

Long-Term Psychological Effects of the COVID-19 Pandemic: Anxiety and Depression among Physicians in a Tertiary Referral Hospital

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Abstract

Background: Since the COVID-19 pandemic peaked, few studies have thereafter assessed the continued effects of the COVID-19 pandemic on the mental health of healthcare workers.

Objectives: To determine the rate and predictors of self-reported symptoms of depression and anxiety among physicians at a public tertiary care teaching hospital in Saudi Arabia about 2 years after COVID-19 was declared a pandemic.

Methods: This cross-sectional study was conducted from September 2021 to April 2022 and targeted all physicians working at King Fahd Hospital of the University, Al Khobar, Saudi Arabia. Patient Health Questionnaire-9 and General Anxiety Disorder-7 were used to elicit self-reported data regarding depression and anxiety, respectively. In addition, sociodemographic and job-related data were collected.

Results: A total of 438 physicians responded, of which 200 (45.7%) reported symptoms of depression and 190 (43.4%) of anxiety. Being aged 25–30 years, female, resident, and reporting reduction in work quality were factors significantly associated with both anxiety and depression. Female gender (AOR = 3.570; 95% CI = 2.283–5.582; $P < 0.001$), working an average 9–11 hours/day (AOR = 2.130; 95% CI = 1.009–4.495; $P < 0.047$), and self-perceived reduction in work quality (AOR = 3.139; 95% CI = 2.047–4.813; $P < 0.001$) were significant independent predictors of anxiety. Female gender (AOR = 2.929; 95% CI = 1.845–4.649; $P < 0.001$) and self-perceived reduction in work quality (AOR = 3.141; 95% CI = 2.053–4.804; $P < 0.001$) were significant independent predictors of depression.

Conclusions: About half of the physicians reported symptoms of anxiety and depression. These findings are suggestive of the need for large-scale studies to determine the ongoing effects of the COVID-19 pandemic on the mental health of healthcare workers in Saudi Arabia.

Keywords: Anxiety, COVID-19, depression, healthcare workers, pandemic, physicians, Saudi Arabia

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INTRODUCTION

The prevalence of mental disorders has increased by 13% worldwide in the past decade.^[1] The burden of mental illnesses is substantial, as it is considered one of the leading causes of disability across the world.^[2] Its impact on an individual's life varies, often causing distress, tension, and discomfort in almost all aspects of life. The COVID-19 pandemic, which affected all countries including Saudi Arabia,^[3,4] has exacerbated the burden of mental health issues worldwide, with about 90% of the population worldwide reporting that the pandemic had a negative impact on their mental health dignity and wellbeing.^[5] This is understandable given that throughout history, there has been an association between infectious disease outbreaks and the emergence of psychological consequences.^[6]

Numerous studies worldwide have highlighted the impact COVID-19 pandemic has had on the mental well-being of the general population.^[5,7,8] However, a recent meta-analysis revealed that during the pandemic, healthcare workers (HCWs) had a higher prevalence of anxiety, depression, and stress and a lower level of psychological well-being compared with the general population.^[9] Similar findings were also found in another meta-analysis that compared the level of depression and anxiety among HCWs and the general population in China.^[10] From Saudi Arabia, in a study conducted across 15 hospitals, the rates of depression and anxiety in HCWs treating COVID-19 patients were 48% and 18%, respectively.^[11] The higher psychological impact among HCWs during the COVID-19 pandemic can be attributed to multiple factors including their proximity to high-risk patients, high work demand, isolation, loss of support of loved ones, and the highly debilitating sense of responsibility to tackle and control the spread of infection.^[10]

Limited data is available regarding differences in the rates of anxiety and depression in HCWs before and after the COVID-19 pandemic; nonetheless, a systematic review that included studies from across the world estimated a 27.6% increase in the rates of depression and a 25.6% increase in the rates of anxiety in the general population in 2020.^[12] It should be noted that a substantial proportion of HCWs were infected with the virus during the pandemic; a study has also shown that almost 20% of the people diagnosed with COVID-19 were subsequently diagnosed with psychiatric disorders, including anxiety and depression, of which one in four had never previously received a psychiatric diagnosis.^[13] Therefore, there is a need for ongoing assessments to understand the aftermath of the COVID-19 pandemic on the mental health in both the general population as well as HCWs.

The current study aimed to determine the prevalence of depression and anxiety among physicians at a public tertiary care teaching hospital in Saudi Arabia. The study was conducted at a time when COVID-19-related restrictions were receding worldwide. Only physicians were specifically chosen as, currently, the abundance of data regarding the other HCWs is more than that of only physicians.

METHODS

Study design, setting, and participants

This cross-sectional study was conducted from September 12, 2021, to April 17, 2022, and all physicians (i.e., residents, specialists, and consultants) working at King Fahd Hospital of the University (KFHU), Al Khobar, Saudi Arabia, were considered eligible for participation. KFHU is one of the largest public tertiary care teaching hospitals in the Eastern Province of Saudi Arabia.

Subjects were eligible to participate if they were currently working at KFHU as a resident, specialist, or consultant and were aged ≥ 25 years. In Saudi Arabia, residents are postgraduate medical students who apply for residencies in certain specialties, with the residency program ranging in length from 3 to 7 years. A specialist is a medical professional who has completed the residency program and is thereafter undergoing 4–5 additional years of specialized training. A consultant is a senior physician who has spent an appropriate amount of time practicing in a particular specialty and carries complete responsibility for the care of their patients and in leading the medical team. Residents were included in this study because during the pandemic they played a vital role and were often assigned longer working hours and were more frequently placed on-calls, especially those in R1 and R2.

Questionnaire distribution and collection

In this closed survey, physicians were first contacted through emails to complete an online survey using Google Forms, which tracked responses electronically. Subsequently, to substantiate the findings of this research through larger participation, physicians were also contacted in person using convenience sampling. For the in-person questionnaire distribution and collection, 11 data collectors were involved, and each collector was assigned a specific department to avoid repetitiveness in approaching the physicians. Participants were approached during their break times and in common areas. In this approach, physicians who agreed to participate were provided the weblink to the questionnaire, or, on request, provided a hard copy of the questionnaire for completion. For the hard copy survey, once the survey was completed (either immediately

or later), it was placed in an envelope for the designated data collector. Subsequently, all questionnaires, online and hard copies, were reviewed for completeness by the authors, and incomplete questionnaires were excluded from further analyses.

In both methods of data collection, participants were informed of the purpose of the study, that participation was voluntary, and that the estimated time to complete the survey is about 5–6 min. Participants were also assured of data confidentiality and anonymity. No incentives were offered for participation. All participants provided digital/written informed consent before completing the questionnaire. The study was approved by the Institutional Review Board of Imam Abdulrahman Bin Faisal University, Dammam.

Sample size calculation

A total of 917 physicians were eligible for participation. The sample size was calculated using the online Epi Info™ for Mobile devices version 5.5.5. The confidence interval was set at 95%, the accepted margin of sample error at $\pm 5\%$, and the expected frequency at 51%. The minimum sample size was estimated to be 271.

Questionnaire

A structured self-administered questionnaire comprising four sections was used. The usability and functionality of the online questionnaire was tested before being administered.

Socio-demographic section

This section elicited information regarding the following four items: gender, age, nationality (Saudi/non-Saudi), and self-reported health status (presence/absence of chronic diseases).

Job-related section

This 5-item section elicit responses regarding the participants' job-related information: designation (resident, specialist, or consultant), specialty, hours of work (per day), involvement in the care of COVID-19 patients during the pandemic (yes/no), and self-perceived reduction of work quality since the start of the pandemic (yes/no).

Patient Health Questionnaire-9

The presence of depressive symptoms was measured using the Patient Health Questionnaire-9 (PHQ-9), which has been found to have a sensitivity of 93.8% and specificity of 73.4% for assessing depression severity within a population in Saudi Arabia.^[14] This instrument is composed of nine items, with each item reflecting one of the diagnostic criteria of Major Depressive Disorder, as

stated by The Diagnostic and Statistical Manual of Mental Disorders-Fifth edition. Participants were requested to report the experience of symptoms in the past 2 weeks, with response options ranging between 0 (not at all) and 3 (nearly every day). The PHQ-9 scores range between 0 to 27, with scoring cut-points 5, 10, 15, and 20 representing mild, moderate, moderately severe, and severe depression, respectively, as stated by the developers of the PHQ-9 tool. In our study, caseness was defined as a minimum score of 5, which represents mild depression.^[15]

General Anxiety Disorder-7

The seven-item General Anxiety Disorder-7 (GAD-7) scale was used to assess anxiety symptoms in the past 2 weeks. GAD-7 has shown to have good validity in various studies with a sensitivity and specificity of 89% and 82%, respectively.^[16] GAD-7 has been successfully used in the general Saudi population screening,^[17] and has high internal consistency (Cronbach's alpha = 0.91).^[18] The response options ranged from 0 (not at all) to 3 (nearly every day). The scoring cutoff points 5, 10, and 15 represented mild, moderate, and severe anxiety.^[16] Caseness in the current study was also defined as a minimum score of 5, which represents mild anxiety.

Statistical analysis

The data were analyzed using Statistical Packages for Social Sciences (SPSS) version 26 (IBM Corp., Armonk, NY, USA). Categorical variables were summarized as frequency and proportion, while continuous variables were presented as mean and standard deviation. The rates of anxiety and depression were compared with the socio-demographic characteristics using the Chi-square test. Significant results generated in the cross-tabulation were then gathered in a multivariate regression model to determine the independent significant predictor associated with having anxiety and depression with the corresponding odds ratio and 95% confidence interval (CI). A P value < 0.05 at 95% CI was used to indicate statistical significance.

RESULTS

Participants

Out of the 917 eligible physicians, 438 completed the survey (response rate: 48%). Most respondents were aged 25–30 years (208; 47.5%), male (264; 60.3%), Saudis (363; 82.9%), and married (249; 56.8%). Almost half the participants were residents (233; 53.3%). In terms of distribution within the residency levels, R1–R3 residents accounted for a larger proportion compared with R4 and R5; no respondent belonged to R6 [Table 1].

Most respondents worked an average of 6–8 hours per day at the time of the survey (55%). In terms of the pandemic, the majority (80.8%) reported being involved in the care of COVID-19 patients, and 34.7% have previously been infected with the virus. In terms of history of mental disorders, 33 (7.5%) physicians have previously been diagnosed with a mental disorder, and 19 (4.3%) have sought psychiatric support within the 2-year pandemic period. Importantly, almost half the respondents (48.4%) noted a reduction in their

work quality and performance since the start of the pandemic [Table 1].

The majority of participants were from the internal medicine department (29%) followed by the general surgery department (15.3%) [Figure 1]. Seventy-six (17.4%) of the participants had a pre-existing chronic illness, with hypertension (19.7%) and diabetes (10.5%) being the most common [Table 1 and Figure 2].

Table 1: Sociodemographic characteristics of the physicians (N=438)

Study data	n (%)
Age (years)	
25-30	208 (47.5)
31-35	92 (21.0)
36-40	61 (13.9)
41-45	28 (6.4)
46-50	15 (3.4)
51-60	24 (5.5)
>60	10 (2.3)
Gender	
Male	264 (60.3)
Female	174 (39.7)
Nationality	
Saudi	363 (82.9)
Non-Saudi	75 (17.1)
Marital status	
Single	174 (39.7)
Married	249 (56.8)
Divorced	15 (3.4)
Designation	
R1	69 (15.8)
R2	67 (15.3)
R3	57 (13.0)
R4	24 (5.5)
R5	16 (3.7)
R6	0
Specialist	97 (22.1)
Consultant	108 (24.7)
Working hours per day (h)	
6-8	241 (55.0)
9-11	158 (36.1)
>11	39 (8.9)
Involved in the care of COVID-19 patients	
Yes	354 (80.8)
No	84 (19.2)
Associated chronic disease	
Yes	76 (17.4)
No	362 (82.6)
Previous diagnosis of psychiatric illness	
Yes	33 (7.5)
No	405 (92.5)
Sought professional psychiatric support during the COVID-19 pandemic	
Yes	19 (4.3)
No	419 (95.7)
Infected by the SARS-CoV-2 virus	
Yes	152 (34.7)
No	286 (65.3)
Reduction in the quality of work/exam performance since the pandemic	
Yes	212 (48.4)
No	226 (51.6)

Rates of depression and anxiety

The descriptive statistics of anxiety and depression are given in Table 2. In terms of anxiety, the mean (\pm SD) score was 5.4 (\pm 5.1) and the rate was 43.4% (190). In terms of severity, 123 (28.1%), 36 (8.2%), and 31 (7.1%) participants had mild, moderate, and severe anxiety, respectively. In terms of depression, the mean (\pm SD) score was 4.8 (\pm 4.9) and the rate was 45.7% (200). Regarding the severity, 115 (26.3%), 55 (12.6%), 22 (5%) and 8 (1.8%) had mild, moderate, moderately severe, and severe depression, respectively [Table 2].

Almost half of the participants who were uninvolved and involved in the care of COVID-19 patients displayed symptoms of depression (47.6% and 45.1%, respectively) and anxiety (46% and 42.6%, respectively). In department-wise analysis, those working in the internal medicine reported the highest rates of anxiety (40 of 127; 31.6%), depression (35; 27.5%) or both (38; 30.1%), followed by those working in general surgery (anxiety: 12.6%; depression: 13%; both: 15.9%) and pediatrics (anxiety: 8.9%; depression: 9%; or both: 6.8%) [Table 3].

Factors associated with anxiety and depression

Anxiety was significantly more common among those aged 25–30 years ($P = 0.005$), females ($P < 0.001$), residents ($P = 0.045$), those working an average of > 11 hours/day ($P = 0.014$), and those reporting self-perceived reduction in work quality ($P < 0.001$). Similarly, depression was significantly more common among those aged 25–30 years ($P < 0.001$), females ($P < 0.001$), residents ($P < 0.001$), and those who expressed self-perceived reduction in work quality ($P < 0.001$). In addition, depression was more common among Saudis ($P = 0.009$), unmarried physicians ($P = 0.001$), and those with pre-existing psychiatric illness(es) ($P = 0.004$) [Table 4].

Predictors of depression and anxiety

In the multivariate regression model, female gender (AOR = 3.570; 95% CI = 2.283–5.582; $P < 0.001$), working an average 9–11 hours/day (AOR = 2.130; 95%

CI = 1.009–4.495; $P < 0.047$), and self-perceived reduction in work quality (AOR = 3.139; 95% CI = 2.047–4.813; $P < 0.001$) were significant independent predictors of anxiety compared with male gender, working an average 6–8 hours/day, and not reporting reduction in work quality, respectively.

Table 2: Overall rates of anxiety and depression according to Patient Health Questionnaire-9 and General Anxiety Disorder-7 (N=438)

Variables	n (%)
Anxiety score (mean±SD)	5.41±5.12
Anxiety	
Yes	190 (43.4)
No	248 (56.6)
Severity of anxiety	
Mild	123 (28.1)
Moderate	36 (8.2)
Severe	31 (7.1)
Depression score (mean±SD)	4.77±4.89
Depression	
Yes	200 (45.7)
No	238 (54.3)
Severity of depression	
Mild	115 (26.3)
Moderate	55 (12.6)
Moderately severe	22 (5.0)
Severe	8 (1.8)

SD – Standard deviation

Table 3: Rates of anxiety and depression according to department (N=438)

Department	Anxiety (%)	Depression (%)	Both anxiety and depression (%)
Internal medicine	31.6	27.5	30.1
General surgery	12.6	13.0	15.9
Pediatrics	8.9	9.0	6.8
Emergency medicine	7.9	9.0	4.4
Obstetrics and gynecology	7.4	6.5	2.7
Radiology	6.8	8.5	7.1
Psychiatry	4.7	4.5	8.3
Orthopedics	4.2	5.0	2.7
Ophthalmology	3.7	4.0	3.5
Otorhinolaryngology	3.7	3.0	2.7
Neurology	3.2	4.5	5.9
Dermatology	2.1	2.5	4.1
Anesthesia	1.6	1.0	3.5
Urology	1.1	1.0	0.90
Neurosurgery	0.50	1.0	1.5

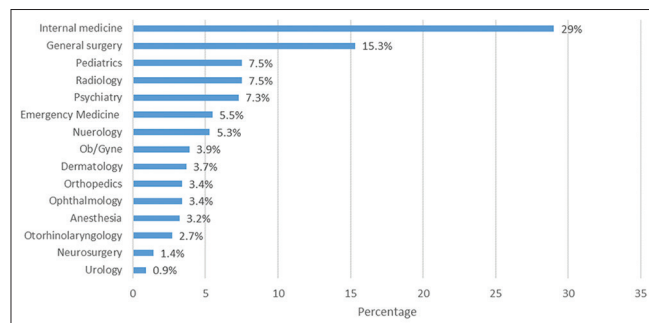


Figure 1: Department-wise distribution of participants

Female gender (AOR = 2.929; 95% CI = 1.845–4.649; $P < 0.001$) and self-perceived reduction in work quality (AOR = 3.141; 95% CI = 2.053–4.804; $P < 0.001$) were significant independent predictors of depression [Table 5].

DISCUSSION

HCWs are susceptible to occupational stress and burnout. High workload and lack of job satisfaction are common risk factors for poor mental health among HCWs. The COVID-19 pandemic considerably intensified workload, leading to tremendous psychological consequences among HCWs, including physicians. The current study found high rates of depression (45.7%) and anxiety (43.4%) among physicians in KFHU about 2 years after COVID-19 was declared a pandemic. These findings are consistent with both local and international studies.

A recent meta-analysis of studies across 18 Asian countries reported that more than 30% of HCWs were affected by depression and anxiety during the COVID-19 pandemic.^[19] Multiple studies from China have shown similar outcomes.^[10,20] A study conducted on healthcare providers in the Ministry of Health, Saudi Arabia, reported that 55.2% had depressive disorders and 51.4% had anxiety disorder.^[21] Another study from Saudi Arabia reported similarly high rate of depression symptoms among young frontline healthcare physicians, as in the current study.^[11]

More than half of the female participants in the current study had depression (54%) and anxiety (57.4%). These results are consistent with different studies conducted worldwide, as anxiety and depression are generally more frequent among females. The study of AlAteeq, et al. have found that anxiety and depression rates were higher in females (30.7% and 33.6%, respectively).^[21] While this paper does not investigate the attributing factors behind the unequal gender distribution among HCWs during the pandemic, this could be an area for future research.

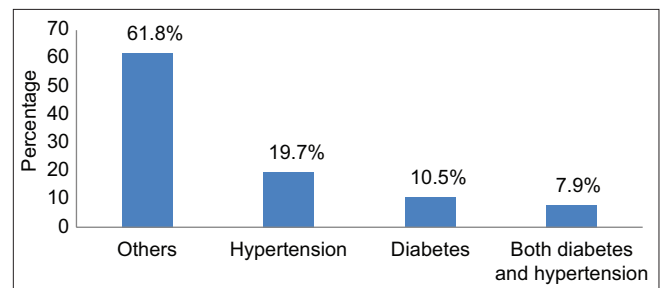


Figure 2: Preexisting chronic diseases

Table 4: Sociodemographic factors associated with anxiety and depression (N=438)

Factor	Anxiety, n (%)	P	Depression, n (%)	P
Age group (years)				
25-30	107 (56.3)	0.005**	120 (60.0)	<0.001**
31-40	57 (30.0)		58 (29.0)	
>40	26 (13.7)		22 (11.0)	
Gender				
Male	81 (42.6)	<0.001**	92 (46.0)	<0.001**
Female	109 (57.4)		108 (54.0)	
Nationality				
Saudi	163 (85.8)	0.157	176 (88.0)	0.009**
Non-Saudi	27 (14.2)		24 (12.0)	
Marital status				
Unmarried	87 (45.8)	0.329	103 (51.5)	0.001**
Married	103 (54.2)		97 (48.5)	
Designation				
Resident	111 (58.4)	0.045**	131 (65.5)	<0.001**
Specialist	43 (22.6)		39 (19.5)	
Consultant	36 (18.9)		30 (15.0)	
Department				
General medicine	75 (39.5)	0.703	73 (36.5)	0.099
General surgery	67 (35.3)		72 (36.0)	
Other allied	48 (25.3)		55 (27.5)	
Working hours/day (h)				
6-8 h	90 (47.4)	0.014**	100 (50.0)	0.112
9-11 h	78 (41.1)		78 (39.0)	
>11 h	22 (11.6)		22 (11.0)	
Involved in the care of COVID-19 patients				
Yes	151 (79.5)	0.530	160 (80.0)	0.689
No	39 (20.5)		40 (20.0)	
Associated chronic disease				
Yes	34 (17.9)	0.793	37 (18.5)	0.561
No	156 (82.1)		163 (81.5)	
Diagnosed with psychiatric illness				
Yes	19 (10.0)	0.087	23 (11.5)	0.004**
No	171 (90.0)		177 (88.5)	
Infected with COVID-19				
Yes	61 (32.1)	0.317	70 (35.0)	0.905
No	129 (67.9)		130 (65.0)	
Self-perceived work quality reduction				
Yes	126 (66.3)	<0.001**	132 (66.0)	<0.001**
No	64 (33.7)		68 (34.0)	

P-value was calculated using the Chi-square test, **Significant at $P < 0.05$

In this study, residents (R1–R5), who are mostly aged 25–30 years old, were found to have a higher rate of both anxiety and depression disorders. Similarly, a global systematic review of 46 studies concluded that younger age groups were more affected than older age groups in both anxiety and depression disorders.^[12] In a study from Saudi Arabia, both depression and anxiety disorders were found to be higher in physicians aged 31–40 years in comparison with older physicians (i.e., aged >50 years).^[22] These findings are likely because junior physicians tend to be allocated a higher workload with longer working hours, which is in addition to them undergoing a work-related and coping strategy-related learning curve.

In this current study, the rate of depression was higher in unmarried physicians. A Turkish study conducted during the COVID-19 pandemic reported that being married and having a child were both associated with lower depression,

anxiety, and stress scores.^[23] Collectively, these findings indicate that emotional support decreases the susceptibility of developing depressive and anxiety symptoms.^[24]

The current study found that working longer hours was both associated and a predictor of anxiety, which is similar to the findings of previous studies.^[25] However, no such association was noted between long working hours and depression, which is in contrast to findings in the literature.^[25,26]

Both depression and anxiety were highest among those working in internal medicine followed by the general surgery department. These findings can be attributed to the nature of their professions, high workload, frequent on-calls, and the demanding critical care of the patients. However, this could be secondary to the highest response rate of participants from these departments. On the other

Table 5: Independent predictors of anxiety and depression using multivariate regression modelling (N=438)

Anxiety	AOR	95% CI	P
Age (years)			
25-30	Reference		
31-40	0.773	0.332-1.798	0.549
>40	1.297	0.644-2.613	0.467
Gender			
Male	Reference		
Female	3.570	2.283-5.582	<0.001**
Designation			
Resident	Reference		
Specialist	0.950	0.444-2.032	0.894
Consultant	0.884	0.447-1.751	0.724
Working hours/day (h)			
6-8	Reference		
9-11	2.130	1.009-4.495	0.047**
>11	1.313	0.607-2.842	0.489
Self-perceived work quality reduction			
Yes	3.139	2.047-4.813	<0.001**
No	Reference		
Depression			
Age group (years)			
25-30	Reference		
31-40	0.770	0.310-1.914	0.573
>40	1.108	0.515-2.384	0.793
Gender			
Male	Reference		
Female	2.929	1.845-4.649	<0.001**
Nationality			
Saudi	Reference		
Non-Saudi	1.146	0.572-2.296	0.701
Marital status			
Unmarried	Reference		
Married	0.847	0.528-1.357	0.489
Work designation			
Resident	Reference		
Specialist	0.474	0.219-1.028	0.059
Consultant	0.852	0.422-1.720	0.655
Diagnosed with psychiatric illness			
Yes	1.972	0.855-4.551	0.111
No	Reference		
Self-perceived work quality reduction			
Yes	3.141	2.053-4.804	<0.001**
No	Reference		

**Significant at $P < 0.05$ level. AOR – Adjusted odds ratio; CI – Confidence interval

hand, physicians of dermatology, otorhinolaryngology, and ophthalmology had the lowest rates of mental illnesses, which could come in accordance with their balanced lifestyle and fixed number of office hours. Scarcity was noted in the literature regarding the rates of mental illnesses in relation to hospital departments. However, one study found that attending emergency and night shifts were associated with depression and anxiety in HCWs during the COVID-19 pandemic.^[27]

Strengths and limitations

To the best of the authors' knowledge, this is the first study from the area to assess the rates, associated factors, and predictors of depression and anxiety among physicians during the COVID-19 pandemic. Furthermore, this study

was conducted 2 years after the emergence of COVID-19, and thus provides a better understanding of physicians' current mental health status. Lastly, an acceptable population size was obtained from KFHU, enhancing the validity of the findings.

In terms of limitations, firstly, this is a questionnaire-based study from a single center, and thus there could have been response bias and its findings cannot be generalized for Saudi Arabia. Secondly, the response rates varied between departments, and some had very low response rates. For instance, the response rates from the neurosurgery and urology departments were 1.4% and 0.9%, respectively. Lastly, the included participants were confined to those willing to interact with the data collectors and participate in our study, which may have inadvertently led to selection bias.

Recommendations

This study adds to the existing literature on the impact of the COVID-19 pandemic on physicians' mental health, and further highlights their mental susceptibility. This study identifies modifiable predictive factors of anxiety and depression, thereby providing an opportunity for policymakers to improve the mental health of physicians. Furthermore, implementation of regular screening programs for anxiety and depression would also be helpful, as early recognition improves outcome in these conditions. Moreover, a specialized mental health clinic could be established within medical facilities/settings to provide psychiatric support for all health care providers, including psychotherapy, counselling, and pharmacotherapy.

CONCLUSIONS

About half of the physicians displayed anxiety and depression symptoms, with the highest scores noted among those working in internal medicine followed by general surgery departments. Being female and with a self-perceived reduction in work quality were significantly associated and independent predictors of both anxiety and depression, while longer working hours was significantly associated and a predictor of anxiety. Psychiatric support services and regular screening programs are recommended for early recognition and management of mental illness during and after the COVID-19 pandemic.

Ethical considerations

This study was approved by the Institution Review Board of Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia (Ref. no.: IRB-UGS-2021-01-479; Date: December 21, 2021). All participants provided

digital/written informed consent before completing the questionnaire. This study followed the general principles of the Declaration of Helsinki, 2013.

Data availability statement

The datasets generated and/or analyzed during the current study are not publicly available but are available from the corresponding author on reasonable request.

Peer review

This article was peer-reviewed by two independent and anonymous reviewers.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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