

ORIGINAL PAPER

Psychiatry

Psychological problems among the university students in Saudi Arabia during the COVID-19 pandemic

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Abstract

Background: The 2019 coronavirus disease (COVID-19) pandemic is a public health emergency that represents a challenge to psychological health. This study aimed to assess the psychological conditions among university students in Saudi Arabia during the COVID-19 pandemic.

Methods: During the period between the 4th and 18th of June 2020, the students of Umm AlQura University in Saudi Arabia were invited to complete an online survey. The survey assessed their sociodemographic characteristics, educational disciplines, and manifestations of psychological health problems including depression, anxiety, and stress as determined by the Arabic version of the Depression Anxiety Stress Scale-21 (DASS-21).

Results: The study included 936 university students (56.4% women and 43.6% men). Of them, 41.1% had depressive symptoms (31.7% mild to moderate and 9.4% severe to very severe), 26.9% had anxiety symptoms (15.8% mild to moderate and 11.1% severe to very severe), and 22.4% had stress symptoms (15.2% mild to moderate and 7.2% severe to very severe). Students who reported having a friend or relative infected with or died of COVID-19, watching or reading news about the pandemic ≥ 2 hours/day, and not getting emotional support from family, university, and society were more likely to show psychological problems.

Conclusion: Symptoms of depression, anxiety, and stress were common among Saudi university students during the COVID-19 pandemic. Psychological counselling and support should be provided to university students in Saudi Arabia.

1 | INTRODUCTION

The 2019 coronavirus disease (COVID-19) pandemic is a public health emergency that represents a challenge to psychological health. Saudi Arabia is among the most affected countries in the Middle East with 229,480 confirmed cases and 2181 related deaths as of the 12th of July 2020.¹ To respond to the COVID-19 pandemic, Saudi Arabia has taken strict preventive precautions including quarantine measures,

suspending education at schools and universities before starting distance learning and virtual classrooms later, and closing the mosques including the Holy Mosque of Mecca.^{2,3}

Literature showed that such measures can result in several psychological problems,⁴ and students, in particular, are more vulnerable.⁵ In addition, isolation from campus life, the need to adapt to the new online educational environment, and the uncertainty about the academic and occupational future can carry additional burdens.^{4,6-8}

A study conducted on school and university students in China during the early months of the COVID-19 pandemic showed increased fear and anxiety.⁹ Another study from Jordan found that the level of anxiety among university students was higher than that in medical professions and the general population.⁵ Other studies including university students from the US, Egypt, Malaysia, Emirates, and Spain showed varying degrees of psychological problems related to the COVID-19 pandemic.¹⁰⁻¹⁴

Despite the urgency of this topic worldwide, the psychological problems among university students in Saudi Arabia were not comprehensively assessed during the COVID-19 pandemic. Determining the psychological impacts of the COVID-19 on university students and the correlating factors can help in initiating risk-prevention procedures and counselling programs to relieve this burden. Herein, we investigated the prevalence of depression, anxiety, and stress among university students in Umm AlQura University in the holy city of Mecca in Saudi Arabia and studied the predictors of such psychological problems.

2 | METHODS

2.1 | Subjects and study design

A Google survey was created and the link to the survey was sent by e-mails to university students at Umm AlQura University in Saudi Arabia. The e-mails were sent on the 4th of June 2020 and reminders were sent one week later. We also uploaded the link to the Google survey to the private social network groups that host students from Umm AlQura University. Students were asked to forward the link to their peers from their contact e-mail and social network lists. The last date of data collection was the 18th of June 2020.

2.2 | Data collection

We designed an Arabic questionnaire composed of four sections to collect the data. Section I included a detailed explanation of the steps, aims, and eligibility criteria of the study.

Section II included questions about the sociodemographic and educational features of students including age (in years), sex (man or woman), residence (urban or rural area), and discipline (faculty or institute name).

Section III had questions related to the COVID-19 pandemic which included having a friend or relative infected with COVID-19 (yes, no, or not sure), having a friend or relative died from COVID-19 (yes, no, or not sure), health practices including wearing masks (always, sometimes, or never), using detergents (always, sometimes, or never), applying social distancing (always, sometimes, or never), watching/reading COVID-19 news (<2, 2-4, or >4 hrs/day), average daily sleeping hours per day (<6, 6-9, or >9 hrs/day), and receiving emotional support from family (yes or no), society (yes or no), and the university (yes or no).

What's known? (what is already known about this subject?)

- The COVID-19 pandemic has many psychological implications that affected people and communities variously.

What's new? (what does this study contribute to the literature?)

- Depression, anxiety, and stress were common among university students in Saudi Arabia.
- Reading news about the COVID-19 pandemic ≥ 2 hours/day could be related to increased depression, anxiety, and stress.
- Not getting emotional support from family, university, and society was associated with a higher likelihood of psychological problems.

Section IV included the Arabic version of the Depression Anxiety Stress Scale-21 (DASS-21). The DASS-21 is a quantitative measure of depression, anxiety, and stress symptomatology (seven statements each) during the past week. Depression statements evaluated hopelessness, dysphoria, self-deprecation, devaluation of life, lack of interest and involvement, anhedonia, and inertia depression; for example, "I could not seem to experience any positive feelings at all, and I felt that I had nothing to look forward to". Anxiety statements evaluated skeletal muscle effects, autonomic arousal, and situational anxiety; for example, "I felt I was close to panic, and I felt scared without any good reason". Stress statements assessed difficulties in relaxation and being easily upset or over-reactive; for example, "I found it hard to wind down, and I felt I was rather touchy".

Students were asked to decide how much the statements applied for them using a scale from zero to three where zero referred to "did not apply to me at all", one referred to "applied to me to some degree or some of the time", two referred to "applied to me to a considerable degree or a good part of the time" and three referred to "applied to me very much or most of the time". The score of each axis was multiplied by two to lie within a zero to 42 scale where higher scores indicated worse outcomes.

It's worth noting that the DASS-21 questionnaire was recently used in COVID-19 research in different cultures including subjects from China,⁹ Iran,¹⁵ Vietnam,¹⁶ Poland,¹⁷ and Egypt.¹⁸ The Arabic version of the DASS-21 was validated in a previous study and the Cronbach's alpha for its subscales was 0.81, 0.76, and 0.67, respectively.¹⁹ The overall Cronbach's alpha in the current study was 0.93.

2.3 | Statistical analysis

We used descriptive statistics in the form of percentages to present the sociodemographic and educational characteristics of the

students in addition to their prevalence rates of depression, anxiety, and stress during the COVID-19 pandemic. The used cut-off values for the DASS-21 were as follows: 1) Depression: normal (0-9), mild to moderate (10-20), and severe to extremely severe (>20), 2) Anxiety: normal (0-7), mild to moderate (8-14), and severe to extremely severe (>14), and 3) Stress: normal (0-14), mild to moderate (15-25), and severe to extremely severe (>25).^{18,20}

In this study, sociodemographic characteristics, health practices during the pandemic; (wearing masks, using detergents, applying social distancing), watching/reading COVID news, sleeping hours, and receiving emotional support were considered exposures while depression, anxiety, and stress were considered outcomes. Odds ratios (ORs) and their confidence intervals (CIs) were computed using the logistic regression analyses to determine the potential association between the exposures and the outcomes. The mild to moderate and severe to very severe forms were merged in each psychological condition to obtain statistical power. Data were analysed using the Statistical Package for Social Science (SPSS) released in 2013 (IBM SPSS Statistics for Windows, Version 22.0, IBM Corporation, Armonk, New York).

2.4 | Ethical considerations

We conducted this study in full accordance with the guidelines for Good Clinical Practice and the Declaration of Helsinki. The conditions of the study were described in section I and respondents had to agree to proceed to the upcoming sections and to submit their answers after filling out the survey which was considered approval of participation.

3 | RESULTS

Of the 936 Saudi university students who responded to the online questionnaire, 57.8% were younger than 23 years old, 56.4% were females, 56.6% were residing in rural areas, and 82.9% were attending non-medical faculties. Most of the students reported wearing masks (79.8% always and 17.5% sometimes), using detergents (81.5% always and 13.4% sometimes), and applying social distancing (77.5% always and 20.6% sometimes) (Table 1).

About 41.1% of the included Saudi university students reported depression symptoms (31.7% mild to moderate and 9.4% severe to very severe), 26.9% reported anxiety symptoms (15.8% mild to moderate and 11.1% severe to very severe), and 22.4% reported stress symptoms (15.2% mild to moderate and 7.2% severe to very severe). The prevalence of severe psychological impacts was prevalent in medical vs non-medical students. (Table 2).

Several factors were associated with depression, anxiety, and stress symptoms. Of these factors, medical students reported more stress than non-medical students (OR 1.62, 95% CI: 1.11-2.38), and having a friend or relative infected with COVID-19 was associated with depression (OR 1.95, 95% CI: 1.44-2.63) and anxiety (OR 1.98, 95% CI: 1.44-2.72). The same psychological conditions were detected among those with a friend or relative who died from the

COVID-19: depression (OR 1.86, 95% CI: 1.07-3.23) and anxiety (OR 1.95, 95% CI: 1.11-3.42). Occasional or never use of detergents was associated with depression (OR 1.72, 95% CI: 1.23-2.40) and anxiety (OR 1.53, 95% CI: 1.07-2.18). Watching/reading COVID-19 news ≥ 2 hrs/day was associated with depression, anxiety, and stress with ORs (95% CIs) of 1.50 (1.04-2.16), 1.88 (1.29-2.76) and 1.50 (1.00-2.52), respectively. The lack of perceived emotional support from family, society, and university was significantly related to all psychological problems (Table 3).

4 | DISCUSSION

This study aimed to evaluate the psychological conditions of university students in Saudi Arabia during the COVID-19 pandemic and explore factors influencing their exposure to such conditions. We indicated that 41.1% of university students at Umm AlQura University in Saudi Arabia were afflicted with symptoms of depression, 26.9% with anxiety, and 22.4% with stress.

Our results came in line with recent literature suggesting negative psychological impacts for the COVID-19 pandemic on university students.²¹ A limited-scale study from Saudi Arabia used a self-reporting anxiety scale and showed that 35% of university students had moderate to severe anxiety.²² Another study including university students from seven Asian countries (China, Iran, Malaysia, Pakistan, Philippines, Thailand, and Vietnam) showed high levels of depression, anxiety and stress among university students.²³ Also, one study from Jordan assessed the prevalence of depression using the Patient Health Questionnaire and anxiety using the Generalized Anxiety Disorder-7 among university students and showed that 60% had moderate to severe depression and 45% had moderate to severe anxiety.⁵ In Bangladesh, the prevalence of psychological problems as determined using the DASS-21 came in line with our results: 46.9% depression, 33.3% anxiety and 28.5% stress.²⁴ In Spain, one of the most affected countries worldwide,^{1,25} students from one university were surveyed online for their psychological conditions using the DASS-21. The results showed that the prevalence of any degree of depression, anxiety and stress was as follows: 48.1%, 35.2% and 40.3%, respectively, while the prevalence of the moderate to severe forms was as follows: 34.2%, 21.3% and 28.1%, respectively.¹⁴ In France, a self-reporting study showed a high prevalence of suicidal thoughts 11.4%, severe depression 16.1% and high anxiety 11.4% among university students.²⁶ However, it is difficult to compare our results with those from other international studies because of the wide variations in sampling procedures, sociodemographic characteristics of the included students, data collecting tools and definitions of psychological problems.

Of note, examining the psychological problems among university students in Saudi Arabia was not confined to the COVID-19 pandemic. Previous national studies examined these problems before the COVID-19 pandemic, however, they focused mainly on medical students and aimed to elaborate on the impact of the need for medical achievement on determining the psychological problems.²⁷⁻²⁹

Characteristics		Overall n = 936 (%)
Age (years)	<23	57.8
	≥23	42.2
Sex	Men	43.6
	Women	56.4
Residence	Urban	43.4
	Rural	56.6
Discipline	Medical	17.1
	Non-medical	82.9
Friend or relative infected with COVID-19	Yes	24.4
	No	66.1
	Not sure	9.5
Friend or relative died of COVID-19	Yes	5.8
	No	91.1
	Not sure	3.1
Wearing masks	Always	79.8
	Sometimes	17.5
	Never	2.7
Using detergents	Always	81.5
	Sometimes	13.4
	Never	5.1
Applying social distancing	Always	77.5
	Sometimes	20.6
	Never	1.9
Watching/reading COVID-19 news (hrs/day)	<2	85.6
	2-4	10.1
	>4	4.3
Sleeping (hrs/day)	<6	18.3
	≥6	81.7
Emotional support from Family	Yes	91.9
	No	8.1
Emotional support from Society	Yes	76.2
	No	23.8
Emotional support from the university	Yes	74.4
	No	25.6

TABLE 1 Sociodemographic characteristics of Saudi university students and their attitudes towards the COVID-19 pandemic

Since these studies were conducted in different contexts and used different assessment tools, we cannot claim that the change in the prevalence of psychological problems between our study and the pre-COVID-19 studies is solely attributed to the COVID-19 pandemic.

It could be predicted that the quarantine measures and the state of anticipation about the academic progress during the COVID-19 pandemic may have harmed the students' mental and psychological health. Besides, the new learning environment, based completely on online education, could be addressed differently among students with various psychological reflections.⁶ Moreover, the students' psychological affection may have been related to stressors associated

with social and physical distancing measures, infection fear, and boredom.³⁰ It is not surprising that anxiety disorders are more likely to occur and worsen in the absence of interpersonal communication.³¹ A study conducted on medical students from Saudi Arabia suggested that being detached from friends was a major cause of anxiety.⁷

We also highlighted the role played by other stressors in the students' psychological instability during the current COVID-19 pandemic. For example, the current study illustrated that having a relative or a friend infected with or died of the COVID-19 was associated with an increased level of depression and anxiety and this was consistent with previous literature.^{13,32} Watching COVID-19

TABLE 2 Prevalence of depression, anxiety, and stress among Saudi university students during the COVID-19 pandemic

Psychological features		Medical n = 160 (%)	Non-Medical n = 776 (%)	Overall n = 936 (%)
Depression	Normal	54.4	59.8	58.9
	Mild to moderate	30.6	32.0	31.7
	Severe to very severe	15.0	8.2	9.4
Anxiety	Normal	69.4	73.8	73.1
	Mild to moderate	15.0	16.0	15.8
	Severe to very severe	15.6	10.2	11.1
Stress	Normal	70.0	79.1	77.6
	Mild to moderate	16.9	14.8	15.2
	Severe to very severe	13.1	47(6.1)	7.2

TABLE 3 Odds ratios and confidence intervals of the associations with depression, anxiety, and stress, among Saudi university students during the COVID-19 pandemic

Characteristics		Depression (n = 385)		Anxiety (n = 252)		Stress (n = 210)	
		%	OR (95% CI)	%	OR (95% CI)	%	OR (95% CI)
Age	<23 years	43.4	1.25 (0.96-1.64)	27.9	1.13 (0.84-1.51)	23.7	1.18 (0.86-1.62)
	≥23 years	38.0	1	25.6	1	20.8	1
Sex	Men	40.9	0.99 (0.76-1.28)	25.0	0.84 (0.63-1.13)	21.6	0.92 (0.67-1.25)
	Women	41.3	1	28.4	1	23.1	1
Residence	Urban	40.6	0.97 (0.74-1.26)	27.8	1.09 (0.82-1.45)	23.9	1.16 (0.85-1.58)
	Rural	41.5	1	26.2	1	21.3	1
Discipline	Medical	45.6	1.25 (0.87-1.76)	30.6	1.25 (0.86-1.81)	30.0	1.62 (1.11-2.38)
	Non-medical	40.2	1	26.2	1	20.9	1
Friend or relative infected by COVID-19	Yes	53.5	1.95 (1.44-2.63)	37.7	1.98 (1.44-2.72)	26.8	1.37 (0.97-1.93)
	No or not sure	37.1	1	23.4	1	21.0	1
Friend or relative died of COVID-19	Yes	55.6	1.86 (1.07-3.23)	40.7	1.95 (1.11-3.42)	24.1	1.10 (0.58-2.10)
	No or not sure	40.2	1	26.1	1	22.3	1
Wearing masks	Sometimes/Never	43.9	1.15 (0.84-1.59)	31.7	1.34 (0.95-1.90)	23.8	1.10 (0.76-1.61)
	Always	40.4	1	25.7	1	22.1	1
Using detergents	Sometimes/Never	52.0	1.72 (1.23-2.40)	34.1	1.53 (1.07-2.18)	27.2	1.37 (0.94-2.00)
	Always	38.7	1	25.3	1	21.4	1
Applying social distancing	Sometimes/Never	43.6	1.14 (0.84-1.55)	27.0	1.01 (0.71-1.42)	25.6	1.26 (0.88-1.79)
	Always	40.4	1	26.9	1	21.5	1
Watching/reading COVID-19 news	≥2 hrs/day	49.6	1.50 (1.04-2.16)	38.5	1.88 (1.29-2.76)	28.9	1.50 (1.00-2.52)
	<2 hrs/day	39.7	1	25.0	1	21.3	1
Sleeping hours	<6 hrs/day	47.4	1.37 (0.98-1.91)	39.8	2.09 (1.47-2.95)	29.8	1.62 (1.12-2.35)
	≥6 hrs/day	39.7	1	24.1	1	20.8	1
Emotional support from family	No	57.9	2.09 (1.30-3.37)	42.1	2.12 (1.31-3.42)	38.2	2.32 (1.42-3.78)
	Yes	39.7	1	25.6	1	21.0	1
Emotional support from society	No	52.9	1.88 (1.39-2.54)	34.1	1.58 (1.14-2.18)	31.4	1.87 (1.34-2.63)
	Yes	37.4	1	24.7	1	19.6	1
Emotional support from the university	No	56.1	2.28 (1.69-3.08)	37.7	2.00 (1.46-2.74)	36.4	2.66 (1.92-3.69)
	Yes	35.9	1	23.2	1	17.7	1

Bold values are statistically significant (p -value < 0.05).

news for long times per day was associated with depression, anxiety, and stress. As a consequence of the current pandemic, many people turned to social media outlets to connect with others and to express their feelings about the pandemic.³³ Although media is considered a good source of information about safety precautions and prevention strategies, excessive description of COVID-19 news can create a sense of panic among vulnerable individuals. Social media and uncurious netizens may also be a source of fake scary information.^{32,34} This finding should raise the attention of mental health professionals to advise the public for a wise watching of the news and to cautiously use social media and telecommunication websites.

Moreover, the current study showed that students who reported a lack of sleep had more stress and anxiety. Sleep disturbances are a stand-alone risk factor for psychological consequences. Appropriate treatment of sleep disturbances is always vital and reduces symptoms of psychiatric disorders.³⁵ Recognizing and treating such disorders are particularly important during stressful times.³⁶ A variety of treatments are available to combat sleep disorders. Of them, cognitive-behavioral therapy is a popular and effective way which help patients to be aware of inaccurate negative thinking. It could be addressed via face-to-face or online consultations. At times of pandemic, such sessions are more feasible and easily adapted, and suited to the restrictive and precautionary measures of dissemination. Easily and open-source platforms that require no high technical knowledge and no high cost can be implemented to provide such session therapies.³⁷⁻⁴⁰

Furthermore, students who did not receive emotional support from their families, societies, and universities were more likely to experience psychological problems. The current COVID-19 pandemic is considered an inexperienced crisis that affected the mental health of the exposed people and requires psychological support. A study on university students from Egypt showed that social support correlated negatively with their level of depression, anxiety, and stress.¹³ Since providing mental healthcare services to students can significantly alleviate their psychological disturbances,⁴¹ there is a need to pay greater attention to the mental health of university students and actively provide them with psychological support and counselling.

5 | STRENGTHS AND LIMITATION

This study carried many strengths such as investigating the psychological conditions among a large cohort of university students in Saudi Arabia and using a validated tool to measure their psychological problems. However, the study had some limitations that should be addressed. First, the cross-sectional design of this study cannot imply causality, and the baseline psychological conditions before the COVID-19 pandemic could not be assessed. Therefore, we cannot conclude that the COVID-19 pandemic was the only reason to provoke such psychological disturbances. Second, investigating one university in Saudi Arabia would be not representative of the rest of the universities in the country. Third, the online approach of data collection could carry a potential possibility of

non-response bias.⁴² To minimize the risk of this bias, we sent the questionnaire through all the possible means of communication with students of Umm AlQura University. We made the online questionnaire available for participation for a week and extended its availability for another week while sending reminders to students and encouraging them to share the questionnaire by sending it to their colleagues. Fourth, this study mainly used self-reported questionnaires to measure psychiatric symptoms and did not make a clinical diagnosis. The gold standard for establishing psychiatric diagnosis involved a structured clinical interview and functional neuroimaging.⁴³⁻⁴⁵

6 | CONCLUSION

This study showed that students of Umm AlQura University suffered psychological problems during the COVID-19 pandemic. These problems were associated with COVID-19 infection or death of a family member or relative, excessive following of COVID-19 news, lack of emotional support from family, society, and the university. Our findings can be used to articulate psychological interventions to improve mental health and psychological resilience during the COVID-19 pandemic. It is warranted for universities to have a role in helping students respond to the pandemic in a healthier psychological performance.

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CONFLICT OF INTEREST

The authors declare no competing interests.

AUTHOR CONTRIBUTIONS

ZM and AA drafted the initial manuscript and substantially revised it, under the supervision of AE. All authors made a substantial contribution to the work by data collection, data analysis, and manuscript editing. All authors read and approved the published version of the manuscript.

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