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"Psychological Reactions to Coronavirus (COVID-19) Pandemic Lockdown among Egyptian University Students"

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ABSTRACT

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The coronavirus (COVID-19) is triggering negative mental health conditions for university students resulting from lockdown. This study explored the depressive and the anxious reaction to the lockdown caused by COVID-19 among Egyptian university students. Furthermore, the study examined the differences among students in gender, academic level, marital status, living condition, and the source of information used to acquire knowledge about COVID-19. An online survey was developed and employed to assess the depressive and the anxious reaction to lockdown on April 14th, 2020, 19 days after the beginning of applying the confinement and the overnight nationwide curfew by the Egyptian government. The survey was fulfilled by 305 undergraduate and postgraduate students in the British University in Egypt (BUE). The results showed significant differences between students in gender, academic levels, and living conditions in their depressive and anxious reactions

towards the lockdown. Furthermore, the higher prevalence of using social media sites to acquire information about COVID-19 was observed in highly depressive students. In the high anxious students' group, the results indicated that there were no significant differences between all sources of information. the current results may be used to improve psychological intervention programs such as online counseling to help students cope with any disruptive event that may affect their wellbeing.

1 Introduction

The current generation of youth in Egypt, who are the powerful agents of change and the next generation of caregivers, engineers, scientists, and doctors, is the valuable wealth the country has ever recognized, and is likely to be 20.2 million young women and men in the range between age 18 and 29 years old with about 2 million who are already engaged in tertiary education including universities, higher institutes, and colleges. However, the mental health of young people obtains little attention, and, recently, the poor mental health among university students has been a global concern as half of the unknown mental illnesses begin at this age (Judith, Ximena, Clara, Roser, Antonio, Raül, Jesús, Jordi, Narcís, & Diego, 2019). A growing body of literature, based on studies published between 1990 and 2010, has shown that university students have higher rates of mental health issues than the common population (Ibrahim, Kelly, Adams, & Glazebrook, 2013).

In December 2019, the coronavirus (COVID-19) was first detected in Wuhan, China. From that time forward, the infected cases and death rates grew rapidly, and the COVID-19 evolved to become a global pandemic as it has been detected in Canada, Italy, Spain, the United States of America, Germany, and over dozens of other countries. In February 2020, Egypt reported the first case of COVID-19 in Cairo on March 8 of the same year, the first fatality was recorded in Egypt, then the number of infected cases grew exponentially. On March 14, due to the COVID-19 pandemic, more than 23 million Egyptian children and youth were suspended from educational institutions when the government announced its initial COVID-19 prevention plan by suspending the educational facilities in efforts to slow the transmission of the virus, asking Egyptian people to stay at home and promoting the "*Stay home, Stay safe*" campaign to combat the spread of infection. The plan also included several vital decrees such as suspending aviation, closing mosques and churches, and applying the overnight nationwide curfew that started on March 26, 2020. For the Egyptian people, this is the first

major experience of an emergency since the 25th of January Revolution in 2011, which led to a situation full of uncertainties and significant impact on the collective and individual wellbeing. Although the overall impact of the lockdown on the mental health of the university community is still unknown, the current situation is anticipated to produce a significant psychological impact on the students wellbeing (Kang, Li, Hu, Chen, Yang, Yang, Wang, Hu, Lai, Ma, Chen, Guan, Wang, Ma, & Lium, 2020), with a potential depressive reaction as well as an anxious reaction due to the temporary cancelling extracurricular student group activities; staying away from beloved ones; elimination students and staff from gathering or socializing anywhere; ensuring continuity of education by encouraging the digital learning plans including distance learning tools.

Though many studies have shown that applying precautionary plans are effective in reducing the spread of contagion (Jang, Cho, Jang, Kim, Jung, Lee, & Eun, 2019), these plans had major negative psychological impacts particularly on university students (Balkhi, Nasir, Zehra, & Riaz, 2020). Besides, they lead to having large numbers of individuals who may have experienced emotional distress and have been at increased risk of developing depression and anxiety; it has also resulted in significant behavioral changes. To date, many studies have been conducted on the effects of the lockdown focusing on the mental health perspective. For instance, a study aimed to investigate the psychological effects of the lockdown in China, results showed that anxiety was associated with some factors related to the COVID-19 pandemic (Cao, Fang, Hou, Han, Xu, Dong, & Zheng, 2020). In 2020, Odriozola-González et al. analyzed the psychological impact of lockdown on the Spanish universities during the first weeks of quarantine. The results of the Spanish study showed 2530 respondents expressed moderate to severe score of anxiety, depression, and stress. Furthermore, the results showed that students from the school of Arts and Humanities, Social Sciences, and Law had higher scores related to anxiety, depression, and stress. Similarly, Sundarasan et al. (2020) investigated the impact of the

lockdown on the anxiety levels of 983 university students in Malaysia during the peak of the crisis. This study indicated that all demographic characteristics (i.e., age, gender, academic specialization, and living conditions) were significantly associated with anxiety. Moreover, Olaimat et al. (2020) studied the source of knowledge about the COVID-19 among undergraduate students; the results indicated that the higher percentage of students used social media sites and mass media as sources of knowledge about the COVID-19 pandemic.

To our knowledge, little research is given to investigating the impacts of the lockdown on Egyptian university students that may cause behavioral changes. Hence, the current study aims to enrich the existing literature by evaluating the psychological impacts of the lockdown caused by COVID-19 on Egyptian university students during the peak of the pandemic. This will help in developing and probably implementing psychological interventions properly adjusted to this situation or any expected one that could occur in the future.

The purpose of this study is to investigate the differences in depressive reaction, anxious reaction, and the source of information during the lockdown of COVID-19 among the undergraduate and postgraduate university students at the British University in Egypt (BUE) between April and May 2020.

2 Methods

2.1 Study population

Every undergraduate and postgraduate student member of the British University in Egypt (BUE) was qualified for participation in this study. An anonymous web-based survey was sent through the BUE official email.

2.2 Survey instrument

A web-based survey in its final form constituted of 20 items was launched on April 14th, 2020, 19 days after the beginning of applying the overnight nationwide curfew by the Egyptian government and remained open for 15 days. The survey took approximately 6 minutes to complete,

it included demographical data, current and/or historical psychological/psychiatric treatment, current intake of psychoactive medication, and/or diagnosis to be infected with the COVID-19 virus. Moreover, questions related to their gender, program level (undergraduate or postgraduate), living condition (alone, with family or with friend/roommate), and sources where they rely on to acquire information about COVID-19 (social media, TV channels, website pages and/or people around e.g., friends or relative members).

The psychological reaction to the lockdown survey was evaluated by two sub-scales: Depressive reaction and anxious reaction.

The depressive reaction is a 5-point Likert-type scale (1 = *strongly disagree*; 5 = *strongly agree*) that reflects the depressive reactions during the lockdown caused by COVID-19 through 10 items presented in both English and Arabic languages. The items cover the most common depressive manifestations that may be related to the lockdown event such as facing problems in concentration, losing motivation to complete tasks, experiencing feelings of self-loathing, changes in appetite, sleeping patterns, pessimistic feelings, and mood changes.

The anxious reaction is a 5-point Likert-type scale (1 = *strongly disagree*; 5 = *strongly agree*) that reflects the anxious reaction to the lockdown caused by the COVID-19 through 10 items presented in both English and Arabic languages. The items cover the most common anxious manifestations that may be related to the lockdown event such as the overwhelming thoughts of catching the COVID-19 virus, excessive health protection, feeling anxious for any changes in health condition, overwhelming thoughts related to the end of the world, feeling helpless, and exaggerated the feeling of COVID-19 threat.

2.3 Validity and reliability

In this study, we assumed that there is correlation between the depressive and anxious reactions. Hence, we applied the factor analysis using oblique rotation of 20 Likert scale items of the psychological reaction to COVID-19's lockdown survey. To conduct the factor analysis, we

prepared an online version of the survey using one of the free online platforms to be accessible through any given electronic device. The survey remained open for 20 days. The data received from 191 participants, then we screened the data to identify any administrative errors. We removed the data of 7 participants from the final analysis as they left different items without responses. After data screening, the final sample of factor analysis was 184 participants (74 males; 110 females) within average age 23.22 years. Initially, the factorability of the 20 items was examined. We used the Kaiser-Meyer Olkin (KMO) measure to examine the sampling adequacy that suggested that the sample was factorable (KMO = 0.86). According to Hutcheson & Sofroniou (1999), a KMO value between 0.8 and 0.9 indicates a very good sample size. The Bartlett's test was conducted as a further investigation to determine if the factor analysis was suitable for our data, the Bartlett's test was highly significant, $\chi^2(190) = 1353.5, p < .001$. Given these two indicators, factor analysis was deemed to be suitable with all 20 items. The result of the factor analysis denoted that the number of extracted factors were 5. The initial eigen values (1.61, 1.30, 0.82, 0.69, 0.58 respectively) indicated that the first two factors (with eigen values 1.61, 1.30 respectively) explained 32.21%, 25.92% of the variance respectively. The third, fourth, and fifth factors had eigen values less than one (0.82, 0.69, 0.58 respectively). In the present study, item load values were taken as a minimum of 0.3. Although the sample size was small and unlikely to have enough power for adequate factor analysis, it shows more evidence of a two-factor structure that explained 58.13% of total variance see Table 1. Overall, these analyses denoted those two different factors were underlying university student responses to the survey's items and those factors were moderately internally consistent. To evaluate the survey's reliability, the internal consistency analysis was conducted. The Cronbach's alpha coefficient was considered as 0.72 [0.64, 0.80] for depressive reaction factor and 0.74 [0.66, 0.81] for anxious reaction factor. The Cronbach's alpha reliability coefficient

value of 0.70 or higher is accepted to be adequate for the reliability of the scale (Tan, Ş., 2009). According to the findings, it can be said that the survey is adequately reliable.

Table 1

Factor loadings and of the survey items using the oblique rotation (N =184)

Survey Items	Factors	
	1	2
I feel like I am in a continuous low mood or sadness during the lockdown.	0.74	
I have been facing problems in concentrating and remembering things ever since the lockdown.	0.72	
I have been experiencing feelings of self-loathing during the lockdown (worthlessness/guilt).	0.64	
I have noticed a change in my appetite recently.	0.58	
I have been thinking of self-harming or suicidal thoughts recently during the period of lockdown.	0.51	
My sleeping patterns have changed since the lockdown.	0.48	
I have been feeling pessimistic ever since the lockdown.	0.43	
I prefer to spend time with my family during the lockdown.	0.38	
I feel very motivated to finish my tasks or pursue my hobbies during the lockdown.	0.34	
I have been very calm and tolerant ever since the lockdown.	0.32	
I would be more anxious if any changes in my health condition occur compared to before the pandemic.		0.76
I am overwhelmed by the thought of catching COVID-19.		0.74
I am extremely nervous and stressed because of the current situation.		0.72
I often check the number of current cases and Search for info. about COVID-19.		0.65

I am overwhelmed by thoughts concerning the end of the world.	0.61
Any news related to the pandemic does not concern me.	0.58
I protect my health more than before because of COVID-19.	0.53
The current situation makes me feel helpless.	0.48
I am perfectly able to adapt to the social distancing situation.	0.46
This is a crisis; it does not seem to have an end, I am terrified.	0.39

Factor loadings < .3 are suppressed.

2.4 Procedures

Approval for the study was obtained from the department of psychology, faculty of arts and humanities, after reviewing the survey items. The survey in its final form was published over the Internet and an official email was sent to students detailed the nature and the aim of the study asking them to complete the anonymous survey and explained that participation implied analyzing their responses with full of confidentiality of their responses. The instructions presented to students that they should take their time to evaluate their psychological reaction to the current COVID-19 crisis during the lockdown. Responses were excepted from analysis if the participant had current and/or historical psychological/psychiatric treatment, current intake of psychoactive medication and/or diagnosed to be infected with the COVID-19 virus. Based on these criteria, from the original 312 surveys completed, a total of 305 surveys was analyzed after excluding 7 participants who responded as they had past psychiatric treatment.

2.5 Statistical analysis

The complete sample characteristics were examined using descriptive statistics (i.e., means, standard deviation, percentages, and median values with interquartile range). Additionally, gender and student group

differences in the scores of depressive and anxious reactions were examined using a *t*-test. An ANOVA was also used to examine the depressive and anxious reaction between three different marital status and used to examine the depressive and anxious reactions between different living conditions. The depressive and anxious reactions were classified into high and low using the interquartile range. The first ranked sources of information about COVID-19 (social media, mass media, official websites, and people) were expressed as frequencies and percentages. The results of information source preferences were analyzed using a confidence interval. All statistical analyses of the collected data were performed in the R statistical software package, version 3.6.1(2019). The P-values below 0.05 were statistically significant.

3 Results

3.1 Demographics of study participants

The online survey was completed by 305 participants. There were 52.1% of female participants, and ages ranged between 18 and 45 years ($M = 23.1$, $SD = 5.2$). 81% of the participants were undergraduate students. The qualitative characteristics of the survey respondents are summarized in Table 2.

Table 2
Demographics of the study participants

Characteristics	Number (%)
Age (mean = 23.1 ± 5.2; median = 22; interquartile range = 4)	
18-24	256 (83.9)
25-30	13 (4.3)
31-40	30 (9.8)
40-45	6 (2)
Sex	
Male	146 (47.9)
Female	159 (52.1)

Marital status

Single 194 (63.6)

Married 32 (10.5)

In relationship 79 (25.9)

Student group

Undergraduate 247 (81)

Postgraduate 58 (19)

Living condition

Alone 48 (15.7)

Friend/Roommates 51 (16.7)

Family 206 (67.5)

3.2 The psychological reaction to COVID-19 lockdown survey

The psychological reaction to COVID-19 survey score mean was 56.49 ± 6.60 . The Mean and standard deviation for each of the psychological reactions to the COVID-19 survey's subscales were 24.98 ± 4.29 with minimum and maximum scores of 12 and 39 respectively for depressive reaction and 31.51 ± 5.50 with minimum and maximum 20 and 47 respectively score for the anxious reaction. Table 3 shows the descriptive statistics for the current study variables.

Table 3Descriptive Statistics for the Variables Collected During the Study ($N= 305$)

	Depressive reaction					Anxious reaction				
	Min	Max	<i>Ist</i> <i>Q</i>	<i>3rd</i> <i>Q</i>	<i>M</i> (<i>SD</i>)	Min	Max	<i>Ist</i> <i>Q</i>	<i>3rd</i> <i>Q</i>	<i>M</i> (<i>SD</i>)
Gender										
Male	16.0	39.0	23.3	29.0	26.4 (4.2)	20.0	39.0	26.0	32.0	28.6 (4.5)
Female	12.0	36.0	21.0	26.0	23.7 (4.0)	20.0	47.0	31.0	37.0	34.2 (5.0)
Marital status										
Single	14.0	41.0	24.0	30.0	27.4 (4.4)	20.0	47.0	28.0	36.0	32.0 (5.4)
Married	22.0	37.0	26.0	31.0	29.1 (3.8)	24.0	39.0	28.0	33.0	30.7 (3.6)
In relationship	22.0	43.0	29.0	32.0	30.9 (3.7)	22.0	45.0	30.0	36.5	33.2 (4.7)
Student group										

Undergraduate	14.0	41.0	25.0	30.0	27.8 (4.4)	20.0	47.0	27.5	36.0	32.0 (3.8)
Postgraduate	18.0	38.0	25.0	32.0	28.0 (4.6)	21.0	39.0	27.3	32.0	29.7 (3.8)
Living condition										
Alone	21.0	43.0	28.8	33.0	40.0 (4.2)	20.0	41.0	28.0	34.0	31.1 (4.4)
Friend/Room mate	20.0	40.0	24.5	32.0	28.5 (4.8)	20.0	47.0	28.0	34.0	30.4 (5.0)
Family	14.0	41.0	25.3	30.0	28.0 (4.2)	21.0	47.0	29.0	36.0	33.0 (5.2)

3.3 Gender differences

The results of Welch two-sample *t*-test indicated that males ($M = 26.37$, $SD = 4.19$) reacted more depressively than females ($M = 23.70$, $SD = 3.98$), $t(297.37) = 5.70$, $p < 0.001$. While females ($M = 34.21$, $SD = 4.95$) reacted more anxiously than males ($M = 28.57$, $SD = 4.47$), $t(302.93) = 10.47$, $p < 0.001$.

3.4 Student group differences

The results of Welch two-sample *t*-test indicated a non-significant difference in depressive reaction, $t(83.71) = 0.28$, $p = 0.78$ between undergraduate students ($M = 27.80$, $SD = 4.41$) and postgraduate students ($M = 27.98$, $SD = 4.57$). However, undergraduate students ($M = 31.94$, $SD = 3.77$) reacted more anxiously than postgraduate students ($M = 29.69$, $SD = 3.77$), $t(127.76) = -3.66$, $p = .00$.

3.5 Marital status

The results of ANOVA that compares the depressive reaction scores among the different marital statuses for students indicated a significant difference, $F(2, 302) = 19.88$, $p < .00$, $\eta^2 = 0.12$. A post-hoc Tukey Honesty Significant Difference (HSD) procedure indicated a significant difference between depressive reaction scores of students who were single and students who were in-relationship, $p = 0.00$, with students who were in-relationship ($M = 30.9$) showing more depressive reaction

than single students ($M = 27.43$). All other combinations of marital status showed no significant difference in depressive reaction, $p > .09$. the results of ANOVA that compares the anxious reaction scores among different marital status indicated an overall significance difference, $F(2,302) = 3.18, p = 0.04, \eta^2 = 0.02$. A post-hoc Tukey HSD indicated a significance difference between anxious reaction scores of students who were in-relationship and students who were married, $p = 0.04$, with students who were in-relationship ($M = 33.22$) showing more anxious reaction than students who were married ($M = 30.66$). All other combinations of marital status indicated no significant differences in anxious reaction, $p > .19$.

3.6 Living conditions

The results of ANOVA that compares depressive reaction scores among the different living conditions indicated a significant difference, $F(2, 302) = 9.79, p < .00, \eta^2 = 0.06$. The results of a post-hoc Tukey HSD test indicated a significant difference between depressive reaction scores of students who lived alone and the students who lived with their families, $p = 0.00$, as well as the results indicated a significant difference between the students who lived alone and the students who lived with their friend(s)/roommate(s), $p = 0.01$, with the students who lived alone ($M = 30.98$) showing more depressive reaction than the students who lived with their families ($M = 27.94$) and more depressive reaction than the students who lived with their friend(s)/roommate(s) ($M = 28.45$). The other options of living conditions indicated no significant difference in depressive reaction, $p = 0.72$.

The results of ANOVA that compares the anxious reaction scores among the different options for living condition indicated a significance difference, $F(2,302) = 4.48, p = 0.01, \eta^2 = 0.03$. The results of post-hoc Tukey HSD test only indicated a significance difference between average anxious reaction scores of the students who lived with their friend(s)/roommate(s) and the student who lived with their families, $p =$

0.04, with the students who lived with their families ($M = 32.8$) showing more anxious reaction than the students who lived with their friend(s)/roommate(s) ($M = 30.84$). The other combinations of living condition options indicated no significant differences in anxious reaction, $p > 0.09$.

3.7 The source of information about COVID-19

The first ranked source of the students' information about COVID-19 was social media (89, 29.2%), including Twitter, Facebook, YouTube, and Instagram, followed by official websites (77, 25.2%) such as scientific articles and WHO website, and then people (72, 23.6%) such as friends and family and finally mass media (67, 22.0%) such as TV, newspapers, and radio. There were no significant differences among students ($N=305$) in preferring all sources of information ($p > 0.05$).

The depressive reaction scores are divided into two groups by using percentile; the score at the 25th percentile was 26 (low depressive reaction) and the score at the 75th percentile was 31 (high depressive reaction). Similarly, the anxious reaction scores are divided into two groups; the score at the 25th percentile was 28 (low anxious reaction) and the score at the 75th percentile was 35 (high anxious reaction).

The first ranked source of the high depressive reaction students' information about COVID-19 was social media (60, 63%), followed by people (25, 36%). A very small proportion of the sample (6, 6%) obtained their information from official websites, followed by mass media (5, 5%). The high depressive reaction students significantly ($p = 0$), 95% CI [52.49%, 71.54%] associated with the use of social media as the first ranked source of information. While all other sources of information were not significant ($p > 0.05$).

The first ranked source of the low depressive reaction students' information about COVID-19 was the mass media (44, 45%) followed by official websites (35, 36%). A very small proportion of the sample (9, 9%) obtained their information from social media and people. The low depressive reaction students significantly ($p = 0$), 95% CI [35.81%,

55.26%] associated with the use of mass media as a first ranked source of information and significantly ($p = 0.0183$), 95% CI [27.21%, 46.02%] associated official websites as a first ranked source of information. While the other two sources of information were not significant ($p > 0.05$).

In the high anxious reaction students' group, the first ranked source of information about COVID-19 was the people (27, 34%), followed by mass media (23, 29%) then social media (21, 17%) followed by official websites (12, 15%). There were no significant differences between all sources of information as first ranked about COVID-19 ($p > 0.05$). While in the low anxious reaction students' group, the first ranked source of information about COVID-19 was official websites (29, 35%) followed by mass media (28, 34%) then (13,16%) for both social media and people. The low anxious reaction students significantly ($p = 0.0422$), 95% CI [25.53%, 45.68%] associated with the use of official websites as the first ranked source of information. While all other sources of information were not significant ($p > 0.05$).

4 Discussion

The COVID-19 pandemic, along with its non-neglectable physical health-related impact, has revealed substantial psychological effects, and it has resulted in significant behavioral changes (Wang, Horby, Hayden, & Gao, 2020). However, the overall impact of COVID-19 on the university community is still unknown (Kang et al., 2020). This study assessed the depressive and anxious reactions among undergraduate and postgraduate students in one of the Egyptian private universities. Moreover, this study explored the source of information students rely on to acquire the knowledge about the COVID-19 among higher and lower depressive reaction students on one hand and higher and lower anxious reaction students on the other hand.

The results show that, regarding the overall psychological reaction responses of the students at the British University in Egypt (BUE) on

April 14, 2020, 19 days after applying the nationwide curfew due to the COVID-19 pandemic, the overall sample of students reported higher anxious reactions than depressive reactions. While there is evidence from study found in Spain by Odriozola-González et al. (2020) in which the proportion of students and employees in the University of Valladolid who identified as moderate to severe depression symptoms was higher than the proportion of those who identified as moderate to severe anxiety symptoms, the current results show the opposite. The reason for this differentiation may be associated with the instrument used by the Spanish study, since the current study only involved undergraduate and postgraduate students only.

Concerning the demographic results, significant higher depressive reaction was observed in males compared to females, while significant higher anxious reaction was observed in females compared to males. The higher depressive reaction for males was expected because males usually spend most of their time outside their homes while females continue to stay at home more than males. Besides, the survey was applied just 19 days after applying the Egyptian government a set of strict decrees that includes the overnight nationwide curfew, closing mosques and churches, closing restaurants and clubs to control the COVID-19 pandemic; thus, male students were forced to stay at home more than what they are used to. The current results are like those reported by Islam et al. (2020) who indicated that the average males had higher depressive symptoms compared with female when they investigated the prevalence of depression and anxiety among Bangladeshi university students during the lockdown. Moreover, females show their feelings and emotions more than males do, and the recent pandemic and its subsequent lockdown may have exacerbated this state. The current results that showed higher anxious reactions for females are like those reported by Sundarassen et al. (2020) which indicated that anxiety scores were higher among females when they compared with those among males in Malaysia during the time of the lockdown.

The results of the current study denoted those undergraduate students

were significantly higher than postgraduate students in anxious reaction. It is worth mentioning that the students' age may be an important reason for such a difference as 83.9% of participants in the current study were between 18 and 24 years old. As well-known, the young people are less tolerant to uncertainty, which is the main source of anxiety. The uncertainty for undergraduate students is centralized around their academic life, regarding their success in exams and completion of their academic years, which is disrupted by cancelling normal face-to-face education and extracurricular student group activities, forcing digital learning strategies including digital and distance learning tools, and altering all assessments to be submitted online instead of regular exams or assessments. All these disruptions may have a significant impact on undergraduate students' anxious reactions. The current results are supported by similar results reported by Sundarasan et al. (2020) who indicated that younger university students were more anxious than the older ones during the lockdown. Moreover, similar results were reported in China by Wang et al. (2020). As these authors pointed out, the student status was significantly correlated with anxiety compared to those who are employed.

Regarding the marital status, the present results indicate that, there is a difference among single, married, and in-relationship groups. An examination of the mean difference showed that a higher prevalence of depressive reaction was observed in students who were in relationships compared to students who were single. The examination of mean difference also showed that a significant higher prevalence of anxious reaction was observed in students who were in a relationship compared to students who were married. It is worth mentioning that strong relationships have the potential to help partners cope with depression. Hence, if the partner is suffering from mental illness such as depression or anxiety, she/he may be overwhelmed by her/his symptoms to the extent that finding the energy to communicate might feel impossible. In the present study, the proportion of the in-relationship status is 25.9%

among the sample of undergraduate students who are between the age 18 and 24 years old. This led us to characterize this relationship status as weaker than the married status. To our knowledge, the in-relationship status among university students gained less focus on the psychological impacts of COVID-19 across countries.

For the living conditions, the current results indicate that the students who lived alone were showing more depressive reactions compared to those who lived with their families and those who lived with their friend(s)/roommate(s). As may be expected, students who are living solely are usually apart from their loved family members could have made them react more depressively compared to the students who were staying with their families, friend(s), or roommate(s). Moreover, the current results indicate that students who lived with their families showed more anxious reactions compared to those who lived with their friend(s) or roommate(s). The current results contradict with the claims of Sundarasan et al. (2020) which state that the students who were not living with their family members reported highest anxiety levels compared to those who were living with families. The reason for such a difference may be related to the different situation between the numbers of infected cases in both countries. Though the time of conducting the survey was similar to our study, 20th of April for them and 14th of April for us, Malaysia had recorded the highest rate of COVID-19 contagion in Asia. This had a notable influence on the students' anxiety for those who were staying alone compared to those who staying with their families.

Regarding the differences in the source of information students rely on to acquire knowledge about COVID-19 contagion, participants indicated that the first ranked was social media sites, followed by official websites, then people round them (e.g., friends, family members, relatives, etc.), and finally mass media. Although there were no significant differences among participants in preference of all sources of information, 29.2% out of the total number of the participants indicated that they had used social media sites such as Facebook, Twitter, and Instagram as the first

ranked source to collect information about COVID-19. The current results are different from those indicated by Rodríguez-Rey et al. (2020) who indicated that the most frequently source of knowledge about the COVID-19 situation was TV (40.7% of the participants) followed by social media sites (24.6%). The reason for such a difference may be related to the samples' age group as they conducted their study on adults who expected to be more knowledgeable who may prefer collecting information about COVID-19 from official channels through mass media such as TV rather than social media. On the contrary, the current study was conducted on university students who may prefer using social media. Alzoubi et al. (2020) found similar results as they stated that social media sites were the first ranked sources of collecting information about COVID-19 for Mutah University students in Jordan.

Regarding the difference between the high and the low depressive reactions to the lockdown, social media sites were indicated by the high depressive reaction group as they had used them as the first-ranked sources among all sources of information collection. While the first-ranked source of information collection about COVID-19 for the low depressive reaction group was mass media, followed by official websites. Unsurprisingly, the excessive use of social media sites could be a crucial factor in deteriorating the mental state of students. The flow of the very negative posts shared by the students' friend lists about either the COVID-19 situation or the rate of death cases may have a significant part in altering the level of depression of the students from low to high. In the high anxious reaction students' group, the results report that there were no differentiations between all sources of information they used to acquire information about COVID-19. This result entailed that more anxious students used to collect information from different and multiple sources. It is worth mentioning that collecting information from different reliable sources such as official websites (e.g., WHO website) and unreliable sources such as social media sites may cause a state of confusion or a state of uncertainty about the COVID-19 situation

including the rate of infected cases or death cases. A study from China conducted by Xiang et al. (2020) found that COVID-19 has been frequently tagged as a killer virus on social media sites (e.g., WeChat) which has persistent feelings of uncertainty. We claim that this uncertainty is the main source of increasing the level of anxiety amongst students. While using official websites such as the WHO website as a first-ranked source of information collection may reduce the uncertainty which in turn reduces the level of anxiety by providing facts about the COVID-19 virus along with reliable situation reports, advice for the public, and reliable information about the COVID-19 vaccine. These were the indicated current results as we found that the low anxious reaction students significantly associated with the use of official websites as the first-ranked source of information collection about COVID-19.

From what we know till the time of writing, this study is the first one to investigate the depressive and the anxious reactions the crisis of COVID-19 lockdown in an Egyptian private university. Indeed, additional research would be required to tackle this issue. Further research should be proposed to include different coping strategies that can have the benefit of decreasing the mental health issues among university students.

5 Conclusion

This study highlights that there were significant differences in the depressive reaction as well as the anxious reaction during the lockdown among university students of different gender, marital status, program level, living condition, and the source of information used to gain knowledge about COVID-19. The educational institutions may participate in helping students to cope with depression and anxiety. Hence, we recommend that universities must build strong relationships with the students, monitor their mental health state on regular basis, and disseminate real facts about COVID-19 from reliable sources among students throughout the official channels.

As this study used a survey designed particularly for measuring the

depressive and anxious reaction to the COVID-19 during the lockdown, there is always an uncertainty of using such a survey in a different time and situation.

Informed consent

The data collection from experiment were reviewed by the head of psychology department at the British University in Egypt (BUE) and no objections were raised.

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