


## ORIGINAL PAPER

Psychiatry

# About anxiety levels and anti-anxiety drugs among quarantined undergraduate Jordanian students during COVID-19 pandemic

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**Abstract**

**Objective:** This study was conducted to study the anxiety scores among undergraduate university students in Jordan during COVID-19 pandemic and to assess the relationship between quarantine and shifting to distance learning resulted from the governmental strict isolation measures and severity of anxiety among students.

**Methods:** A cross-sectional design was conducted to meet the study objectives. A convenience sample of 736 undergraduate university students in Jordan was recruited, and anxiety was assessed using the Hamilton Anxiety Scale.

**Results:** The results indicated that anxiety score was 22.76 and 40.6% of the participant experienced moderate to severe anxiety, whereas 23.5% experienced mild to moderate anxiety and 35.9% experienced mild anxiety. Factors like suffering from chronic illnesses, having chronic medications, grade point average, shifting to distance learning, quarantine during the pandemic, study duties, the newly developed evaluation methods and the experience of students towards the use of anti-anxiety drugs and herbs had significantly increased the anxiety scores.

**Conclusion:** Our findings indicate that quarantine and shifting to distance learning during COVID-19 pandemic have negatively affected the anxiety scores of the university students which should be taken in consideration by the policymakers in Jordan in order to support this vulnerable group.

**What's known**

- Anxiety is an overlooked disorder among university students during quarantined COVID-19 pandemic.

**What's new**

- The prevalence of moderate to severe anxiety was 40.6%, with significant correlation with shifting to distance learning.
- Anxiety among vulnerable groups such as students should be taken in consideration during pandemics.

## 1 | INTRODUCTION

The novel coronavirus (COVID-19) is causing an outbreak all over the world. According to the World Health Organisation (WHO), more than 112 million confirmed cases were reported in 223 countries; among these cases, more than two million death cases were reported.<sup>1</sup> This large-scale infectious public health event has imposed enormous pressure on the governments, healthcare providers and the general public.<sup>2</sup> The epidemic has brought not only the risk of death from the viral infection but also psychological pressure on the people worldwide.<sup>3,4</sup> Jordan is one of the countries that was affected with this pandemic with more than 380 thousand confirmed cases and more than four thousand cases of death.<sup>5</sup> The continuous spread of this epidemic has enforced governments to lock down the country for more than 2 months which caused a drastic change in the Jordanians daily.<sup>6</sup> The lockdown and quarantine measures are considered direct stressors to provoke mental health disturbances for a fragile group such as undergraduate students.<sup>7</sup>

Anxiety is a normal response in human body, which might influence both genders and people from different cultures.<sup>8,9</sup> Although anxiety is considered as a protective mechanism which motivates individuals into action, it could be harmful response when it exceeds certain levels and duration.<sup>10</sup> A high anxiety level is considered a leading cause for many mental disorders such as depression.<sup>11</sup> According to WHO, 450 million people worldwide suffer from mental disorders, 80% of which are residing in low- and middle-income countries.<sup>12,13</sup> High anxiety and stress have a big effect on quality of life (QOL) and are considered, at least in part, a cause of disability.<sup>14</sup> Environmental factors are considered as a cause for elevated levels of anxiety and stress which could influence certain biological mechanisms, such as autonomic and hormonal responses.<sup>15</sup>

Although there have been reports on the psychological impact of the epidemic on the general public, patients, medical staff, children and older adults and college students in several countries,<sup>7,16,17</sup> no detailed study on the anxiety status of Jordanian's undergraduate students facing the quarantine has been conducted to date. Therefore, the current study aimed to explore the anxiety levels, anxiety-associated risk factors and the use/attitude towards anxiolytic medications and herbal products among a cohort of quarantined undergraduate Jordanian students.

## 2 | METHODS

### 2.1 | Design and data collection

A cross-sectional design was conducted to meet the study objectives. The eligibility criterion for participants was to be an active enrolment student in undergraduate study at Jordan universities and all quarantined. Data collection was performed between the periods April to May 2020 by one of the authors of this project using an Internet-based self-administrated questionnaire which was created using *Google Forms*. The participants in our study were recruited

through social media (Facebook and WhatsApp). The questionnaire was distributed across several Facebook groups of university students in Jordan and academic groups on WhatsApp to target undergraduate students in different universities in Jordan. These social media groups were created by students as a tool for general and academic communication within the students' community. Informed consent form was provided to the participants as a pre-request to proceed in participation.

### 2.2 | Sample size

The sample size was calculated based on 95% confidence level and 5% confidence interval, and total undergraduate students in Jordan is 120 thousand. The sample size calculation revealed the need for at least 383 undergraduate students. However, for the purpose of enhancing the generalisability of the results, 736 students were enrolled in this study.

### 2.3 | Ethical consideration

The study was approved by Institutional Review Board at the Hashemite University in Jordan (IRB number: 8/14/2019/2020).

### 2.4 | Instruments

The well-structured questionnaire was composed of four parts, with a total of 41 questions. The first section consisted of nine questions about demographics data including age, gender, house space, place of living, the university and type of the study college, grade point average (GPA) of the students, pre-existing chronic diseases and related chronic medication use. The second section composed of nine questions about lifestyle information including changing in studying hours, average daily time spent on following up the COVID-19 news, effect of the distance learning and quarantine on the academic performance, smoking status, the daily consumption of tea or coffee pre- and during the quarantine, the students' satisfaction on the evaluation method for their academic performance and their study duties during quarantine. The third section was about the assessment of the anxiety level using the Arabic version of the HAM-A, which consists of 14 items on a 5-point Likert scale, ranging from "0" (not present) to "4" (severe) with a total probable score ranging from 0 to 56.<sup>18</sup> Previous study has shown that the Arabic version of HAM-A is reliable and valid with coefficient alpha of 0.921, which is similar to the results obtained from previous research in adults, suggesting that the items of this scale are able to screen for anxiety among Arabic population in an excellent way.<sup>19,20</sup> This study showed a good reliability with a coefficient alpha of 0.89. The fourth part composed of nine questions about the anxiolytics practice including previous use of anti-anxiety drugs or herbs/supplements, thinking of using anti-anxiety drugs or herbs, during quarantine, using

anti-anxiety drugs or herbs during quarantine, impressions of students about efficacy and safety of anti-anxiety drugs or herbs and their opinion about the best way to decrease anxiety.

## 2.5 | Data analysis

Statistical Package for Social Sciences (SPSS) Version 24.0 (SPSS Inc) was used for analysis of the data from the completed questionnaires after being extracted from Google Forms as an Excel sheet, which then were incorporated into SPSS for analysis. Descriptive analyses including mean (M) and standard deviation (SD) were used to describe the numerical variables related to demographic details and anxiety. A Pearson's correlation test was used to examine the correlation between age and anxiety. In addition, one-way analysis of variance (ANOVA) was used to study the effect of one factor on two different groups. When ANOVA provided evidence that the group means differ, a Scheffe post hoc test was used for multiple comparisons to know which of the means are significant. An independent *t*-test was used to examine differences in anxiety based on demographics that has two categories. A  $P < .05$  was considered statistically significant.

## 3 | RESULTS

### 3.1 | Students' characteristics

A total of 736 questionnaires were received and were included in the analysis. There was a predomination of female participants ( $n = 553$ , 75.1%) compared with male participants ( $n = 183$ , 24.9%). The mean age was 20.97 years ( $SD = 2.24$ ) and ranged between 17 and 38 years. The vast majority of participants were living in cities ( $n = 581$ , 78.9%), studying at governmental universities or colleges ( $n = 652$ , 88.6%) and studying in health-related colleges ( $n = 472$ , 64.1%). The students who have very good GPA were slightly predominant ( $n = 289$ , 39.3%) compared with good ( $n = 223$ , 30.3%), excellent ( $n = 151$ , 20.5%) and acceptable ( $n = 73$ , 9.9%). Most of the students are currently non-smokers ( $n = 583$ , 79.2%) and drink coffee and tea one to three times per day (511, 69.4%). Generally, students have no history of pre-existing chronic illness ( $n = 665$ , 90.4%) or having chronic medications ( $n = 687$ , 93.3%), and most of them they have not previously used anti-anxiety drugs ( $n = 638$ , 86.7%) or anti-anxiety herbs or supplements ( $n = 430$ , 58.4%). More details about the sociodemographic characteristics of the respondents are provided in Table 1.

### 3.2 | Levels of anxiety among students during the pandemic

Anxiety mean score was 22.76 ( $SD = 11.45$ , range 0-56). Of the 736 respondents, 40.6% had moderate to severe symptoms of anxiety,

**TABLE 1** Demographic details,  $N = 736$

Factor	Categories	Total no. (%)
Gender	Male	183 (24.9)
	Female	553 (75.1)
Place of living	City	581 (78.9)
	Countryside	155 (21.1)
	More than 300 m <sup>2</sup>	165 (22.4)
University	Government universities	652 (88.6)
	Private universities	84 (11.4)
College	Health-related colleges	472 (64.1)
	Others	264 (35.9)
GPA	Acceptable	73 (9.9)
	Good	223 (30.3)
	Very good	289 (39.3)
	Excellent	151 (20.5)
Chronic illnesses	No	665 (90.4)
	Yes	71 (9.6)
Chronic medications	No	687 (93.3)
	Yes	49 (6.7)
Smoking status	Smoker	75 (10.2)
	Non-smoker	583 (79.2)
	Negative smoker	78 (10.6)
Coffee and tea consumption	Do not drink coffee and tea	142 (19.3)
	1-3 times a day	511 (69.4)
	4-6 times a day	63 (8.6)
	More than 6 times	20 (20.7)
Previous use of anti-anxiety drugs	Not difficult	258 (35.1)
	No	638 (86.7)
	Sometimes	85 (11.5)
Previous use of anti-anxiety herbs and supplements	Always	13 (1.8)
	No	430 (58.4)
	Sometimes	242 (32.9)
	Always	64 (8.7)

whereas the proportions of students with mild to moderate and mild symptoms of anxiety were 23.5% and 35.9%, respectively.

### 3.3 | Factors influencing students' anxiety during the pandemic

A Pearson's correlation test showed no significant correlation between students' age and anxiety ( $P = .4$ ). Independent sample *t*-test was performed to examine the differences in anxiety levels based on the demographics of the students and other factors with two categories which might affect their anxiety level which are shown

in Table 2. The test demonstrated no significant difference in the anxiety level in relation to gender, living place, university and college where students study ( $P > .05$ ). However, students who reported that they have previous chronic illnesses or they are having chronic medications had increased anxiety ( $P = .0001$ ). Interestingly, students who reported that their study was affected negatively by distance learning and quarantine measures had significantly higher anxiety level ( $P = .0001$ ). Most of the students have showed that their study duties became more difficult and the new evaluation methods which were raised by the ministry of higher education in Jordan during COVID-19 pandemic were inappropriate for them which increased their anxiety levels ( $P = .0001$ ).

One-way ANOVA test was used to examine the differences in anxiety level in relation to variables which have more than two categories which are shown in Table 3. The results showed that students' year of study and the house space where students live had no significant difference in their anxiety levels. Our results showed that students who follow-up pandemic news every 30 minutes had higher anxiety compared to those who follow up the news every 2 h (Scheffe post hoc,  $P = .02$ ). Students with acceptable GPA had higher anxiety compared with students with very good and excellent GPA (Scheffe post hoc,  $P = .008$  and  $.01$  respectively). Furthermore, factors such as smoking and coffee and tea consumption had a negative effect on anxiety level. For instance, negative smokers had higher anxiety compared with non-smokers and smokers students (Scheffe post hoc,  $P = .01$ ); in addition, students who consume coffee or tea four to six times or more than six times per day had higher anxiety level compared with students who consume them one to three times

per day (Scheffe post hoc,  $P = .04$  and  $.03$  respectively), and students who reported that their coffee and tea consumption was increased demonstrated higher anxiety levels compared with those who have not consumed more coffee and tea during the pandemic (Scheffe post hoc,  $P = .0001$ ). Expectedly, students who whether have previously used anti-anxiety drugs or herbs had higher anxiety level compared with those who have not used them before (Scheffe post hoc,  $P = .0001$ ). Moreover, anxiety level was higher among students who thought of using or used anti-anxiety drugs or herbs during quarantine (Scheffe post hoc,  $P = .0001$ ). Another factor which had a negative effect on anxiety level was the impression of students about the efficacy of anti-anxiety drugs or herbs. The results demonstrated that students who think that anti-anxiety drugs or herbs are ineffective had higher anxiety compared with who think they are effective (Scheffe post hoc,  $P = .0001$ ). Additionally, although thinking that anti-anxiety drugs are not safe had no significant effect on the anxiety level of students, students who think that anti-anxiety herbs are not safe had higher anxiety (Scheffe post hoc,  $P = .007$ ). Finally, students who think that there is no way or approach to decrease the anxiety level had higher anxiety level compared with those who think that the best way to decrease anxiety is adopting positive thinking (Scheffe post hoc,  $P = .03$ ).

### 3.4 | Use/attitude towards anxiolytic medications

The results of this study have showed that most of the students have never used anti-anxiety drugs ( $n = 638, 86.7\%$ ) or herbs ( $430, 58.4\%$ )

**TABLE 2** Differences in anxiety based on factors with two categories

Factor	Categories	Mean (SD)	T	DF	P-value
Gender	Male	22.66 (10.67)	0.15	734	0.88
	Female	22.80 (11.72)			
Place of living	City	22.44 (11.44)	-1.46	734	0.14
	Countryside	23.96 (11.46)			
Chronic illnesses	No	21.88 (11.10)	6.63	734	0.0001
	Yes	31.1 (11.5)			
Chronic medications	No	22.24 (11.29)	-4.73	734	0.0001
	Yes	30.14 (11.33)			
Negative effect of distance learning	No	18.50 (11.23)	4.86	734	0.0001
	Yes	23.72 (11.29)			
Negative effect of quarantine	No	18.39 (11.83)	4.59	734	0.0001
	Yes	23.6 (11.2)			
Evaluation method applied is appropriate	No	23.4 (11.46)	-3.62	734	0.0001
	Yes	19.16 (11.79)			
Students' study duties during quarantine	Difficult	24.9 (11.56)	7.12	734	0.0001
	Not difficult	18.80 (11.14)			

Abbreviations: DF, degrees of freedom; P, significant value ( $<.05$ ); SD, standard deviation.

**TABLE 3** Differences in anxiety based on factors with more than two categories

Factor	Categories	Mean (SD)	f	DF	P-value
GPA	Acceptable	27 (12.08)	4.83	735	0.002
	Good	23.4 (11.06)			
	Very good	21.86 (11.63)			
	Excellent	21.49 (10.94)			
Follow up COVID-19 pandemic news	Every 30 min	27.40 (11.28)	6.37	735	0.0001
	Every 1 h	26.07 (11.8)			
	Every 2 h	21.87 (10.82)			
	Do not follow up the news	21.96 (12.72)			
Smoking status	Smoker	22.94 (11.68)	4.57	735	0.010
	Non-smoker	22.25 (11.36)			
	Negative smoker	26.41 (11.41)			
Coffee and tea consumption	Do not drink coffee and tea	22.67 (11.21)	3.39	735	0.001
	1-3 times a day	22.06 (11.12)			
	4-6 times a day	26.42 (11.64)			
	More than 6 times	28.9 (16.46)			
Increased coffee and tea consumption during quarantine	No	20.27 (11.04)	10.71	735	0.0001
	Sometimes	23.08 (11.71)			
	Yes	24.77 (11.26)			
Previous use of anti-anxiety drugs	No	21.86 (11.18)	17.44	735	0.0001
	Sometimes	27.77 (11.54)			
	Always	34.30 (10.29)			
Previous use of anti-anxiety herbs and supplements	No	20.71 (11.29)	22.6	735	0.0001
	Sometimes	24.60 (10.93)			
	Always	29.59 (10.81)			
Thinking of using anti-anxiety herbs or drugs during quarantine	No	20.18 (10.87)	53.79	735	0.0001
	Sometimes	26.21 (10.03)			
	Always	33.10 (11.25)			
Used anti-anxiety drugs or herbs	No	20.53 (11.02)	39.46	735	0.0001
	Sometimes	26.72 (10.16)			
	Always	31.82 (12.03)			
Anti-anxiety drugs are effective	No	27.17 (11.89)	12.98	735	0.0001
	Might be effective	22.46 (11.37)			
	Yes	20.31 (10.46)			
Anti-anxiety drugs are safe	No	23.81 (11.88)	2.51	735	0.08
	Might be safe	22.24 (11.34)			
	Yes	20.98 (9.84)			
Anti-anxiety herbs are effective	No	27.08 (13.42)	8.05	735	0.0001
	Might be effective	22.27 (10.23)			
	Yes	21.68 (10.23)			
Anti-anxiety herbs are safe	No	26.38 (13.59)	5.11	735	0.006
	Might be safe	22.61 (11.13)			
	Yes	21.79 (11.00)			

(Continues)

TABLE 3 (Continued)

Factor	Categories	Mean (SD)	f	DF	P-value
Best way to decrease anxiety	Herbs	21.84 (11.47)	3.14	735	0.005
	Food supplements	26.68 (13.44)			
	Drugs	25.66 (9.53)			
	Exercises	21.79 (12.06)			
	Better lifestyle	23.36 (11.14)			
	Thinking in a positive way	21.52 (10.46)			
	No treatment approach	29.96 (14.43)			

Abbreviations: DF, degrees of freedom, *P*, significant value ( $P < .05$ ); SD, standard deviation.

before compared with participant who have sometimes used anti-anxiety drugs ( $n = 85$ , 11.5%) or herbs ( $n = 242$ , 32.9%) or compared with participants who always use anti-anxiety drug ( $n = 13$ , 1.8%) or herbs ( $n = 64$ , 8.7%). There was a predomination of participants who have not thought ( $n = 459$ , 67.3%) or have not used ( $n = 512$ , 69.6%) anti-anxiety drugs or herbs during quarantine compared with those who sometimes thought to use ( $n = 176$ , 23.9%) or sometimes used ( $n = 174$ , 23.6%) anti-anxiety drugs or herbs or those who have thought to use ( $n = 65$ , 8.8%) or used ( $n = 50$ , 6.8%) anti-anxiety drugs or herbs. While the vast majority of the participants think that the anti-anxiety drugs or herbs might be effective ( $n = 460$ , 62.5%,  $n = 483$ , 65.6% respectively), 21.3% of the participants think that anti-anxiety drugs are effective ( $n = 157$ ), and 16.2% think they are not effective ( $n = 119$ ); in addition, 21.5% of the participants ( $n = 158$ ) think that anti-anxiety herbs are effective, and 12.9% think they are not effective ( $n = 95$ ). On the other hand, 49.2% of the participants ( $n = 362$ ) think that the anti-anxiety drugs might be safe, 41% think they are not safe ( $n = 302$ ), and 9.8% think they are safe ( $n = 72$ ); however, 55.3% of the participants think that anti-anxiety herbs might be effective ( $n = 407$ ), 11.3% think they are not safe ( $n = 83$ ), and 33.4% think they are safe ( $n = 246$ ). Participants think that the best way to decrease anxiety is a better lifestyle ( $n = 257$ , 34.9%), adopting positive thinking ( $n = 211$ , 28.7%), doing exercise ( $n = 176$ , 23.9%), anti-anxiety herbs ( $n = 33$ , 4.5%), food supplements ( $n = 16$ , 2.2%) or anti-anxiety drugs ( $n = 15$ , 2%), and 3.8% of the participants think that there is no treatment approach for anxiety ( $n = 28$ ).

#### 4 | DISCUSSION

The main goal of this study was to evaluate the anxiety of university students in Jordan during COVID-19 pandemic and explore the factors which influenced their anxiety levels. Most of the students in our study were afflicted with experienced anxiety because of the COVID-19 pandemic. Of these students, 40.6% experienced moderate to severe anxiety, 23.5% experienced mild to moderate anxiety, and 35.9% experienced mild anxiety. Expectedly, students who have chronic illnesses and are taking chronic medications had higher anxiety which is in line with previous reports which demonstrated

that anxiety symptoms are recorded in individuals with chronic diseases.<sup>21,22</sup> In addition, Mattioli and his colleagues reported that quarantine and isolation are associated with anxiety which could lead to unhealthy lifestyle that may increase the risk of chronic disorders such as cardiovascular diseases.<sup>23</sup>

In this study, shifting to distance learning due to the closure of universities incurred by the pandemic of COVID-19 was found to have a negative effect on the students' studies and caused them anxiety. This anxiety, according to the results, has been caused specifically by three main aspects of distance learning that affected students. First, students have expressed that the workload has significantly increased in distance learning. Second, they have stated that their studies have been negatively affected in terms of their interaction with and acquisition of the information. Third, students have argued that the assessment and evaluation system implemented during the lockdown has been both frustrating and unfair to them. There is an evidence in the literature indicating the role of distance learning mode in increasing anxiety level among students which could be interpreted by several reasons including the unsuitability of home environment for study and inability to find time and space to work quietly that might contribute to an increase in their workload which is potentially very stressful.<sup>24</sup> Moreover, university student's anxiety about COVID-19 might be related to the effect of COVID-19 pandemic on their studies and future employment.<sup>25,26</sup> Additionally, our results demonstrated that students who spend more time following up pandemic news had higher levels of anxiety which can easily trigger psychological distress.<sup>27</sup> Surprisingly, the students with acceptable grades in the universities have higher anxiety compared with those with excellent or very good which could be partly explained by knowing that they have higher levels of disconcerting of their performance in the courses during this semester, which reflects those of *Chapell M et al*, who also found that there is an inverse relation between anxiety and GPA.<sup>28</sup> On the other hand, another study which was conducted in Malaysia reported that high anxiety level is associated with low academic performance,<sup>29</sup> suggesting that the high anxiety level among undergraduate students which is reported in our study might affect their academic performance negatively.

A recent Chinese study had investigated the impact of COVID-19 pandemic on anxiety status on college students using the 7-item



Generalised Anxiety Disorder Scale (7-GAS) which has demonstrated that 24.9% of the students suffered from anxiety during this pandemic which was associated with different academic stressors.<sup>7</sup> In line with the results from the Chinese study, our results have showed that there was not significant difference in anxiety based on gender and living place was indicated which is different from previous findings.<sup>30</sup> This difference indicates that students have experienced similar stresses and negative emotion during this pandemic regardless of their gender and place of living. The difference in anxiety rate between our study and the Chinese study could be justified due to the use of different scale, 7-GAS vs HAMA, the sample size and a different population. Moreover, a recent study which was conducted to assess the psychological status among medical workforce to compare the anxiety and depression between medical staff and administrative staff using the Hamilton Anxiety Scale and Hamilton Depression Scale has demonstrated that a greater anxiety and depression were recorded among medical staff compared with administrative staff in China, especially those working in respiratory, infectious, emergency and intensive care units who might be in direct contact with COVID-19 cases.<sup>31</sup> However, the levels of anxiety observed in our study were higher than those observed by the Chinese study which could be explained that students are more vulnerable to experience anxiety and of course the different population studied. Moreover, another study which was conducted in Singapore to assess the anxiety level in medical health workers using Depression, Anxiety and Stress Scale (DASS-21) during COVID-19 pandemic has reported anxiety in 14.5% of 500 medical health workers which is again lower percentage than reported in our study, which is also might be attributed to using different scale and the different populations being investigated.<sup>32</sup>

Moreover, our results demonstrated that students who previously used anti-anxiety medications or herbs have higher anxiety scores compared with those who did not use such medications. This finding goes in agreement with previous studies that showed that anxious subjects are more likely to have relapses especially during stressful events.<sup>33-35</sup> In addition, recent reports from the United States showed that the new prescriptions of anti-anxiety medications during COVID-19 pandemic grew by 37.7%.<sup>36</sup> This is at least in part consistent with our results showing that students who thought of using or used anti-anxiety medications had higher anxiety which means that COVID-19 pandemic has a negative effect on their mental health. This effect of COVID-19 pandemic on mental health was also proven by several studies which revealed that both panic attacks in children and suicide among fearful adults were increased due to COVID-19 anxiety.<sup>37,38</sup>

Interestingly, our results in this study demonstrated that students who think that anti-anxiety medications and herbs are not effective or safe had higher anxiety scores. These expectations might be explained due to their negative attitude towards the efficacy and safety of these medications such as developing drug addiction which has negative effect on their mental health which should be studied more in the future.<sup>39,40</sup> Furthermore, students who think that there is no treatment approach for anxiety demonstrated higher anxiety

levels. This finding could be attributed to a significant lack of knowledge about mental health disorders and their proper management.<sup>41</sup>

To the best of our knowledge, this is the first study which evaluates the anxiety among quarantined university students in Jordan using Hamilton Anxiety Scale during COVID-19 pandemic. The findings of this study demonstrated that university students are vulnerable group and they are very prone to experience psychological distress during the current pandemic. In addition, the results of this study provide new insights to the policymaker in the higher education field in Jordan to monitor the mental health of university students during such emergency situations. Also, the results of our study shed light about the mental health aspects which are often overlooked among university students. However, our study does have some limitations which should be taken in consideration while interpreting the data. These limitations are; i) using non-probabilistic convenience sampling, ii) the absence of interviewing of students by psychologist and, iii) the majority of the participants were females and live in urban area which may limit the generalisability of the data at international level. Further research is recommended to raise awareness to deal with mental disorders in the community during pandemics.

In conclusion, this study has revealed that university students in Jordan had high levels of anxiety scores during COVID-19 pandemic. Quarantine and shifting to distance learning strategy had a significant effect on the student's anxiety levels. Thus, student's mental health should be taken in consideration by policymakers in order to establish a support programme to improve the student's mental health.

#### ACKNOWLEDGMENTS

The authors of the study would like to thank all the participants for their support.

#### DISCLOSURE

The authors have declared no conflict of interest.

#### AUTHOR'S CONTRIBUTION

Abdelrahim Alqudah, Esam Qnais, Mohammed Wedyan, Omar Gammoh, Majd Abu Gneam, Roaa Alnajjar, Manar Alajrmeh and Elaf Yousef performed conception, design and data interpretation. Ahmad Al-Smadi performed the analysis. Abdelrahim Alqudah, Muna Oqal and Omar Gammoh carried out the drafting and revision of the article. Majd Abu Gneam, Roaa Alnajjar, Manar Alajrmeh and Elaf Yousef performed data collection. All authors have approved the final version of the article for publication.

#### DATA AVAILABILITY STATEMENT

The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

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**How to cite this article:** Alqudah A, Al-Smadi A, Oqal M, et al. About anxiety levels and anti-anxiety drugs among quarantined undergraduate Jordanian students during COVID-19 pandemic. *Int J Clin Pract*. 2021;75:e14249. <https://doi.org/10.1111/ijcp.14249>