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The influence of mental illness and poor psychiatric monitoring programs on students' performance in Umm Al-Qura University

Rayan Almalki[1*], **Abdullah Qashar**[1], **Fahad Alharthi**[1], **Abdullah Alsubhi**[1], **Bandar Alzubedi**[1], **Ahmed Niyazi**[1], **Sultan Alobaidi**[1], **Abdullah Tawakul**[2], **Omar Babateen**[3]

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Authors' Affiliation:
[1]Medical student, College of Medicine, Umm Al-Qura University, Makkah, Saudi Arabia
[2]Department of Medicine, Faculty of medicine, Umm Al-Qura University, Makkah, Saudi Arabia
[3]Department of physiology, Faculty of Medicine, Umm Al-Qura University, Makkah, Saudi Arabia

***Corresponding author**
Medical student, College of Medicine, Umm Al-Qura University, Makkah, Saudi Arabia
Email: Rayan.o.al.malki38@gmail.com

ORCID list

Rayan Obaid Almalki	orcid.org/0000-0002-1834-9134
Abdullah Abdulhadi Qashar	orcid.org/0000-0002-2208-3113
Fahad Saleh Alharthi	orcid.org/0000-0002-4848-3959
Abdullah Ahmed Alsubhi	orcid.org/0000-0003-4330-2343
Bandar Khalid Alzubedi	orcid.org/0000-0002-5114-2434
Ahmed Abdulshakur Niyazi	orcid.org/0000-0001-5116-947X
Sultan Fahad Alobaidi	orcid.org/0000-0002-0691-5442
Abdullah Tawakul	orcid.org/0000-0003-4333-2411
Omar Babateen	orcid.org/0000-0002-1341-2616

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ABSTRACT

Background: Mental illness is a term use to prescribe a variety of diseases that characterized by abnormal thoughts or behavior or mood of the affected individual. This survey based study aimed to determine the influence of mental illness and poor psychiatric monitoring programs on mind of medical students attending Umm Al-Qura University. *Methods:* This is a survey based study conducted in June 2022 that utilized an online questionnaire designed in Google Form. The study included all medical students in their second to sixth year at Umm-Al-Qura University. *Results:* There were 410 total students who participated in this study. About three quarters of the students were males (73.7%) and most of them were Saudis (97.3%). More than half of students were aged <22 years (59.6%). In general, 11.7% of students had been diagnosed with a mental health condition and 8.3% of students had received medications for mental health conditions. Additionally, 11.2% of students were following-up with a mental health specialist (psychiatrist or psychologist) and 8.3% of students were receiving medications for mental health conditions at the time. *Conclusion:* Our data shows that having a mental illness can have a negative effect on students' academic performance. Importantly, competent psychiatric monitoring programs can minimize the influence of mental illness.

Keywords: Influence, mental illness, psychiatric monitoring programs, students' performance

1. INTRODUCTION

The World Health Organization (WHO) defined metal health based on a hedonic and eudaimonic world view, in which a person's well being and productivity play a major role (Galderisi et al., 2017). Positive sentiments (e.g.,

happiness, satisfaction), positive attitudes toward one's own duties and toward others and positive functioning are all part of an individual's emotional, psychological and social well being (Galderisi et al., 2017). On the contrary, Mental illness is a term used to describe a range of conditions characterized by a disruption in an individual's thoughts, feelings, or affection (Anosike et al., 2020). Due to the close link between education and mental health, improving educational attainment may be an effective method the address socioeconomic determinants of mental health and reduce inequities in mental health (Wong et al., 2017). Personal factors such as being away from family, adjusting to bad hostel conditions and parental expectations, among others, are all perceived sources of stress that can affect mental health (Nandi et al., 2012).

Over the past 12 months, about 10% of university students in the United States have been diagnosed with or treated for depression (Beiter et al., 2014). A recent cross sectional study that investigated mental health literacy among under graduate students in Jazan, Saudi Arabia, found that the prevalence of mental diseases was about 18.2%. Interesting, according to their finding, the majority of students had an intermediate level of mental health literacy. However, approximately half of the participants had an unfavorable attitude towards mentally ill people and mental disease management (Almanasef et al., 2021). Adding to that, low life satisfaction, low self esteem and feelings of inadequacy can all lead to considerable social, vocational and educational impairments (Beiter et al., 2014). With this background, this study was intended to be an analytical observational study to assess student's performance and educational status and determine how poor psychiatric monitoring programs and mental illness can affect the students' performance.

2. MATERIALS AND METHODS

Study population and sampling

A cross sectional study conducted in June 2022 that included all medical students in their second year to sixth year. The survey consisted of an online questionnaire designed in Google Forms after obtaining ethical approval by the Biomedical Ethics Committee in the University of Umm Al-Qura, College of Medicine, Makkah, Saudi Arabia. The Ethical approval number is HAPO-02-K-012-2022-06-112. Informed consent was obtained from the entire sample size of 410 participants by informing them about the purpose and benefits of the study sample.

Study instruments

The study questionnaire was divided in to two main parts. The first part inquired about the participants' demographic information, including age, gender, academic year and level of education. The second part was adapted from previously published articles (Goldberg & Hillier, 1979; Demerouti et al., 2003), and was used to determine the influence of mental illness and poor psychiatric monitoring programs on medical students.

Statistical analysis

Data analysis was performed using R Studio (R version 4.1.1). Categorical variables were expressed as frequencies and percentages, whereas numerical variables were presented as median and inter quartile ranges (IQRs). Factors associated with psychological distress and burnout were explored using univariate linear regression analyses, where General Health Questionnaire (GHQ) and Oldenburg burnout inventory (OBI) scores were used as dependent variables. We included demographic and mental health related characteristics as independent variables. The significantly associated variables were further entered in a multivariate regression model for GHQ (distress) and OBI (burnout). Results of the regression analysis were expressed as beta coefficients and their respective 95% confidence intervals (95% CIs). Statistical significance was considered at $p < 0.05$.

3. RESULTS

Responses to the online questionnaire of were collected and analyzed across 410 medical students. More than half of the students were aged <22 years (59.6%). Third year students represented 32.0% of participants, while 21.5% of students were in their second year. A total of 71.5% of students had obtained the highest GPAs (3.50 to 4.00) compared to the rest of the students' body. The highest educational level students' parents included a bachelor's degree among (50.1% of parents) and a high school education or below (33.5% of parents). Non working students represented 73.4% and those students who are employed worked <8 hours per week (11.5%), 8-20 hours per week (10.0%), or >20 hours per week (5.1%) (Table 1).

Table 1 Demo graphic characteristics of students in the study.

Parameter	Category	N (%)
Age* (years)	<22	243 (59.6%)
	22 to <24	133 (32.6%)
	24 or more	32 (7.8%)
Gender	Male	302 (73.7%)
	Female	108 (26.3%)
Nationality	Non Saudi	11 (2.7%)
	Saudi	399 (97.3%)
Academic year	2nd year	88 (21.5%)
	3rd year	131 (32.0%)
	4th year	70 (17.1%)
	5th year	51 (12.4%)
	6th year	70 (17.1%)
GPA	Less than 1.75	2 (0.5%)
	1.75-2.74	6 (1.5%)
	2.75-3.49	109 (26.6%)
	3.50-4.00	293 (71.5%)
The highest education status achieved by parents[¥]	High school or below	137 (33.5%)
	Bachelor's degree	205 (50.1%)
	Master's degree	32 (7.8%)
	PhD	35 (8.6%)
Hours spent in a part-time job or other employment	Not currently working	301 (73.4%)
	<8 hours per week	47 (11.5%)
	8-20 hours per week	41 (10.0%)
	>20 hours per week	21 (5.1%)

In general, 71 students (17.3%) had ever visited a specialist (a general practitioner, psychologist, psychiatrist, psychotherapist, etc) regarding the mental health prior to joining the medical school. Additionally, prior to joining the medical school, 7.1% of students had been diagnosed with a mental health condition, 6.8% of students had been diagnosed with either attention deficit/hyperactivity disorder (ADHD) or autism spectrum disorder (ASD), and 10.0% of students had received a medication for their mental health condition. During their academic study at the medical school, 11.7% of students had been diagnosed with a mental health condition, and 8.3% of students had received medications for mental health conditions. Additionally, 11.2% of students were following up with a specialist for the management of a mental health condition and 8.3% of students were currently receiving medications for mental health conditions (Table 2).

Table 2 Characteristics of mental health

Parameter	N (%)
Ever visited a specialist regarding mental health prior to medical school	71 (17.3%)
Ever diagnosed with a mental health condition prior to medical school	29 (7.1%)
Ever diagnosed with ADJD or ASD	28 (6.8%)
Ever received a medication for mental health	41 (10.0%)
Ever diagnosed with a mental health condition whilst in medical school	48 (11.7%)
Currently taking a medication for mental health	34 (8.3%)
Currently following up with a specialist regarding mental health	46 (11.2%)

Interestingly, a total of 38 students (9.2%) indicated that there is no source of stress in their lives. Of the remaining students (n= 372), the primary source of stress among them was the academic study (88.2%), followed by relationships (42.7%) and money (41.9%) (Figure 1).

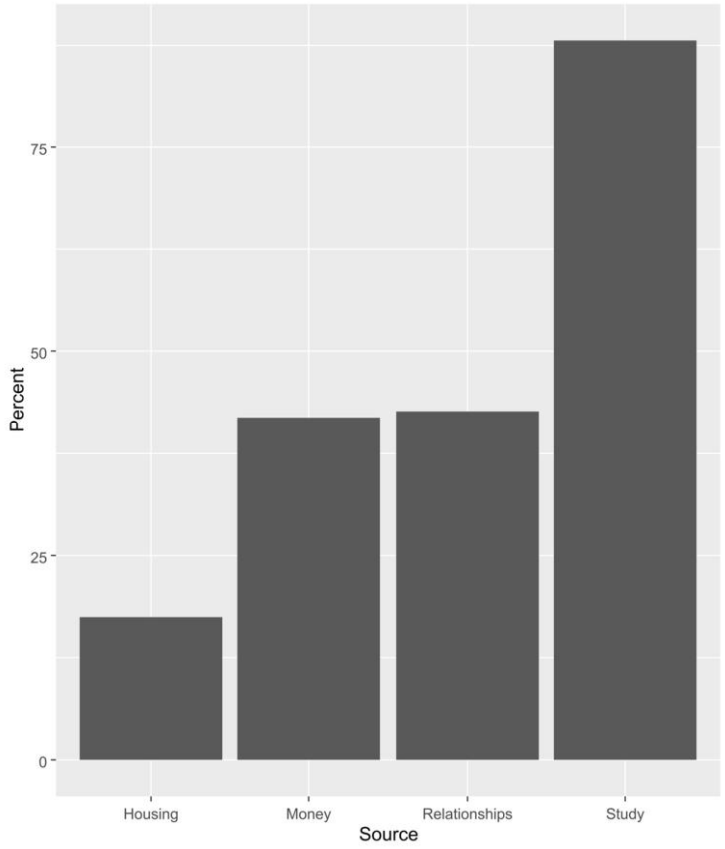

Figure 1 source of stress among the students (n= 372)

In general, the median GHQ score across all students was 11.5 (IQR, 10.0 to 13.8). Psychological distress score was associated with the female gender (β = 0.97, 95% CI, 0.37 to 1.56, p = 0.001). Not surprisingly, psychological distress scores were also associated with the following variables as significant sources of stress: Money (β = 0.54, 95% CI, and 0.01 to 1.09, p = 0.049), study (β = 1.15, 95% CI, 0.49 to 1.82, p < 0.0001) and relationships (β = 1.13, 95% CI, 0.60 to 1.66, p < 0.0001). Conversely, the following variables were associated with lower psychological distress scores: Being a sixth year student (β = -1.25, 95% CI, -2.09 to -0.41, p = 0.004), having a high GPA (β = -4.50, 95% CI, -8.76 to -0.24, p = 0.039 for the 1.75-2.74 group, β = -3.73, 95% CI, -7.45 to -0.01, p = 0.049 for the 2.75-3.49 group and β = -4.98, 95% CI, -8.69 to -1.28, p = 0.008 for the 3.504.00 group), and working for <8 hours per week (β = -0.89, 95% CI, -1.73 to -0.06, p = 0.037, Table 3).

Table 3 Results of the regression analysis regarding factors associated with GHQ scores as indicators of psychological distress.

Parameter	Category		Univariate			Multivariate	
		Beta	95% CI	p	Beta	95% CI	p
Age (years)	<22 22 to <24 24 or more	— -0.51 -0.49	— -1.09, 0.07 -1.49, 0.52	— 0.082 0.340	NA	NA	
Gender	Male Female	— 0.97	— 0.37, 1.56	0.001	— 0.67	— 0.08, 1.26	0.026
Nationality	Non Saudi	—	—		NA	NA	

	Saudi	-0.4	-2.04, 1.23	0.629			
Academic year	2nd year	—	—		—	—	
	3rd year	0.1	-0.63, 0.82	0.795	0.02	-0.67, 0.70	0.965
	4th year	0.64	-0.20, 1.48	0.136	0.49	-0.32, 1.30	0.232
	5th year	-0.64	-1.56, 0.28	0.172	-0.82	-1.70, 0.07	0.071
	6th year	-1.25	-2.09, -0.41	0.004	-1.36	-2.17, -0.55	0.001
GPA	Less than 1.75	—	—		—	—	
	1.75-2.74	-4.5	-8.76, -0.24	0.039	-4.24	-8.30, -0.19	0.040
	2.75-3.49	-3.73	-7.45, -0.01	0.049	-2.63	-6.21, 0.94	0.148
	3.50-4.00	-4.98	-8.69, -1.28	0.008	-3.78	-7.34, -0.22	0.038
Highest education status achieved by parents	High school or below Bachelor	—	—	0.102	NA	NA	
	Master	0.49	-0.10, 1.08				
	PhD	0.28	-0.77, 1.33	0.601			
		0.9	-0.12, 1.91	0.083			
Hours spent in a part time job or other employment	Not working	—	—		—	—	—
	<8 hours/week	-0.89	-1.73, -0.06	0.037	-0.95	-1.74, -0.16	0.019
	8-20 hours/week	-0.48	-1.37, 0.40	0.283	-0.22	-1.05, 0.60	0.595
	>20 hours/week	0.67	-0.53, 1.87	0.274	0.4	-0.73, 1.54	0.486
Ever visited a specialist regarding mental health prior to medical school	No	—	—	0.581	NA	NA	
	Yes	-0.2	-0.89, 0.50				
Ever diagnosed with a mental health condition prior to medical school	No	—	—	0.378	NA	NA	
	Yes	0.46	-0.57, 1.49				
Ever diagnosed with ADHD or ASD	No	—	—	0.488	NA	NA	
	Yes	-0.37	-1.42, 0.68				
Ever received a medication for mental health	No	—	—	0.995	NA	NA	
	Yes	0	-0.88, 0.88				
Ever diagnosed with a mental health condition whilst in medical school	No	—	—	0.242	NA	NA	
	Yes	0.49	-0.33, 1.31				
Currently taking a medication for mental health	No	—	—	0.944	NA	NA	
	Yes	0.03	-0.93, 0.99				
Currently following up with a specialist regarding mental health	No	—	—	0.343	NA	NA	
	Yes	-0.4	-1.24, 0.43				
Stress source: Money	No	—	—		—	—	
	Yes	0.54	0.01, 1.09	0.049	0.36	-0.15, 0.88	0.167
Stress source: Study	No	—	—		—	—	
	Yes	1.15	0.49, 1.82	<0.001	0.99	0.36, 1.63	0.002
Stress source: Relationships	No	—	—		—	—	
	Yes	1.13	0.60, 1.66	<0.001	0.86	0.35, 1.38	0.001

Based on the multivariate analysis, we found that sixth year students (-1.36, 95% CI, -2.17 to -0.55, p = 0.001), those with high GPA scores (-4.24, 95% CI, -8.30 to -0.19, p = 0.040 for the 1.75-2.74 group and -3.78, 95% CI, -7.34 to -0.22, p = 0.038 for the 3.50-4.00 group), and students working for <8 hours per week (β = -0.95, 95% CI, -1.74 to -0.16, p = 0.019) were all less likely to experience high psychological distress. Contrastingly, independent risk factors for high psychological distress included being a female (β = 0.67, 95% CI, 0.08 to 1.26, p = 0.026), and reporting study (β = 0.99, 95% CI, 0.36 to 1.63, p = 0.002) and relationships (β = 0.86, 95% CI, 0.35 to 1.38, p = 0.001) as sources of stress (Table 3).

The median OBI score was 18.0 (IQR, 16.0 to 20.0). Sixth year students (β = -0.97, 95% CI, 1.90 to -0.04, p = 0.041) and working <8 hours per week (β = -1.38, 95% CI, -2.29 to -0.48, p = 0.003) were significant factors associated with low burnout scores. On the other hand, students in the following groups had significantly higher OBI scores: Non Saud is (β = 2.28, 95% CI, 0.51 to 4.05, p = 0.012), and being diagnosed with a mental health condition prior to attending medical school (β = 1.75, 95% CI, 0.64 to 2.86, p = 0.002), as well as reporting the following variables as significant sources of stress: Money (β = 0.68, 95% CI, 0.09 to 1.27, p = 0.023), study (β = 1.20, 95% CI, 0.48 to 1.93, p = 0.001) and relationships (β = 0.66, 95% CI, 0.07 to 1.25, p = 0.028, Table 4).

Table 4 Results of the regression analysis regarding factors associated with OBI scores as indicators of burnout.

Parameter	Category		Univariate			Multivariate	
		Beta	95% CI	p	Beta	95% CI	p
Age (years)	22 to <24	-0.34	-0.97, 0.29	0.293			
	24 or more	-1	-2.10, 0.10	0.074			
Gender	Male	—	—		NA	NA	
	Female	0.51	-0.15, 1.16	0.128			
Nationality	Saudi	—	—		—	—	
	Non Saudi	2.28	0.51, 4.05	0.012	2.23	3.93, 0.53	0.010
Academic year	2nd year	—	—		—	—	
	3rd year	0.01	-0.79, 0.81	0.983	-0.05	-0.82, 0.72	0.898
	4th year	0.33	-0.60, 1.26	0.486	0.09	-0.81, 0.99	0.841
	5th year	-0.37	-1.39, 0.65	0.478	-0.68	-1.67, 0.31	0.177
	6th year	-0.97	-1.90, -0.04	0.041	-1.18	-2.07, -0.28	0.011
GPA	Less than 1.75	—	—		NA	NA	
	1.75-2.74	-0.67	-5.38, 4.04	0.781			
	2.75-3.49	-0.78	-4.89, 3.34	0.711			
	3.50-4.00	-1.85	-5.94, 2.24	0.374			
Highest education status achieved by parents	High school or below Bachelor Master	— 0.05 0.48	— -0.59, 0.70 -0.66, 1.63	 0.877 0.408	NA	NA	
	PhD	0.05	-1.06, 1.16	0.926			
Hours spent in a part time job or other employment	Not working <8 hours/week 8-20 hours/week	— -1.38 -0.44	— -2.29, -0.48 -1.40, 0.52	 0.003 0.367	— -1.31 -0.31	— -2.20, -0.42 -1.23, 0.62	 0.004 0.515
	>20 hours/week	0.28	-1.03, 1.58	0.674	0.04	-1.23, 1.30	0.955
Ever visited a specialist regarding mental health prior to medical school	No Yes	— 0.64	— -0.12, 1.40	0.096	NA	NA	
Ever diagnosed with a mental health condition prior to medical school	No Yes	— 1.75	— 0.64, 2.86	0.002	— 1.87	— 0.78, 2.96	<0.001
Ever diagnosed with ADHD or ASD	No Yes	— 0.85	— -0.29, 1.99	0.145	NA	NA	

Ever received a medication for mental health	No Yes	— 0.59	— -0.37, 1.54	0.231	NA	NA	
Ever diagnosed with a mental health condition whilst in medical school	No Yes	— 0.7	— -0.19, 1.60	0.122	NA	NA	
Currently taking a medication for the mental health	No Yes	— 0.97	— -0.07, 2.01	0.067	NA	NA	
Currently following up with a specialist regarding mental health	No Yes	— 0.68	— -0.23, 1.59	0.143	NA	NA	
Stress source: Money	No	—	—		—	—	
	Yes	0.68	0.09, 1.27	0.023	0.6	0.02, 1.18	0.042
Stress source: Study	No	—	—		—	—	
	Yes	1.2	0.48, 1.93	0.001	1.31	0.60, 2.03	<0.001
Stress source: Relationships	No	—	—		—	—	
	Yes	0.66	0.07, 1.25	0.4	0.028	-0.19, 0.98	0.181
Stress source: Housing	No	—	—		NA	NA	
	Yes	0.23	-0.55, 1.00	0.57			

On the multivariate analysis, low OBI scores were independently associated with being in their sixth year of medical school (β = -1.18, 95% CI, -2.07 to -0.28, p = 0.011), and working for <8 hours per week (β = -1.31, 95% CI, -2.20 to -0.42, p = 0.004). On the other hand, the independent risk factors for high OBI scores were being a non Saudi (β = 2.23, 95% CI, 3.93 to 0.53, p = 0.010) and having a mental health condition that was diagnosed prior to attending medical school (β = 1.87, 95% CI, 0.78 to 2.96, p < 0.001). Other risk factors included reporting money (β = 0.60, 95% CI, 0.02 to 1.18, p = 0.042) and relationships (β = 1.31, 95% CI, 0.60 to 2.03, p < 0.001) as sources of stress (Table 4).

Generally, 16 students (4.0%) declared that they were consuming alcohol. Of these, approximately two thirds of students felt that it is necessary to cut down on drinking (68.8%) and felt bad or guilty about drinking (62.5%). Only 13.1% of students had taken a non prescription substance or prescription medication outside of its intended use to feel better or up lift their moods and 13.7% of them had received any medication intended to enhance their concentration, study or academic performance (excluding caffeinated or other energy drinks, Table 5).

Table 5 Patterns of substance use and use of non prescription medications to counteract psychological problems. Based on the responses of 16 participants who confirmed alcohol consumption

Parameter	N (%)
Drinking alcohol	16 (4.0%)
Feeling that it important to cut down on drinking*	11 (68.8%)
Feeling bad or guilty about drinking*	10 (62.5%)
Taking a non-prescription substance or prescription medications	32 (13.1%)
Taking any medication intended to enhance concentration	35 (13.7%)

4. DISCUSSION

Mental illness is one of the major challenges that can lead to poor academic performance (Kızıltepe et al., 2020) so it is important to determine how to overcome it by identifying the major risk factors. Our study highlights various major risk factors associated with

mental illness. We aimed to understand the effects of mental illness on medical student's academic performance, and how factors such as being female, being in relationships, and having a large ranging academic study schedule play role as risk factors. These variables can all negatively impact the students' academic performance. In contrast, we found that students who had a tight academic study schedule were found to have a high GPA, good overall performance and good psychological health.

Psychiatric monitoring programs should be available in all educational programs since it aims to minimize the effect of compromised psychological health on the students' performance. Yet, poor psychiatric monitoring programs with inexperienced staff can indirectly affect students' performance because they miss students with abnormal mental health or can lead to poor psychiatric prognosis in students.

In this study we covered some risk factors for mental illness and we discover a relationship between mental illness and student performance. As a limitation, this study was applicable only on one academic center with a specific population of medical students. Further studies should consider more relationships between mental consider academic performance, and an avenue for further research includes: The risk factors of having mental illness, the relevance between being mental illness and student performance, the relationship between poor psychiatric monitoring and a prognosis mental health abnormalities.

5. CONCLUSION

These data, shows that having a mental illness can have a negative effect on students' academic performance. Importantly, competent psychiatric monitoring programs can minimize the influence of mental illness.

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Authors' contributions

Rayan Almalki and Omar Babateen conceived the research idea, developed the study design and supervised the project. Rayan Almalki, Omar Babateen, Abdullah Tawakul, Abdullah Qashar, Fahad Alharthi, Abdullah Alsubhi, Bandar Alzubedi, Ahmed Niyazi, and Sultan Alobaidi were responsible for the data collection, analysis, interpretation, and drafting of the manuscript.

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Conflict of interest

The authors declare that there is no conflict of interests.

Data and materials availability

All data sets collected during this study are available upon reasonable request from the corresponding author.

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