

## Understanding Mental Health Distress among Medical Students: Prevalence and Contributing Factors at Al Rayan Colleges, Saudi Arabia

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### Abstract

**Background:** Medical students face substantial academic pressure and clinical demands, contributing to higher rates of mental health distress compared to their peers in other fields. Despite growing concern, little research has focused on the mental well-being of medical students in Saudi Arabia.

**Objective:** This study aims to assess the prevalence of mental health distress and identify key demographic, academic, and socio-cultural factors associated with psychological distress among medical students at Alrayan Colleges, Saudi Arabia.

**Methods:** A cross-sectional survey of 214 medical students was conducted using the General Health Questionnaire-12 (GHQ-12) to measure mental distress across three domains: Anxiety and Depression, Social Dysfunction, and Loss of Confidence. Additional demographic and academic data were collected via a structured questionnaire. Data was analyzed using descriptive statistics and regression models.

**Results:** A total of 62.1% of students were classified as high-risk, and 5.6% as experiencing severe distress. Female students had significantly higher distress levels than males ( $P < 0.05$ ). Academic workload was a significant predictor, with those experiencing high workloads reporting higher GHQ-12 scores ( $P < 0.05$ ). Faculty support acted as a protective factor, while students avoiding mental health support due to stigma reported significantly higher distress ( $P < 0.001$ ).

**Conclusion:** The high prevalence of mental distress, particularly among female students and those facing heavy academic workloads, underscored the need for targeted mental health interventions. Addressing the stigma surrounding mental health support and strengthening faculty involvement could improve student well-being. This study provided important insights into the mental health challenges faced by medical students in Saudi Arabia and calls for institutional reforms to support mental health.

**Keywords:** Mental Health; Medical Students; Academic Pressure; Faculty Support; Gender Differences; Stigma; Saudi Arabia

## Introduction

Mental health distress among university students, particularly medical students, has become a critical public health concern worldwide. The intense academic demands, coupled with the pressure of clinical responsibilities, place medical students at heightened risk for psychological distress. Globally, medical students report significantly higher levels of stress, anxiety, and depression compared to their peers, with studies suggesting that up to 50% of medical students experience mental health problems during their training [1,2]. Symptoms such as insomnia, appetite changes, fatigue, and difficulty concentrating are common, while more severe issues like anxiety, depression, and suicidal ideation are frequently observed [3,4].

Studies consistently show that medical students are disproportionately affected by mental health problems compared to other students. For instance, a study conducted by Alkhamees, *et al.* [5] revealed that over 50% of medical students experience depression, with burnout syndrome also being highly prevalent. Similarly, a study by Alghamdi, *et al.* [6] reported that more than half of the students surveyed at a medical college in Saudi Arabia experienced significant levels of mental distress, driven by academic pressure and the demands of the medical curriculum. Furthermore, severe psychological distress was noted among more than 50% of students surveyed in another study by Alfayez and Alshehri [7]. These findings highlight the pressing need to address mental health issues within this population.

While mental health distress among medical students is a global issue, it is particularly concerning in the Middle East. In Saudi Arabia, where higher education is rapidly expanding, there are specific socio-cultural and academic factors that may exacerbate stress levels. Aljaber [8] found that academic pressures, combined with societal expectations, contribute significantly to the mental health challenges faced by medical students. Furthermore, the stigma surrounding mental health issues remains a significant barrier to seeking help, with many students fearing the impact on their academic and professional reputations [7]. Cultural stigma and a lack of mental health services further complicate the situation, making it essential to explore these issues within the Saudi context [1].

Mental health challenges during medical training can have long-term consequences, including impaired academic performance, reduced empathy, and an increased risk of burnout and suicidal ideation [2]. These issues not only affect students' well-being but also their ability to provide high-quality care to patients as future physicians. As a result, addressing mental health problems early is critical to ensuring the well-being of medical students and maintaining the quality of care they will provide throughout their careers [9].

## Aim of the Study

This study aims to assess the prevalence of mental health distress among medical students at Alrayan Colleges in Saudi Arabia and to identify the demographic, academic, and socio-cultural factors contributing to this distress. By understanding these factors, this research will provide the foundation for developing targeted mental health interventions that can improve student well-being and enhance the quality of future healthcare delivery.

## Research Methods

### Study design

This descriptive cross-sectional study was chosen to assess the prevalence and determinants of mental health distress among medical students at Alrayan Colleges, Saudi Arabia.

### Study setting

The study was conducted at the Faculty of Medicine, Alrayan Colleges, located in Al-Madinah Al-Munawwarah, Saudi Arabia. The college offers undergraduate medical programs, making it an ideal setting for studying the mental health of medical students. Data collection occurred from September 2023 to October 2023.

### Study population

The target population for this study comprised all medical students enrolled in Alrayan Colleges for the academic year 2023-2024. This included students from all years of study in the undergraduate medical program, allowing for a diverse range of participants in terms of academic levels and associated stress factors.

### Sample size and sampling technique

A census sampling approach was adopted for this study, targeting all 900 medical students enrolled at Alrayan Colleges during the 2023-2024 academic year. The survey was distributed using a combination of online and in-person methods to ensure maximum participation. The online distribution involved sharing the survey link via widely used student communication platforms, where students frequently exchange college updates and news. These platforms were selected to reach a significant portion of the student body, ensuring broad accessibility.

To complement the online approach, all classes were visited in person, and students were directly asked to complete the questionnaire during their scheduled class times. This in-person approach provided an opportunity for students who might not engage with online platforms to participate in the study. By combining both digital and face-to-face recruitment methods, the study aimed for comprehensive coverage of the entire student population. Despite this, a total of 214 students responded to the survey, resulting in a 23.8% response rate. This method ensured the inclusion of diverse student groups and enhanced the chances of obtaining representative data.

### Data collection

Data were collected using two primary instruments: the General Health Questionnaire-12 (GHQ-12) and a structured questionnaire. The GHQ-12 is a validated tool for screening mental health distress, consisting of 12 items scored using a Likert scale (0-1-2-3), where 0 represents "Better/healthier than usual" and 3 represents "Much worse/more than usual".

### Data analysis

The data collected were analyzed using SPSS software (version 25). Descriptive statistics (frequencies and percentages) were calculated to summarize participants' characteristics and GHQ-12 scores. The GHQ-12 data were categorized into normal, high-risk, and severe states based on predefined cut-off points for the three factors (Anxiety and depression, social dysfunction, loss of confidence). For associations between categorical variables (e.g. gender, nationality) and mental health outcomes, the Chi-square test was applied. Given the non-normal distribution of the data, the Mann-Whitney U test was used to compare GHQ-12 scores between two independent groups (e.g. those with or without prior mental health conditions), and the Kruskal-Wallis test was used for comparisons across more than two groups (e.g. workload or faculty support). Additionally, a linear regression model with dummy variable transformation was used to explore the relationships between continuous GHQ-12 scores and predictor variables such as gender, nationality, workload, and faculty support, providing insights into the impact of each factor on mental health distress.

### Ethical considerations

Ethical approval was obtained from the Institutional Review Board (IRB) of Alrayan Colleges. Participation was voluntary, and informed consent was obtained from all participants. The anonymity and confidentiality of participants were maintained, and they were informed of their right to withdraw from the study at any point. The study adhered to the principles of the Declaration of Helsinki.

## Results

### Participants' characteristics and socio-demographic features

A total of 214 participants were included in the study. The majority of participants were female, comprising 144 participants (67.3%), while 43 participants (20.1%) were male. Most participants were aged between 18 and 21 years (114 participants, 53.33%). The majority

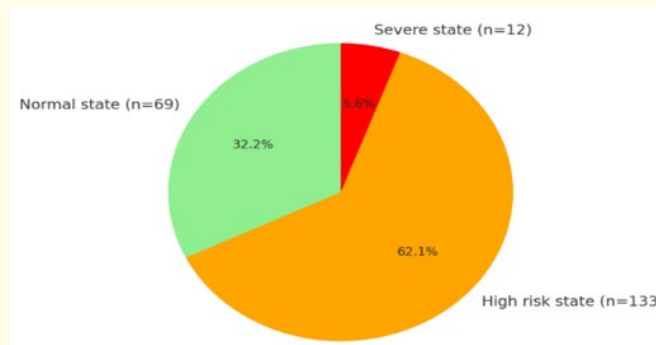
of participants were Saudi nationals (179 individuals, 83.6%), with 35 participants (16.4%) identifying as non-Saudi. Further details in table 1.

Variable	Category	Frequency (n)	Percent (%)
Gender	Female	165	77.1
	Male	49	22.9
Age Group	18-21 years	114	53.3
	22-25 years	96	44.9
	26-29 years	3	1.4
	Above 34 years	1	0.5
Nationality	Non-Saudi	35	16.4
	Saudi	179	83.6
Marital Status	Divorced	2	0.9
	Married	7	3.3
	Single	205	95.8
Socioeconomic Status	Low-income	9	4.2
	Middle-income	119	55.6
	High-income	34	15.9
	Not sure/Prefer not to answer	52	24.3
Total		214	100.0

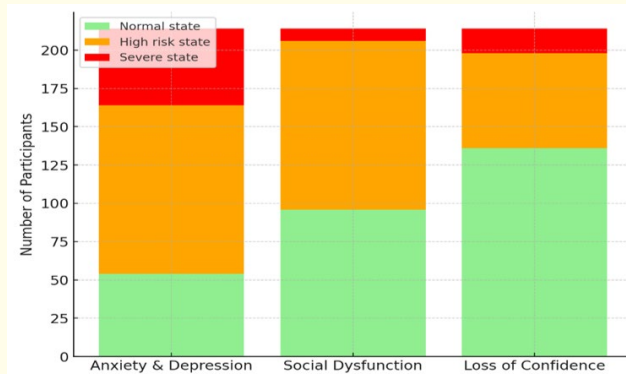
**Table 1:** Participants’ characteristics and socio-demographic features.

**Prevalence of mental dysfunction according to the GHQ-12 classification**

Mental health dysfunction was measured using the GHQ-12 classification. The results showed that 69 participants (32.2%) were in the normal state, 133 participants (62.1%) were classified as being in the high-risk state, and 12 participants (5.6%) were in a severe state of psychological distress.



**Graph 1:** Distribution of mental health states according to GHQ-12 classification.



**Graph 2:** The prevalence of mental distress across three factors: depression, social dysfunction, and loss of confidence.

The GHQ-12 subscales revealed varying levels of psychological distress across different domains. With regards to Anxiety and Depression the study revealed that 54 participants (25.2%) were in the normal state, 110 participants (51.4%) were at high risk, and 50 participants (23.4%) were in the severe state. In term of social Dysfunction, 96 participants (44.9%) were in the normal state, 110 participants (51.4%) were classified as high risk, and 8 participants (3.7%) were in the severe state. While investigating the Loss of Confidence state revealed that 136 participants (63.6%) were in the normal state, 62 participants (29.0%) were at high risk, and 16 participants (7.5%) were in a severe state.

**The associations between study variables and the level of mental distress**

The study found significant gender differences in psychological distress, with female students (GHQ-12: 15.76, SD = 5.381) experiencing higher distress than males (GHQ-12: 12.86, SD = 6.505, P < 0.05). Academic workload was a key predictor, as students with very high workloads (GHQ-12: 15.48, SD = 5.683) reported significantly more distress than those with low workloads (GHQ-12: 12.12, SD = 6.282, P < 0.05). Faculty support acted as a protective factor, with those receiving adequate support reporting lower distress levels (GHQ-12: 13.78, SD = 5.565) compared to those with inadequate support (GHQ-12: 16.64, SD = 5.779, P < 0.01), and 83.3% of students in the severe distress category reported inadequate faculty support. Socioeconomic status and living arrangements were not significantly associated with distress, though students living alone or in dorms showed slightly higher distress levels. Additionally, students with a history of mental health issues had significantly higher distress (GHQ-12: 15.23, SD = 5.880) compared to those without (GHQ-12: 15.02, SD = 5.839, P < 0.05), highlighting the need for early mental health interventions. Further details in table 2.

Variable	Category	GHQ-12 Mean (SD)	Normal state n (%)	High risk state n (%)	Severe state n (%)	Total n (%)	P value
Gender	Female	15.76 (5.381)	36 (52.2%)	101 (75.9%)	7 (58.3%)	144 (67.3%)	0.01
	Male	12.86 (6.505)	22 (31.9%)	18 (13.5%)	3 (25.0%)	43 (20.1%)	
Age Group	18-21 years	14.82 (5.518)	36 (52.2%)	74 (55.6%)	4 (33.3%)	114 (53.3%)	0.224
	22-25 years	15.42 (6.059)	31 (44.9%)	58 (43.6%)	7 (58.3%)	96 (44.9%)	
	26-29 years	16.33 (11.240)	1 (1.4%)	1 (0.8%)	1 (8.3%)	3 (1.4%)	
	Above 34 years	8.00 (.)	1 (1.4%)	0 (0.0%)	0 (0.0%)	1 (0.5%)	
Nationality	Non-Saudi	12.74 (6.195)	17 (24.6%)	17 (12.8%)	1 (8.3%)	35 (16.4%)	0.05
	Saudi	15.53 (5.670)	52 (75.4%)	116 (87.2%)	11 (91.7%)	179 (83.6%)	

Marital Status	Single	14.96 (5.781)	67 (97.1%)	127 (95.5%)	11 (91.7%)	205 (95.8%)	0.690
	Married	18.29 (7.761)	2 (2.9%)	4 (3.0%)	1 (8.3%)	7 (3.3%)	
	Divorced	16.00 (0.000)	0 (0.0%)	2 (1.5%)	0 (0.0%)	2 (0.9%)	
Socioeconomic Status	High-income	14.88 (5.284)	12 (17.4%)	22 (16.5%)	0 (0.0%)	34 (15.9%)	0.241
	Middle-income	15.68 (6.077)	34 (49.3%)	74 (55.6%)	11 (91.7%)	119 (55.6%)	
	Low-income	13.89 (5.622)	4 (5.8%)	5 (3.8%)	0 (0.0%)	9 (4.2%)	
	Not sure/Prefer not to answer	14.02 (5.613)	19 (27.5%)	32 (24.1%)	1 (8.3%)	52 (24.3%)	
Living arrangement	Living alone	16.10 (2.470)	1 (1.4%)	9 (6.8%)	0 (0.0%)	10 (4.7%)	0.216
	Living in a student dorm	18.20 (4.917)	1 (1.4%)	8 (6.0%)	1 (8.3%)	10 (4.7%)	
	Living with family	14.82 (5.994)	67 (97.1%)	113 (85.0%)	11 (91.7%)	191 (89.3%)	
	Other	17.33 (3.215)	0 (0.0%)	3 (2.3%)	0 (0.0%)	3 (1.4%)	
First-generation Medical Student	Yes	15.63 (5.142)	30 (43.5%)	80 (60.2%)	6 (50.0%)	116 (54.2%)	0.075
	No	14.42 (6.530)	39 (56.5%)	53 (39.8%)	6 (50.0%)	98 (45.8%)	
Year of Study	First Year	12.91 (5.797)	17 (24.6%)	17 (12.8%)	1 (8.3%)	35 (16.4%)	0.097
	Second Year	16.42 (6.222)	9 (13.0%)	23 (17.3%)	4 (33.3%)	36 (16.8%)	
	Third Year	16.02 (5.455)	11 (15.9%)	32 (24.1%)	3 (25.0%)	46 (21.5%)	
	Fourth Year	15.13 (5.049)	15 (21.7%)	40 (30.1%)	1 (8.3%)	56 (26.2%)	
	Fifth Year	14.79 (5.646)	11 (15.9%)	16 (12.0%)	1 (8.3%)	28 (13.1%)	
	Sixth Year	14.23 (8.536)	6 (8.7%)	5 (3.8%)	2 (16.7%)	13 (6.1%)	
Study Preference	Group	15.63 (4.742)	11 (15.9%)	28 (21.1%)	2 (16.7%)	41 (19.2%)	0.665
	Individually	14.94 (6.071)	58 (84.1%)	105 (78.9%)	10 (83.3%)	173 (80.8%)	
Perfectionism	Yes	14.78 (5.876)	45 (65.2%)	86 (64.7%)	7 (58.3%)	138 (64.5%)	0.898
	No	15.61 (5.764)	24 (34.8%)	47 (35.3%)	5 (41.7%)	76 (35.5%)	
Experienced mental health issues before school	Yes	15.23 (5.880)	17 (24.6%)	31 (23.3%)	4 (33.3%)	52 (24.3%)	0.05
	No	15.02 (5.839)	52 (75.4%)	102 (76.7%)	8 (66.7%)	162 (75.7%)	
Workload	Very high	15.48 (5.683)	55 (79.7%)	120 (90.2%)	12 (100.0%)	187 (87.4%)	0.05
	Very low	12.12 (6.282)	14 (20.3%)	12 (9.0%)	0 (0.0%)	26 (12.1%)	
	Moderate	17.00 (.)	0 (0.0%)	1 (0.8%)	0 (0.0%)	1 (0.5%)	
Faculty support	Inadequate	16.64 (5.779)	23 (33.3%)	66 (49.6%)	10 (83.3%)	99 (46.3%)	0.01
	Adequate	13.78 (5.565)	45 (65.2%)	67 (50.4%)	2 (16.7%)	114 (53.3%)	
	Strong	8.00 (.)	1 (1.4%)	0 (0.0%)	0 (0.0%)	1 (0.5%)	
Stigma in seeking mental health support	Yes	15.84 (5.793)	29 (42.0%)	69 (51.9%)	8 (66.7%)	106 (49.5%)	0.05
	No	14.32 (5.807)	40 (58.0%)	64 (48.1%)	4 (33.3%)	108 (50.5%)	

Physical health issues	Yes	17.00 (5.441)	4 (5.8%)	19 (14.3%)	3 (25.0%)	26 (12.1%)	0.075
	No	14.81 (5.853)	65 (94.2%)	114 (85.7%)	9 (75.0%)	188 (87.9%)	
Avoidance Due to Reputation	No	13.93 (5.76)	56 (81.2%)	77 (57.9%)	5 (41.7%)	138 (64.5%)	0.001
	Yes	17.16 (5.42)	13 (18.8%)	56 (42.1%)	7 (58.3%)	76 (35.5%)	
	Total	15.07 (5.84)	69 (100.0%)	133 (100.0%)	12 (100.0%)	214(100.0%)	

**Table 2:** The associations between study variables and the level of mental distress.

**Linear regression of GHQ-12 scores**

The linear regression analysis identified significant predictors of GHQ-12 scores. Female students had significantly higher distress levels than males ( $\beta = 1.750, P < 0.05$ ), while non-Saudi participants reported lower distress compared to Saudi students ( $\beta = -2.017, P < 0.05$ ). Academic workload was a key factor, with students experiencing very high workloads having greater distress ( $\beta = 2.542, P < 0.05$ ). Faculty support served as a protective factor, as students with adequate support had lower GHQ-12 scores ( $\beta = -2.580, P < 0.01$ ). Additionally, students who avoided seeking mental health support due to concerns about their reputation exhibited significantly higher distress levels ( $\beta = 2.958, P < 0.001$ ), emphasizing the negative impact of stigma on mental health. Further details in table 3.

Coefficients <sup>a</sup>							
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	12.569	1.343		9.361	P<0.001	9.922	15.217
Gender= Female	1.750	.812	.141	2.155	P<0.05	.149	3.350
Nationality= non-Saudi	-2.017	1.017	-.128	-1.984	P<0.05	-4.021	-.012
Experienced mental health issues before school = yes	-.217	.874	-.016	-.248	.804	-1.940	1.506
Workload=Moderate,	1.473	5.503	.017	.268	.789	-9.376	12.322
Workload=Very high.	2.542	1.138	.145	2.233	P<0.05	.297	4.786
Faculty support = adequate	-2.580	.750	-.221	-3.439	P<0.01	-4.059	-1.101
Faculty support = strong	-7.835	5.500	-.092	-1.425	.156	-18.679	3.009
Stigma = No	-.310	.787	-.027	-.395	.694	-1.861	1.240
Avoidance of support= yes	2.958	.833	.243	3.549	P<0.001	1.315	4.600

**Table 3:** Linear regression of GHQ-12 scores.

**Discussion**

This study aimed to assess the prevalence and determinants of mental health distress among medical students at Alrayan Colleges, Saudi Arabia. The findings indicate a high prevalence of psychological distress, with multiple contributing factors, including gender, academic workload, faculty support, and stigma surrounding mental health help-seeking.

The study found that 62.1% of medical students were classified as high-risk for mental distress, with 5.6% exhibiting severe psychological distress. These findings are consistent with global studies that highlight high levels of psychological distress among medical students due to the demanding nature of their academic environment [2]. Studies from Saudi Arabia, such as Alkhamees., *et al.* [5], also report comparable rates of distress, indicating that medical students in the region face significant psychological burdens. The prevalence observed in this study further supports the notion that institutional interventions targeting mental health should be prioritized.

The study found that female students experienced significantly higher levels of mental distress compared to their male counterparts, with 75.9% of females classified as high-risk versus 13.5% of males. These results are in agreement with previous studies that have consistently reported higher levels of psychological distress among female medical students [6,8]. Potential explanations include greater societal and familial expectations, gender-specific stressors, and differences in coping mechanisms. Research suggests that females are more likely to internalize stress, making them more susceptible to anxiety and depression [10]. Further exploration into gender-specific interventions is necessary to mitigate these disparities.

A significant correlation was observed between high academic workload and increased psychological distress, with students reporting very high workloads scoring an average of 15.48 (SD = 5.683) on the GHQ-12, compared to 12.12 (SD = 6.282) for those with lower workloads. This finding is supported by Dyrbye., *et al.* [1] and AlQaisy [3], who have emphasized the role of academic stress in contributing to mental health problems among medical students. The high expectations, extensive curriculum, and continuous assessments contribute to burnout and anxiety, reinforcing the necessity for institutional workload management strategies, flexible learning schedules, and stress reduction programs.

The study revealed that students who reported strong faculty support had significantly lower GHQ-12 scores (mean = 13.78, SD = 5.565) compared to those with inadequate faculty support (mean = 16.64, SD = 5.779). This aligns with findings by Dyrbye., *et al.* [1] and Slavin [9], who noted that positive faculty-student interactions can buffer academic stress and improve resilience. Students who receive mentorship, academic guidance, and emotional support from faculty members tend to have better coping strategies and lower levels of psychological distress. Strengthening faculty-student relationships through mentorship programs and structured support initiatives may significantly enhance student well-being.

A particularly concerning finding was the impact of stigma on students' willingness to seek mental health support. Students who avoided seeking psychological help due to concerns about their reputation had significantly higher GHQ-12 scores (mean = 17.21, SD = 5.899,  $P < 0.001$ ). These findings are in line with studies by Alfayez and Alshehri [7] and Rotenstein., *et al.* [2], which highlight stigma as a critical barrier to accessing mental health care among medical students. Cultural factors in Saudi Arabia may exacerbate this issue, as mental health concerns are often perceived as a sign of weakness. Addressing stigma through awareness campaigns, confidential counseling services, and faculty-led mental health discussions is imperative to encourage help-seeking behaviors among students.

While most findings align with prior literature, certain discrepancies emerged. Notably, socioeconomic status was not a significant predictor of psychological distress in this study, contradicting findings by Alkhamees., *et al.* [5] who reported a strong association between financial instability and distress among medical students. This discrepancy may be due to institutional financial aid programs or differences in students' financial burdens. Additionally, non-Saudi students in this study reported lower GHQ-12 scores compared to Saudi students, contrary to findings by Melese., *et al.* [11], who found higher distress among international students due to cultural adaptation stressors. These inconsistencies highlight the need for further exploration into contextual factors influencing student mental health [12,13].



### **Limitations of the Study**

The cross-sectional nature of the study limits causal interpretations, preventing the establishment of temporal relationships between stressors and distress levels. The GHQ-12, while a reliable screening tool, does not diagnose psychiatric disorders, which may restrict the depth of mental health assessments. Future studies should employ longitudinal designs and qualitative methodologies to address these limitations and provide deeper insights.

### **Conclusion**

In conclusion, this study highlighted the high burden of mental distress among medical students at Alrayan Colleges, particularly among female students and those facing excessive academic workloads. The findings underscored the importance of faculty support, workload management, and stigma reduction strategies in improving student well-being. Medical institutions must adopt comprehensive mental health policies to ensure the long-term success and resilience of future healthcare professionals. Addressing these issues proactively will contribute to the creation of a more supportive and psychologically safe learning environment for medical students. Future research should focus on longitudinal studies to track mental health trends over time, alongside intervention-based research to evaluate the effectiveness of mental health programs. Expanding the study to multiple medical institutions across Saudi Arabia would improve the generalizability of findings and allow for comparative analyses.

### **Ethics Approval and Consent to Participate**

Ethical approval was obtained from the Al-Rayan National College of Medicine.

Written informed consent was obtained from all participants before their involvement in the study.

### **Data Availability**

The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.

### **Conflicts of Interest**

The authors declare that they have no competing interests.

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