household incomes and those with lower GPA scores. This is in disagreement with the results of a previous study, which showed that the prevalence of psychological distress was significantly higher among students with higher GPAs [9]. Those with low GPAs were under enormous pressure to improve their academic scores, which increased the stressors and their risk of developing psychological distress and other psychological disorders. Furthermore, the current study revealed no significant difference between students of different levels in the prevalence of psychological distress except for first-level students who reported the highest level of distress. This is in disagreement with the study of Akdemir M et al., which showed that the GHQ-12 score of medical students increased significantly at all cut-off points after the first year [25]. Baldassin S et al. also reported that students in the internship period showed the highest psychological distress compared to students in the basic and intermediate periods [26]. On the other hand, other studies reported similar results, including a survey by Jafari et al., which showed that students at the basic science level were more psychologically distressed than interns and students of clinical clerkship [3]. The study of Aktekin M et al., showed that the global mental health, depression, and anxiety in medical students became worse during the first year of medical education [13], the study of Dahlin M et al. showed first year- Swedish students indicated experiencing the highest degree of pressure [27], and Dyrbye L et al., showed that the level of depressive symptoms varies by year of training, with the highest during the second year [21]. Transferring from high school to medical students and the new life and competency in the medical college put the new students under pressure which may be associated with a higher prevalence of distress rather than older students who may be adapted to the life of the college. Moreover, our findings may be related to heavy workloads and intense curricula, complications adjusting to the college's different environments, and poor campus conditions [26].

In conclusion, the current study confirmed previous studies in the high prevalence of psychological distress among medical students, which was significantly higher among females, students of low income, and students with lower GPAs. Moreover, the study showed that first-level students were the most affected by psychological distress. Providing greater attention to that concern is vital to reduce this prevalence and help students be less stressed, which will positively impact their quality of life. More investigations should be conducted to assess if the curriculum affects this prevalence. Preparing campaigns at the start of the year to meet the new students and prepare them for college life could reduce the impact on them.

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