Original Article :

Stress, Anxiety, and Depression among University Students in Saudi Arabia During COVID 19 Pandemic: A Cross-Sectional Study

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Abstract

Background and Aims:

Since early stages of COVID-19 breakout, the Kingdom of Saudi Arabia has taken preventive measures and initiated legislations to control the transmission of COVID-19 and maintain welling of healthcare system. This study was designed to assess the stress, anxiety and depression during COVID-19 pandemic among universities' students in Saudi Arabia.

Methods:

This is a cross-sectional, involved online based distributed a self-demonstrated validated questionnaire, which was adopted and validated mainly for the purpose of this study. Sample size was calculated utilising Epi Info statistical program.

Results:

384 university students were included in this study, of these (27.71%) have experienced stress, anxiety was observed in (18.78%) of students and 21.85%

الملخص

الخلفية والاهداف:

اتخذت المملكة العربية السعودية عدداً من الإجراءات الوقائية، بالإضافة لسن عدد من التشريعات والقوانين للحد من انتشار كوفيد-١٩ أثناء التزام السكان بهذه الاجراءات لثلاثة أشهر متتالية. تهدف الدراسة الى تقييم الجانب النفسي التوتر والقلق والاكتئاب اثناء انتشار كوفيد-١٩ بين طلاب الجامعات بالمملكة العربية السعودية.

طريقة البحث:

هذه دراسة مقطعية نفذت باستخدام استبيان تم تصميمه لذات الغرض وتم نشره باستخدام وسائل التواصل الاجتماعي وتضمنت ٣٨٤ طالب وطالبة من طلاب وطالبات الجامعات السعودية، تم تحديد حجم العينة بواسطة برنامج ابي انفو الإحصائي وتم جمع البيانات باستخدام استبانة مصممة ومختبرة لذات الغرض، كما تضمنت الدراسة إجراء التحليل الإحصائي وعرض النتائج في شكل جداول ورسومات بيانية.

النتائج:

أظهرت الدراسة التي أجريت على ٣٨٤ طالب وطالبة من جامعات المملكة العربية السعودية، أن ٢٧,٧١٪ من طلاب

have experienced depression during the COVID-19 outbreak. Significantly, students with aged between 18 and 22 years old, and health sciences student were more likely to develop anxious and stress comparing to other students, respectively.

Conclusion:

The university students experienced some types of stress, anxiety and depression during the COVID-19 pandemic. Therefore, Further actions need to be taken to determine the association the psychological problems of this part of the community during and after pandemic.

Keywords:

COVID-19, Pandemic, psychological impact, students, Saudi Universities

الجامعات لديهم توتر، ١٨,٧٨٪ لديهم قلق، و٢١,٨٥٪ لديهم اكتئاب خلال فترة جائحة كوفيد-١٩. الطلاب الذين تتراوح أعمارهم بين ١٨-٢٢ سنة وأيضاً الطلاب العزاب كانوا أكثر قلقاً بينما طلاب المجالات الطبية كانوا الأكثر توتراً.

الخلاصة:

خلصت نتائج الدراسة طلبة الجامعات السعودية يظهر عليهم بعض انواع التوتر والقلق والاكتئاب أثناء جائحة كوفيد-١٩، وتبين للباحثين ضرورة عمل دراسات اضافية لتحديد علاقة هذة المشاكل النفسية ومسبباتها اثناء وبعد الجائحة.

Introduction:

In December 2019, the World Health Organization (WHO) announced that a new coronavirus was identified in China at Wuhan, and known as a novel coronavirus which caused a new type of respiratory infection or severe acute respiratory syndrome SARS-2 [1, 2]. The emerged infection was then named as Coronavirus Disease 2019 (COVID-19) [3], which causes severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) [4]. The WHO defined COVID-19 as a worldwide pandemic due to worldwide spread [5]. Then, Kingdom of Saudi Arabia has taken specific regulations and legislations including cities lockdown to control and prevent the transmission of COVID-19. The adherence of the public to home stay supposed to affect their psychological wellbeing [6].

The COVID-19 is not merely affecting physical dimensions but also poses psychological dimension of health [7]. There are many psychological effects have been reported during the pandemic 8. During the beginning period of the COVID-19 outbreak, more than half of the respondents had moderate-to-severe psychological impact, and about one-third had moderate-to-severe anxiety level [9]. Evidences from literature indicate that the COVID-19 outbreak has related to several psychological issues, such as panic disorders, and other neurotic disorders [10]. COVID-19 psychological effects include anxiety, depression, loneliness, stress, fear and, excitement, or a combination of them [11].

During the pandemic of COVID-19, the Ministry of Health in Saudi Arabia stated legislations to mitigate the spread of infection. The regulations include quarantine and curfew [12]. Those who were affected, described it as an unpleasant experience, which leads to separation, isolation and sense of uncertainty [13]. People of all ages are susceptible to the ill effects of social isolation like depression, anxiety, heart diseases [13]. Therefore, this study aimed to assess stress, anxiety and depression during COVID-19 pandemic among universities' students in Saudi Arabia.

Methods:

Study Design: This is a cross-sectional online survey conducted during the period of April to June 2020 upon the period of curfew and lockdown of the Kingdom cities as a preventive measure to control COVID-19 aimed to assess the psychological impact of home stay and cities lockdown during COVID 19 pandemic among universities' students in Saudi Arabia.

Subjects & recruitment: All university students in Saudi Arabia were invited via distributing online questionnaire link, through social media (Facebook, WhatsApp groups and text messages) to participate in the study assessing the psychological impact due to the pandemic. The non-probability sampling technique as convenience sampling.

Sample size: The researchers used EPI IFO STATISTICAL program[14] to calculate sample size, using total number of students at Saudi universities, the confidence interval of 95% with marginal error of 5% and the calculated sample size was 384.

Data Collection tools: The developed online questionnaire consists two parts, which involving 33 items (part1: 12 as demographic information and part 2: 21 for the scale of psychological impact). The first part consists of demographic characteristics of students, including sex, age, university, marital status, educational level, and other COVID-19 questions. The second part consists of twenty-one items evaluated psychological impact of COVID- 19 on university students were assessed by English version of Depression, Anxiety and Stress Scale- 21 items (DASS-21)[15]. The questionnaire was tested among 20 students to ensure its accurate validity and consistency and to ensure that the questions are reliable. The used scale consists of 21 items including three main parts for stress, anxiety and depression.

Data Analysis: Data processing and analysis were carried out using the Statistical Package for the Social Sciences software (version 20.0). The chi-square test and Fisher's exact test were used for the comparison, as appropriate. Outcomes were

presented in tables and figures. A p-value of 0.05 was considered statistically significant for all statistical tests.

Ethical approval:

The permission was obtained by email from the ethical committee of Al Ghad International Colleges, Jeddah Branch, Saudi Arabia (copy of the ethical approval can be provided upon request). Written informed consent was waived, as there was no potential harm intended to the participants.

Results:

Of 384 university students participated in this study; female consists (59.6%) and male (40.4%), further information on demographics information included in Table I. The ages of students ranged between 18 and 22 years old (50.5 %). In addition, the students studied bachelor's degree consist 97.7 % of the whole participants, whilst 2.4 % enrolled in postgraduate degrees.

The results showed that 27.71% of students have experienced stress, 18.78% have anxiety and 21.85% of them have depression, while 31.66% did not show any psychological symptoms. It also reveals that majority of the students (9.1 %) exposed directly for close contacts with COVID-19 infected person, 22.1% of students have not exposed to confirmed cases indirectly. 14.1% did not expose to fomites of suspected COVID-19.

Figure (1) shows the severity for stress,

Table 1: Demographic characteristics of the participants (n = 384)

Variable		Sample (n = 384)	Percentage (%)
Gender	Male	155	40.4
	Female	229	59.6
Age	18 – 22 years	194	50.5
	23 – 27 years	120	31.3
	More than 28 years	70	18.2
Educational status	Bachelors student	375	97.7
	Masters student	3	0.8
	doctorate student	6	1.6
Educational field	Medical field	293	76.3
	Human Sciences	10	2.6
	Administration sciences	26	6.8
	Arts	0	0.0
	Others	55	14.3
Employment status	employed	91	23.7
	unemployed	293	76.3
Marital status	single	300	78.1
	Married	72	18.8
	Divorced	12	3.1
	Widowed	0	0.0

Variable		Sample (n = 384)	Percentage (%)
Household size	One person	13	3.4
	Two persons	17	4.4
	Three to five persons	160	41.7
	More than sex person	194	50.5
Do you smoke?	Yes	285	74.2
	No	99	25.8
Do you have any chronic diseases?	No	335	87.2
	Asthma	19	4.9
	Cancer	0	0.0
	Cardiac diseases	0	0.0
	Diabetes	1	0.3
	Hepatitis	0	0.0
	Hypertension	10	2.6
	Peptic ulcer	6	1.6
	Crohn disease	0	0.0
	Rheumatoid arthritis	0	0.0
	Others	13	3.4

anxiety, and depression. The stress levels distributed from the normal level (66.1%) to extremely severe (1.8%). The anxiety (55.2%) of study subjects represented normal level of anxiety, while (10.4%) have extremely. It shows that more than half (59.9%) have no depression while (4%) have extremely severe depression.

Figure 1: The level of severity for depression, stress and anxiety among university students

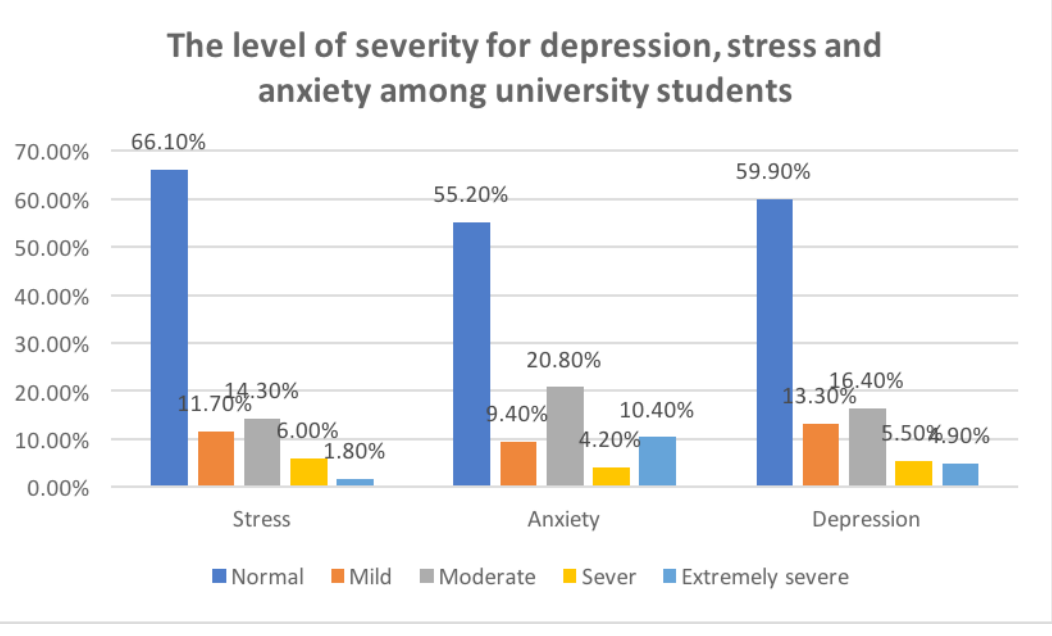


Table (2) shows the comparison between demographic variables and the level of stress, which shows no statistical significance difference between the demographic variables and stress levels, p value is more than 0.05.

Table 2: Comparison of demographic variables, and the level of stress on university students

Variable		Sample (n = 384)		normal		mild		moderate		sever		Extremely sever		p
		F	%	F	%	F	%	F	%	F	%	F	%	
Gender	Male	155	40.36	107	27.86	20	5.21	20	5.21	6	1.56	2	0.52	0.500
	Female	229	59.64	147	38.28	25	6.51	35	9.11	17	4.43	5	1.30	
Age	18 – 22 Years	194	50.52	123	32.03	22	5.73	31	8.07	15	3.91	3	0.78	0.467
	23 – 27 Years	120	31.25	83	21.61	16	4.17	13	3.39	4	1.04	4	1.04	
	More Than 28 Years	70	18.23	48	12.50	7	1.82	11	2.86	4	1.04	0	0.00	
Educational status	Bachelors Student	375	97.66	246	64.06	44	11.46	55	14.32	23	5.99	7	1.82	0.913
	Masters Student	3	0.78	3	0.78	0	0.00	0	0.00	0	0.00	0	0.00	
	Doctorate Student	6	1.56	5	1.30	1	0.26	0	0.00	0	0.00	0	0.00	
Educational field	Medical Field	293	76.30	199	51.82	25	6.51	45	11.72	18	4.69	6	1.56	0.013
	Human Sciences	10	2.60	4	1.04	2	0.52	1	0.26	3	0.78	0	0.00	
	Administration Sciences	26	6.77	17	4.43	6	1.56	2	0.52	1	0.26	0	0.00	
	Others	55	14.32	34	8.85	12	3.13	7	1.82	1	0.26	1	0.26	
Employment status	Employed	91	23.70	58	15.10	14	3.65	12	3.13	5	1.30	2	0.52	0.787
	Unemployed	293	76.30	196	51.04	31	8.07	43	11.20	18	4.69	5	1.30	
Marital status	Single	300	78.13	195	50.78	37	9.64	43	11.20	20	5.21	5	1.30	0.946
	Married	72	18.75	50	13.02	7	1.82	10	2.60	3	0.78	2	0.52	
	Divorced	12	3.13	9	2.34	1	0.26	2	0.52	0	0.00	0	0.00	

Table (3) presents the association between demographic variables and the level of anxiety. There was statistically significant difference between age and anxiety where age group between 18-22 years are significantly anxious, (p = 0.001), there is also statistically significant difference between marital status & anxiety level, where singles are most affected, (p = 0.001).

Table 3: Comparison of demographic variables, and the level of anxiety on university students

Variable		Sample (n = 384)		normal		mild		moderate		sever		Extremely sever		p
		F	%	F	%	F	%	F	%	F	%	F	%	
Gender	Male	155	40.36	94	24.48	10	2.60	26	6.77	7	1.82	18	4.69	0.181
	Female	229	59.64	118	30.73	26	6.77	54	14.06	9	2.34	22	5.73	
Age	18 – 22 Years	194	50.52	108	28.13	9	2.34	42	10.94	9	2.34	26	6.77	0.001
	23 – 27 Years	120	31.25	67	17.45	10	2.60	26	6.77	7	1.82	10	2.60	
	More Than 28 Years	70	18.23	37	9.64	17	4.43	12	3.13	0	0.00	4	1.04	

Variable		Sample (n = 384)		normal		mild		moderate		sever		Extremely sever		p
		F	%	F	%	F	%	F	%	F	%	F	%	
Educational status	Bachelors Student	375	97.66	205	53.39	35	9.11	79	20.57	16	4.17	40	10.42	0.7163
	Masters Student	3	0.78	2	0.52	1	0.26	0	0.00	0	0.00	0	0.00	
	Doctorate Student	6	1.56	5	1.30	0	0.00	1	0.26	0	0.00	0	0.00	
Educational field	Medical Field	293	76.30	162	42.19	23	5.99	60	15.63	13	3.39	35	9.11	0.352
	Human Sciences	10	2.60	4	1.04	1	0.26	2	0.52	1	0.26	2	0.52	
	Administration Sciences	26	6.77	17	4.43	2	0.52	5	1.30	1	0.26	1	0.26	
	Others	55	14.32	29	7.55	10	2.60	13	3.39	1	0.26	2	0.52	
Employment status	Employed	91	23.70	48	12.50	12	3.13	20	5.21	3	0.78	8	2.08	0.631
	Unemployed	293	76.30	164	42.71	24	6.25	60	15.63	13	3.39	32	8.33	
Marital status	Single	300	78.13	163	42.45	19	4.95	68	17.71	14	3.65	36	9.38	0.001
	Married	72	18.75	44	11.46	13	3.39	11	2.86	0	0.00	4	1.04	
	Divorced	12	3.13	5	1.30	4	1.04	1	0.26	2	0.52	0	0.00	

Table (4) reflects the relationships between demographic variables and the level of depression. There was only statistically significant difference between marital status and depression level, (p = 0.001).

Table 4: Comparison of demographic variables, and the level of Depression on university students

				Depression										
Variable		Sample (n = 384)		normal		mild		moderate		sever		Extremely sever		p
		F	%	F	%	F	%	F	%	F	%	F	%	
Gender	Male	155	40.36	97	25.26	15	3.91	25	6.51	12	3.13	6	1.56	0.204
	Female	229	59.64	133	34.64	36	9.38	38	9.90	9	2.34	13	3.39	
Age	18 – 22 Years	194	50.52	107	27.86	25	6.51	38	9.90	13	3.39	11	2.86	0.088
	23 – 27 Years	120	31.25	71	18.49	20	5.21	15	3.91	6	1.56	8	2.08	
	More Than 28 Years	70	18.23	52	13.54	6	1.56	10	2.60	2	0.52	0	0.00	
Educational status	Bachelors Student	375	97.66	222	57.81	50	13.02	63	16.41	21	5.47	19	4.95	0.828
	Masters Student	3	0.78	3	0.78	0	0.00	0	0.00	0	0.00	0	0.00	
	Doctorate Student	6	1.56	5	1.30	1	0.26	0	0.00	0	0.00	0	0.00	
Educational field	Medical Field	293	76.30	174	45.31	43	11.20	46	11.98	15	3.91	15	3.91	0.297
	Human Sciences	10	2.60	5	1.30	1	0.26	2	0.52	0	0.00	2	0.52	
	Administration Sciences	26	6.77	16	4.17	0	0.00	6	1.56	2	0.52	2	0.52	
	Others	55	14.32	35	9.11	7	1.82	9	2.34	4	1.04	0	0.00	
Employment status	Employed	91	23.70	64	16.67	10	2.60	9	2.34	5	1.30	3	0.78	0.631
	Unemployed	293	76.30	166	43.23	41	10.68	54	14.06	16	4.17	16	4.17	

Variable		Sample (n = 384)		Depression										p
				normal		mild		moderate		sever		Extremely sever		
		F	%	F	%	F	%	F	%	F	%	F	%	
Marital status	Single	300	78.13	163	42.45	19	4.95	68	17.71	14	3.65	36	9.38	0.001
	Married	72	18.75	44	11.46	13	3.39	11	2.86	0	0.00	4	1.04	
	Divorced	12	3.13	5	1.30	4	1.04	1	0.26	2	0.52	0	0.00	

Discussion:

The psychological impact of COVID-19 pandemic is huge which has negatively affected all countries including Saudi Arabia, and there have been several cases of anxiety and depression. The long-term and short-term psychological effects are reported during pandemics [16, 17].

The study showed that (27.71%) of university students have experienced stress, 18.78% have experienced anxiety and (21.85%) have experienced depression due to COVID-19 outbreak. This psychological effects related to COVID-19 might have been linked to the emergence of new virus and its consequences which may delay their studies and graduation [17]. These findings are similar to other studies where most of published articles reported undesirable psychological effects due to cities lockdown and curfew, afraid of infection, inadequate protected supplies, lack of knowledge, and loss of jobs or finances[18]. The evidences advise that the restricted people significantly reported high levels of anxiety, anger, confusion, and stress [18,19]. Furthermore, it was reported that the prolonged afraid may cause stress which consequently elevate the blood pressure, increase risks for diabetes and worsen high cholesterol levels [20]. Then, this was also reported for other infectious diseases quarantine, since the effect may be extended to be tremendous impact on people mental and psychological wellbeing [21]. In a review of the evidences on the psychological effect of pandemics and quarantine reported that the psychological effect could be long-lasting and short-lasting [18]. The application of unplanned strict quarantine measures in China has kept people in homes and affected their lives, which triggers many psychological problems, such as panic disorder, anxiety and depression[10]. In one study by Bhat et al 2020 shows that majority of the participants (67.5%) believe continuous lockdown could affect the mental health of the people [20]. Hawryluck et al. studied 129 quarantined people during SARS-CoV-1 epidemic in 2003 who found that high prevalence of psychological distress [22].

The students in the age group between 18-22 years and those who are singles were

significantly anxious and medical colleges students were the most affected group by stress, in a study by Zhou et al, 2020 in China, showed that females are the mostly affected by anxiety and depression [19]. Fortunately, the Saudi government has provided psychological health consultation and services through various channels, day and night including hotlines and outpatients [19]. This study suggested to consider the psychological impact on the university students and its associated factors. Similar to finding from this study, it was reported that certain groups are more vulnerable to psychological problems; including younger people, and those with low educational levels [23]. Another study in China by Cao et al 2020 reported that (24.9%) of college students have reported anxiety due to COVID-19 epidemic. However, having an infected relative with COVID-19 was not correlated to experiencing anxiety. The COVID-19-anxiety triggers among Chinese college students include economic factors, change in daily-life, and academic delays. The psychological health of the students is significantly influenced when confronted with community health crises[24]. The findings of our study indicate that the psychological health of young people is very important all times, not only during pandemics of spread of diseases. Attention should be focused on the behaviour changes or initiation of depressive or anxiety symptoms among university students. Genetic and external environmental factors are believed to be involved in the start of depression [19]. Because, many students had anxiety and depression, some did not agree to participate in the current study through online survey. In a local survey in China assessing the psychological effects during COVID-19 epidemic, showed that (35%) of the people experienced psychological problems [10].

For the purpose of this study, researchers were aimed to recruit as much as possible students from different Saudi universities, but, due to limited access through social media, the authors were not able to distribute the online questionnaire to all universities' students in Saudi Arabia, in addition, risk of refuse to participate in this study seems to be high not all students have access to respond to the online questionnaire. Another limitation is the critical time for data collection during curfew and quarantine. Future study must cover larger sample and involves young adults not registered at university. The authors were not able to used randomized sampling, so they used convenience sampling method to include the completed responses received during the period of data collection.

Conclusion

In conclusion, there is an evidence of psychological problems among universities' students in Saudi Arabia during COVID-19 pandemic including stress anxiety and depression. Furthermore, students of age between 18-22 years and those singles were found to be significantly at high risk for developing anxiety, whilst stress was significantly higher among medical field students.

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