Prevalence of Psychological Distress and Impact of Event during the COVID-19 Pandemic among University Students in Jordan: A Cross-Sectional Survey Study

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Abstract

The study aimed to identify the rate of psychological distress and impact of event during COVID -19 Pandemic Among a Sample of University Students in Jordan, In the second 2020. The study relied on the descriptive approach, the online self-administered questionnaire incorporated the COVID-19 Peritraumatic Distress Index (CPDI), for assessing psychological distress, and both the Event Impact Scale-Revised (IES-R), and the Depression, Anxiety and Stress (DASS), for evaluating the psychological impact of the pandemic event, in addition to the demographic data (gender, age, marital and work), it was verifying its validity and reliability. The study sample consisted of (625) students at the Universities of Jordan. The results showed that the Peritraumatic Distress (CPDI) of the students came, overall moderate-severe-to-highly severe. And, the Overall moderate-severe-to-highly severe impact of the event (IES-R); and overall moderate-severe-to-highly severe impact (DASS). In addition, students who reported high level of psychological distress (CPDI), impact of the event (IES-R) and (DASS) were female, younger age groups (18-24) years, single, and not working. The results showed that the age of 18-24 Years, was the best predictor of Peritraumatic Distress CPDI and DASS, respectively. The results also showed that Peritraumatic Distress (CPDI), and psychological impact of the pandemic event (IES-R), and the Depression, Anxiety and Stress

(DASS), were significantly positively related to the self-stressors of "having relatives, neighbours, or friends exposed to quarantine; feeling anger due to the obligation of stay-home; having a chronic physical illness/health difficulty that warrant regular medication, and having mental health /Psychological Disorders". The study recommended indicate that universities and relevant bodies should implement various measures to prevent and control the psychological distress and its effects among university students during the epidemic. It is proposed to monitor the mental health state of university students most vulnerable to the epidemic event.

Keywords: Psychological Distress; COVID -19 Pandemic; Jordanian University students.

Introduction

The coronavirus disease 2019 (COVID-19) outbreak is still posing a serious public health threat worldwide. According to the World Health Organization (WHO), as of 1 June 2020, 6,040,609 confirmed cases and 370,657 deaths have been reported globally (World Health Organization, WHO, 2020a). Since then, the number of cases has increased more than fivefold to 17.5 million, and the number of deaths has more than tripled, to 680,000. In addition to the direct toll COVID-19 is having, the Committee noted the health impact that disrupted services provided to other diseases. This includes what we already know about reduced immunization coverage and mental health services (WHO, 2020b). Recently, the revisions of the available data support the idea of increasing the risk of severe COVID-19 among individuals (e.g., Geng et al, 2021). As of 6th August 2020, more than 18.7 million cases of COVID-19 have been reported in more than 188 countries and territories, resulting in more than 706,000 deaths; more than 11.3 million people have recovered (Johns Hopkins University (JHU), 2020). We know from serology studies that most people remain susceptible to this virus, even in areas that have experienced severe outbreaks. Over the past week, we've seen several countries that appeared as though they were past the worst, are now contending with fresh spikes in cases (WHO, 2020b). However, in addition to the physical health problems resulted from the COVID-19 pandemic, the potential psychological and mental health impacts should also be seriously considered (e.g., Al Dhaheri et al, 2021; Hossain et al, 2020; Li, Zhang, Zhang, et al, 2021a; Luo, Guo, Yu, Jiang, & Wang, 2020).

In response to this health disaster, schools, universities, and institutions have been closed either on a nationwide or local basis in 161 countries, affecting approximately 98.6 percent of the world's student population (UNESCO, 2020). In mid-March 2020, Jordan was the first country in the region to respond to the crisis, by imposing curfews and closing all educational institutions nationwide, which made it one of the countries that appropriately managed and control the number of injuries and deaths.

University students, compared to the general population, are more vulnerable to depression and anxiety symptoms (Zivin et al, 2009), and they are exposed to several stressors that are unique to this growth period (Beiter et al, 2015; Drake et al, 2016; Pedrelli et al, 2015). For example, Hakami (2018) found that among 450 Saudi undergraduate students, 139 (30.9%) were positive for psychological distress. Females scored significantly higher than males on the somatization ($p= 0.002$) and anxiety subscales ($p = 0.006$) as well as on the total symptom scale (the General Severity Index; $p = 0.005$). These facts make them more susceptible to the effects of epidemic stress. For instance, some studies conducted during the previous outbreaks of similar epidemics such as SARS

and swine flu in China indicated remarkably high prevalence of anxiety and tension among Chinese university students (see Wang, & Zhao, 2020). Moreover, acute stress, anxiety, and depressive symptoms have been prevalent among college students during the COVID-19 epidemic, and there was a significant increase after the initial stage of the outbreak (Li, Zhao, Ma, et al, 2021b).

In fact, Covid-19 pandemic's mental health repercussions will really be a problem. In general, stress behavior for many people brings many problems (World Health Organization, WHO, 2020c). Moreover, countries are now facing an additional threat-a long period of economic instability, which may raise the potential of mental health concerns. As it is well-established that stress kills, first of all, because it provokes the suppression of the immune system, putting persons under the high vulnerability of becoming victims of fatal Covid-19 pandemic. in addition, "unless we act now to address the mental health needs that associated with the pandemic, there will be enormous long-term consequences for families, communities, and societies" the cumulative impact of stress, grief, and anxiety. The UN has urged governments around the world to take the mental health consequences seriously and ensure widespread availability of mental health support (WHO, 2020c). Although previous research has suggested that the mental impact of a major natural disaster had a wider and longer effect on people compared to physical injuries, mental health attracts far fewer personnel for planning and resources (Luo, Guo, Yu, Jiang, & Wang, 2020).

A recent large-scale study survey of psychological distress among Chinese people in the COVID-19 epidemic, conducted by Qiu et al. (2020) have found that Individuals between 18 and 30 years of age or above 60, presented the highest CPDI scores (mean (SD)= 27.76 (15.69) and 27.49 (24.22), respectively. Also, it has been shown that female respondents showed significantly higher psychological distress than their male counterparts (mean (SD)=24.87 (15.03) vs. 21.41 (15.97), p<0.001). Luo et al. (2020) found that among general public sample the prevalence of anxiety and depression was 33%, and 28%, respectively. Common risk factors included being women, being nurses, having lower socioeconomic status, having high risks of contracting (attracting) COVID-19, and social isolation. On the other hand, Protective factors including having sufficient medical resources, up-to-date and accurate information, and taking precautionary measures. Al Dhaheri et al. (2021) found that among a total of 6142 adults from eighteen countries within the Middle East and North Africa (MENA) region, who completed an online questionnaire between May and June 2020, that The IES-R mean score was 29.3 (SD = 14.8), corresponding to mild stressful impact with 30.9% reporting severe psychological impact. Most participants (45%–62%) felt horrified, apprehensive, or helpless due to COVID-19. Furthermore, Higher IES-R scores were found among females, participants aged 26–35 years, and participants residing in the North Africa region (p<0.005).

Li, Zhang, Zhang, et al. (2021a) found in a meta-analysis of sixty-six observational studies about the prevalence of psychological distress during the COVID-19 epidemic in China, that across three periods of the epidemic, the anxiety symptoms were found to be 26.2% in the first period, 32.5% in the second period, and 27.4% in the third period of the epidemic. The prevalence of depression symptoms was found to be 31.4%, in the first period, 32.6%, in the second period, and 32.5%, in the third period of the epidemic. The prevalence of acute stress symptoms was found to be 75.5%, in the first period, 24.1%, in the second period, and 43.5%, in the third period of the epidemic. Also, in China, Li, Zhao, Ma, et al. (2021b) conducted a large-scale, longitudinal population-based survey among college students. They found among the 164,101 college students, who participated during

the onset of the outbreak (T1), 68,685 (41.9%) completed a follow-up survey (T2=), that the prevalence of acute stress (T1: 34.6%; T2: 16.4%) decreased in the follow-up survey, while the rates of depressive symptoms (T1: 21.6%; T2: 26.3%) and anxiety symptoms (T1: 11.4%; T2: 14.7%) increased.

Impact of Covid-19 Epidemic on Mental Health of University Students

In the wake of the Covid-19 outbreak, university students have become vulnerable to unique challenges that lead to poor mental and mental health. Before the pandemic began and around the world, one in five university students had one or more psychiatric or mental disorders that could be clearly diagnosed (Auerbach et al., 2016). Moreover, Studies on mental health effects during the current COVID-19 pandemic showed that college students are most at risk of psychological sequelae such as psychological distress, anxiety, depression, and other mental health issues during such outbreaks. For example, in a recent survey conducted among a sample (n = 1210), of the general population in China, during the initial phase of the Covid-19 outbreak, Wang et al. (2020), found that about half of whom (n = 639, 52.8%), were students and most of them are undergraduates. The high level of psychological impacts of the Corona pandemic, such as, stress, anxiety, and depression were statistically related to the fact that the respondents were female students, who had specific physical symptoms, such as muscle pain, dizziness, and cold, and poor health and psychological status.

An online survey study that was conducted among 2530 members of the University of Valladolid, in Spain (Odriozola-Gonzalez, Planchuelo-Gomez, Irurtia, & de Luis-Garcia, 2020), found that moderate to extremely severe scores of anxiety, depression, and stress were reported by 21.34%, 34.19%, and 28.14% of the respondents, respectively. A total of 50.43% of the respondents presented moderate to severe impact of the outbreak. Students from Arts & Humanities, Social Sciences & Law showed higher scores related to anxiety, depression, stress, and impact of event compared with students in other majors. Also, students presented higher scores in all measures compared with University staff.

In a very recent study of mental health problems and the impact of COVID-19 outbreak among Indian youth aged 15–30 years, Nathiya, Singh, Suman, Raj, & Tomar (2020) found that out of 684 responses from red containment zones, 474 participants completed the study. Overall, moderate-to-severe stress, anxiety, and depression were 37.36%, 30.89%, and 24.63% in youths, respectively. The results showed that participants who are female, who are married, who reside in rural areas, and those who are not living with their families, were associated with stress DASS subscales, although participants with a postgraduate qualification, and those who are not living with their families had an association with anxiety and depression DASS subscales. Economical stressors, physical illness, and changes in daily life were found to be positive predictors of mental health problems.

Recently, al Mamun et al. (2021) reviewed the prevalence and associated risk factors of Bangladeshi university students' mental health (i.e., depression, anxiety, and stress). A total of 7 articles were included in this review. Results showed that the prevalence rates of mild to severe depression, anxiety and stress symptoms ranged from 46.92% to 82.4%, 26.6% to 96.82%, and 28.5% to 70.1%, respectively. The risk factors were related to (a) socio-demographic (younger age, gender (females), losing part-time job, and having children); (b) behavior and health (smoking

status, lack of physical exercise, more internet browsing time, and dissatisfaction with sleep), and (c) COVID19 pandemic concerns- (COVID-19 related symptoms, perceptions, and fear of COVID-19 infection).

In light of these tremendous physical and mental health consequences, caused by corona virus pandemic, and the fact that university students seem to have suffered an important psychological impact during the COVID-19 breakdown (i.e. Cao et al., 2020; al Mamun et al., 2021; Naser et al., 2020; Sallam et al., 2020; Wang, & Zhao, 2020), the main purpose of this study is to measure the prevalence and severity of the psychological impact and distress among university students in Jordan. This research expected to help to gauge the current mental health burden on society, and therefore, provide a concrete basis for tailoring and implementing relevant counseling and mental health intervention policies to help university students cope with this challenge efficiently and effectively. Especially, mental health problems have implications for many aspects of health, including academic achievement, social relationships, future employment, substance abuse, and marital life (Hakami, 2018, p. 82).

Objectives of the Study

The study aims to identify the effect of the Prevalence of Psychological Distress and Impact of Event during the COVID-19 Pandemic among University Students in Jordan: A Cross-Sectional Survey Study

Study Questions

1. What is the prevalence of psychological distress and impact of the epidemic event during the COVID-19 pandemic among university students as showed by their scores means on CPDI, IES-R, and DASS Scales?

2. Are there significant differences on Psychological Distress and Impact of Event as evaluated by CPDI, IES-R, and DASS Scales according to four sociodemographic variables: Gender (Male, Female); Age (18-24 years old vs. ≥ 25 years); Marital Status (Single vs. Married); and, Work status (Yes, No)?

3. Are there significant correlations between the self-stressors related to the COVID-19 epidemic, and each of the psychological distress, and psychological impact during the COVID-19 pandemic?

Methods

Participants

The study is based on descriptive analytical method as the most appropriate method for the nature of the study and its problem, where the literature and previous studies were reviewed and information related to the subject of the study was obtained. The study population consisted of all students enrolled in Jordanian Universities. The sample of the study consisted of (625) male and female students at Jordanian Universities (The university of Jordan, The Hashemite university, Yarmouk university, Al Albayt University, Mutah University), randomly selected from the study population. With (118) male students at (18.9%), while (507) female students at (81.1%). Their age ranged from 18 to 60 years; most of the participants belonged to the age group of 18–24 years (70.4%). The

majority (81.9%) of the respondents was single; and 83.7% were not working., who were recruited through the Internet, such as social media and e-mail. Table 1 shows the distribution of the sample according to some of the demographic variables targeted in this study.

Study Instruments

The questionnaires were used as a means of collecting study data. The veracity of the content of the study tools was verified by presenting them to a number of competent arbitrators, asking for an opinion on the correctness of the language of the paragraphs, their clarity in terms of meaning and ease of comprehension, their affiliation with the field in which they were included and any observations or amendments they deem appropriate. To extract the stability of the study instrument, the Cronbach's Alpha equation was applied to extract the internal consistency.

The online questionnaire consisted of three parts: Part 1- Sociodemographic data (gender, age, marital and, work status); Part 2- it contains five self-stressors statements related to COVID-19 with instructions (2= yes; 1 = no); and Part 3 which consisted of the three major scales as followed:

1. **The COVID-19 Peritraumatic Distress Index (CPDI)**: Peritraumatic distress is defined as the emotional and physiological distress experienced during and/or immediately after a traumatic event and is associated with the development of posttraumatic stress disorder (PTSD) and related psychological difficulties (Bunnell, Davidson, & Ruggiero, 2018, p.8). CPDI Is 25 items questionnaire that inquires about the frequency of anxiety, depression, specific phobias, cognitive changes, avoidance and compulsive behavior, loss of social functioning, and physical symptoms, on a 5-point scale from 1 (Never) to 5 (Always), with respect to how distressing each item has been during the past week. Total score ranging from 25 to 100; score between 28 and 51 indicates mild to moderate distress; and a score $\geq$of 52 indicates severe distress. COVID-19 Peritraumatic Distress Index (CPDI), was developed by Qui et al. (2020), and recently was translated to many languages including Arabic. In addition, research on the psychometric characteristics for the Arabic version of CPDI indicated that the questionnaire has a good to excellent internal consistency (Al-Hanawi et al., 2020; Marzo et al., 2021). In the current study, Cronbach's alpha for the CPDI was α = 0.945; the Internal Consistency Reliability α =.854, and ranged between (.482 - .901), and test-retest reliability for the CPDI was r=.891, (p <0.001).

2. **The Impact of Event Scale-Revised: (IES-R):** (Weiss & Marmar, 1997) is an easy-to-administer questionnaire used to evaluate the degree of distress a patient feels in response to trauma. It is 22-items scale which is rated on a 5-point scale from 0 (Never) to 4 (Always), with respect to how distressing each item has been during the past week, and it evaluates symptoms of post-traumatic stress disorder (PTSD). The IES-R scale total scores were divided into normal ($\leq$ 20.9), moderate (21-41,9), high (42-65,9), and very high ($\geq$66). The Arabic version of IES-R has acceptable internal consistency indicators in assessing psychological difficulties (Alhajjar, 2014; Thabet, Abu-Tawahina, El-Sarraj, & Vostanis, 2008; Yehia, Callister, & Hamdan-Mansour, 2013), With Cronbach's alpha values for the total score (α = 0.930). In this study, Cronbach's Alpha for the scale was (α = 0.94). Internal Consistency Reliability for the IES-R total score ranged between (r=.614-.932), Test-retest reliability was(r=.895), (p <0.001).

3. Depression, Anxiety, Stress Scale (DASS): The Arabic version of the 21 Items of the Depression, Anxiety and Stress Scale (DASS) (Moussa, Lovibond, & Laube, 2001), was used in this study. DASS is a set of three self-report scales designed to measure the emotional states of depression, anxiety, and stress during the past week. Each of the three DASS scales contains 7 items, divided into subscales with similar content (Antony et al., 1998; Moussa et al., 2001). The DASS scale has been demonstrated to be a reliable and valid measure in assessing mental health in the Arab population (Moussa et al., 2001; Zahrani, 2019). Participants are asked to score every item on a 5-point scale from 0 (not at all) to 4 (very much), with the higher scores indicate more psychological distress. For the purposes of the study, we used only the total score of DASS scale. DASS scale total scores were divided into normal (≤16.9), moderate (17-32, 9), severe (33-49, 9), and extremely severe (≥ 50). While, each of the total of depression, Anxiety, and Stress sub-scores were divided into normal (≤5.9), moderate (6-11, 9), severe (12-18,9), and extremely severe (≥ 19). In this study, Cronbach's Alpha for the total DASS scale was α = 0.94; and its subscales α =0.86; for depression; 0.81; for Anxiety; and 0.90; for Stress. Internal Consistency Reliability for the DASS scale total scores ranged between (.483 -.920); (.765.-.891) for depression, (.606-.884), for anxiety, and (.511-.865) for stress. Test-retest reliability for the total scale was (r=.899); and for the three subscales were (r=.817, .780, and .843), respectively, (p <0.001).

Procedures

The respondents in the current study were recruited and surveyed through an online self-administered questionnaire, which had been designed electronically on the Jotform website (https://eu.jotform.com), and participants from several Jordanian universities were invited to respond through messages sent on universities platforms. The data collection process continued from June 13-28, 2020. The questionnaire included an affirmation of voluntary participation, the subscriber has the right to withdraw at any moment, and the data of this study would be used for scientific research purposes only. The introduction also included instructions for choosing a single response deemed appropriate to describe the condition in the current circumstances. The questionnaire ended with a message of thanks to the respondents for completing the questionnaire successfully.

Statistical Processing

Data analyses were performed by using (SPSS), Categorical variables were expressed in absolute values (percentage), and continuous variables were expressed in mean ± standard deviation (SD). Multivariate logistic regression analyses were performed to establish a relation between the participants' sociodemographic variables and their mental health status. Pearson's correlation coefficient (r) was used to evaluate the association between COVID-19 self-stressors' statements and psychological impact. The statistical significance level was set at P< 0.05.

Ethical approval

The Institutional Committee at Hashemite University, Jordan cleared the study. The cover page includes electronic informed consent with a declaration of confidentiality and anonymity of the participants. The study was conducted following the Checklist for Reporting Results of Internet E-surveys guideline (Eysenbach, 2004).

Results

Questions One: What is the prevalence of psychological distress and impact of the epidemic event during the COVID-19 pandemic among university students as showed by their scores means on CPDI, IES-R, and DASS Scales? as shown in Tables (1).

Table (1). Sociodemographic characteristics by CPDI, IES-R, and DASS Scales (n=625)

Characteristics		n^t(%)	Scales					
			CPDI		IES-R		DASS	
			Means± SD	P*	Means± SD	P*	Means± SD	P*
Gender	Male	118(18.9)	45.94±15.1	<0.012	30.91±14.3	<0.031	24.32±18.9	<0.015
	Female	507(81.1)	50.00±18.4		34.11±14.8		29.11±19.7	
Age (Years)	18-24	440(70.4)	51.45±18.7	<0.000	34.69±14.9	<0.001	30.87±20.2	<0.000
	≤ 25	185(29.6)	43.96±14.3		30.67±13.9		21.85±16.7	
Marital Status	Single	512(81.9)	50.19±18.0	<0.003	34.31±14.8	<0.002	29.56±19.9	<0.000
	Married	113(18.1)	44.91±16.3		29.82±13.7		22.08±17.3	
Work status	No	523(83.7)	50.33±18.2	<0.000	34.21±14.8	<0.004	29.71±20.0	<0.000
	Yes	102(16.3)	43.58±14.6		29.87±13.6		20.49±16.0	
	Total		49.23±17.8		33.50±14.7		28.21±19.7	

*p<0.05 statistically significant; ^{t} total number of sample; SD: Standard Deviation; CPDI: The COVID-19 Peritraumatic Distress Index; IES-R: The Impact of Event Scale-Revised; DASS: Depression, Anxiety, Stress Scale

As showed in table (1) the psychological distress during the Corona-virus pandemic among university students, as measured by CPDI revealed a mean score of 49.23 (SD = 17.8), whereas the impact of the epidemic event of COVID-19, as measured by IES-R; DASS, showed a mean score of 33.50 (SD = 14.7); 28.21 (SD= 19.7), respectively.

Questions Tow: Are there significant differences on Psychological Distress and Impact of Event as evaluated by CPDI, IES-R, and DASS Scales according to four sociodemographic variables: Gender (Male, Female); Age (18-24 years old vs. ≥ 25 years); Marital Status (Single vs. Married); and, 4. Work status (Yes, No)? as shown in Tables (2).

Table (2). Prevalence of the CPDI, IES-R, and DASS scales among university students (n=625)

Severity categories	Scales		
	CPDI-25	IES-R-22	DASS-21

Normal	169 (27.0%)	124 (19.8%)	186 (29.8%)
Moderate	230 (36.8%)	327 (52.3%)	209 (33.4%)
Severe	96 (15.4%)	159 (25.4%)	126 (20.2%)
extremely Severe	130 (20.8%)	15 (2.4%)	104(16.6%)
* CPDI:The COVID-19 Peritraumatic Distress Index; IES-R: The Impact of Event Scale-Revised; DASS: Depression, Anxiety, Stress Scale			

Table (2). shows that on psychological distress CPDI scale, 169 (27.0%) respondents have a normal score, whereas 230 (36.8%), 96 (15.4%), and 130 (20.8%) participants were considered to have moderate, severe, and extremely severe Peritraumatic Distress scores. On the IES-R scale, 124 (19.8%) participants have a normal score, whereas 327 (52.3%), 159 (25.4%), and 15 (2.4%) respondents were considered to have moderate, severe, and extremely severe psychological impact of event scores, respectively. On the DASS scale, 186 (29.8%) respondents were considered to have a normal score, whereas 209 (33.4%), 126 (20.2%), and 104(16.6%) participants have, moderate, severe, and extremely severe psychological impact scores, respectively.

In order to determine the best independent predictor factors that were associated with mental health status and psychological impact problems during the COVID-19 pandemic, a multivariate logistic regression analyses were conducted, as shown in Table (3).

Table (3). Multivariate analysis of the association between sociodemographic characteristics by the CPDI, IES-R, and DASS Scales (n=625)

Sociodemographic Characteristics		Scales					
		CPDI		IES-R		DASS	
		OR (95%CI)	P*	OR (95%CI)	P*	OR (95%CI)	P*
Gender	Female	0.07(0.04-0.012)	0.565	0.09(0.05-0.016)	0.563	13.38(6.41-27.92)	0.651
	Male	Reference	Reference	Reference	Reference	Reference	Reference
Age (Years)	18-24	2.84(1.91-4.23)	<0.026	4.63(3.11-6.89)	0.065	6.5(4.28-9.87)	<0.009*
	≥ 25	Reference	Reference	Reference	Reference	Reference	Reference
Marital Status	Single	16.28(9.30-28.49)	0.366	15.76(7.37-33.37)	0.786	24.91(10.57-58.69)	0.477

		Married	Reference	Reference	Reference	Reference	Reference	Reference
Work status	No	29.70(9.68-89.49)	0.875	34.67(9.75-120.83)	0.822	25.22(10.58-60.11)	0.604	
	Yes	Reference	Reference	Reference	Reference	Reference	Reference	

*p<0.05 statistically significant; OR: Odds Ratio; 95%CI: 95% Confidence Interval; CPDI:The COVID-19 Peritraumatic Distress Index; IES-R: The Impact of Event Scale-Revised; DASS: Depression, Anxiety, Stress Scale

The results in table (3) shows revealed that the age was the only and best predictor, and that the younger participants who are at the age group of 18-24 years (odds ratio [OR] = 2.84; 6.50; 95% confidence interval [CI]: 1.91-4.23; 4.28-9.87), was significantly associated with Peritraumatic Distress CPDI scale, and DASS scales, respectively

Correlations between the self-stressors related to COVID-19 pandemic, and each of psychological distress and psychological impact

Question Three: Are there significant correlations between the self-stressors related to the COVID-19 epidemic, and each of the psychological distress, and psychological impact during the COVID-19 pandemic? Table (4) shows whether there is a correlation between five self-stressors statements related to COVID-19, and each of psychological distress and psychological impact on CPDI, IES-R, and DASS Scales.

Table (4). Correlation analysis between five self-stressors statements related to COVID-19, and each of psychological distress and psychological impact on CPDI, IES-R, and DASS Scales.

Statements (yes; no)	CPDI		IES-R		DASS	
	$r^{\dagger}$	$P*$	$r^{\dagger}$	$P*$	$r^{\dagger}$	$P*$
1- Having relatives, neighbors, or friends exposed to -quarantine (*M=1.34; SD=.475*)	0.110	<0.006	0.087	<0.030	0.159	<0.000
2- Fear of COVID-19 injury and/or death related to self or family (*M=1.99; SD=.685*)	0.039	0.330	0.010	0.809	0.076	0.058
3- Feeling anger due to the obligation of stay-home (*M=1.75; SD=.431*)	0.224	<0.000	0.264	<0.000	0.257	<0.000
4- Having a history of chronic Physical Illness / health difficulties that warrant regular medication (*M=1.09; SD=.290*)	0.103	<0.010	0.093	<0.019	0.090	<0.024
5- Having Mental Health /Psychological Disorders that require Regular Medication(*M=1.06; SD=.239*)	0.274	<0.000	0.173	<0.000	0.258	<0.000
*P<0.05 statistically significant, [†]Correlation coefficient						

Table (4) shows that self-stressors caused by the COVID-19 pandemic, as revealed in the statement of "*Having relatives, neighbors, or friends exposed to quarantine*", was significantly positively related to the level of Peritraumatic distress CPDI scale (r = 0.11, P < 0.006), the Impact of Event IES-R scale (r = 0.087, P < 0.030), and DASS scales (r = 0.159, P < 0.000). Concerns about "*Feeling anger due to the obligation of stay-home*" was positively related to the level of the three scales of CPDI (r = 0.224, P < 0.000), IES-R (r = 0.264, P < 0.000), and DASS (r = 0.257, P < 0.000). Self-stressors related to "*Having a history of chronic physical illness/health difficulties that warrant regular medication*" was positively related to the CPDI-25 (r = 0.103, P < 0.010), IES-R scale (r = 0.093, P < 0.019), and DASS scales (r = 0.090, P < 0.024). Moreover, suffering from "*Having mental health /psychological disorders that require regular medication*" was positively related to the level of CPDI (r = 0.274, P < 0.000), IES-R (r = 0.173, P < 0.000), and DASS scales (r = 0.258, P < 0.000). Whereas "*Fear of COVID-19 injury and/or death related to self or family,*" was not related significantly to any study's scales.

Discussion

The study tried to investigate the prevalence of psychological distress and the impact of the epidemic event among university students in Jordan during the COVID-19 pandemic. Our study recruited 625 university students, who reported a high prevalence of psychological symptoms during the second period of the COVID-19 pandemic outbreaks in Jordan. The study showed that the prevalence of psychological distress was high among university students. on distress CPDI scale, 226 (36.2%) participants have severe, and extremely severe Peritraumatic Distress or PTSD. On the IES-R scale, 174 (27.8%) respondents have severe and extremely severe psychological impact of the epidemic event. On the DASS scale, 230 (36.8%) participants have severe, and extremely severe total depression, anxiety, and stress symptoms.

The data of this study was gathered in the second period of the epidemic, these results seem relatively similar to the previous work that conducted during the COVID-19 epidemic on college students, and showed a significant increase after the initial stage of the outbreak all around the world (e.g., Li, Zhao, Ma, et al, 2021b; al Mamun et al, 2021; Odriozola-Gonzalez et al., 2020; Wang et al., 2020). Moreover, the findings of this study come in line with previous research findings that conducted on other different samples (e.g., Nathiya et al, 2020). Additionally, these findings are consistent with meta-analysis studies (e.g., Li, Zhang, Zhang, et al, 2021a), which showed that a high prevalence of depression, anxiety, and stress symptoms were observed during the epidemic among the general population.

The results showed that the university students who reported statistically higher levels of psychological distress (CPDI), impact of the event (IES-R) and (DASS) were female students, younger age groups (18-23) years, single, and currently not working. These findings support some previous studies regarding gender differences in the context of mental health during the current pandemic. For example, with a Chinese population during the COVID-19 pandemic (e.g., Al Dhaheri et al, 2021; al Mamun et al, 2021; Nathiya et al, 2020; Wang et al, 2020). This finding support the results from some previous research which concluded that women are much more vulnerable to stress and more likely to develop a post-traumatic stress disorder (Sareen et al., 2013). Also, it has been shown that female respondents had significantly higher psychological distress than

their male counterparts (mean (SD)=24.87 (15.03) vs. 21.41 (15.97), p<0.001) (for review, see Qiu et al, 2020).

The results also showed, according to the study of (Asdaq et al, 2020) regarding gender differences in the context of mental health difficulties during the outbreak of the COVID-19 epidemic, the high prevalence of anxiety among Saudi females during the COVID-19 event. In addition, Jordanian females were more concerned about the epidemic than males (Massad et al., 2020). The results also showed, that the younger age group was the only predictor of psychological distress. In particular, Qiu et al. (2020) found that Individuals between 18 to 30 years of age or above 60 presented the highest CPDI scores (mean (SD)= 27.76 (15.69) and 27.49 (24.22), respectively). In fact, during the COVID-19 outbreak, extensive Jordanian population, including youths, faced some psychological problems due to isolation, contact transmission, and economic crisis. Additionally, according to this study, anxiety and depression symptoms continued at a high prevalence rate during the epidemic among youth. It should alert the lasting mental health problems and the risk of post-traumatic stress disorder and other mental disorders.

Limitations

Due to study design, sampling was restricted to universities' platforms, the possibility of socially desirable responses regarding mental health issues leads to bias probability in responding to the study's measures. Additionally, in comparison to the diversity of the Jordanian youth population, increased representativeness of the sample and longitudinal study nature will improve the generalizability of findings. Furthermore, mental health is a complex concept associated with innumerable factors such as fear, which we found in youths' statements, but missed to be assessed in this study with a well known-standardized measure.

Conclusion

1- college students suffered a high prevalence of severe and extremely severe levels of depression, anxiety, stress, during the second period of the COVID-19 pandemic outbreaks in Jordan.

2- high prevalence of peritraumatic distress, and psychological impact of the epidemic event.

3- age 18-24 was the best predictor of the mental health problems that are related to COVID-19 crisis.

Recommendations

1- The need for psychological interventions targeting the youth group.

2- It is necessary to emphasize the psychological health and well-being (physical, economic, social, mental, emotional, psychological, spiritual, developmental activity and participation, quality of life, life satisfaction, satisfaction in a particular area) of this population.

3- Needed an urgent for psychological interventions which is for the target population at high risk of developing psychological distress during the COVID-19 pandemic.

4- Providing crisis-oriented psychological services in a timely manner.

prevalence of psychological distress and impact of event during the covid-19 pandemic among
university students in jordan: a cross-sectional survey study

5- Taking preventive measures in cases of a future pandemic.

6- The mental health of university students should be carefully monitored.

Conflict of interest

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