Jordan Journal of Nursing Research, Volume **3**, No. **1**, **2024**
DOI: https://doi.org/10.14525/JJNR.v3i1.02

Jordan Journal of Nursing Research

www.jjnr.just.edu.jo

Depression and Anxiety among COVID-19 Patients in Jordan: A Cross-sectional Comparison between Inpatients and Outpatients

Mahmoud Bashtawi, MD[1*]; Rawan Masri, MD[2]; Mohammad Nusair, PhD[3-4]; Raed Ibdah, MD[1]; Mohammad Diabat, MD[1]; Tareq Al-Zoubi, MD [1]

1 Department of Psychiatry, Faculty of Medicine, Jordan University of Science and Technology, Irbid, Jordan.
** Corresponding Author. Email: mabashtawi5@just.edu.jo*
2 Department of Psychiatry, Faculty of Medicine, Yarmouk University, Irbid, Jordan.
3 Faculty of Pharmacy, Yarmouk University, Irbid, Jordan.
4 Department of Socio-behavioral and Administrative Pharmacy, College of Pharmacy, Nova Southeastern University, Fort Lauderdale, FL, USA.

ARTICLE INFO

Article History:
Received: November 20, 2023
Accepted: December 14, 2023

ABSTRACT

Background: Many studies have shown increased levels of anxiety and depression during the COVID-19 pandemic. ***Purpose***: This study assesses anxiety and depression among COVID-19 patients who received treatment in outpatient and inpatient settings in Jordan. ***Methods***: This cross-sectional study involved 236 individuals tested positive for COVID-19 and having received care at the hospital either as inpatients or outpatients at King Abdullah University Hospital (KAUH) in Jordan from April 9th to September 21st of 2021. The Patient Health Questionnaire-9 (PHQ-9) and Generalized Anxiety Disorder-7 (GAD-7) were used as standardized assessments to evaluate these symptoms. ***Results***: Our results indicated minimal anxiety and mild depression overall, with outpatients scoring significantly higher on both scales than inpatients (p-value= 0.011). Factors leading to higher depression and anxiety scores included chronic diseases, a family history of mental-health issues, COVID-19-related worries, experiences of social ostracism or bullying, inadequate government support, unemployment, daily following COVID-19 news, and being female. Participants aged 29-44 years and those who previously consulted a psychiatrist had higher anxiety scores. ***Conclusion***: The findings suggest greater anxiety and depression among outpatients, linking these conditions to socio-demographic factors and COVID-19 experiences. The study underscores the need for healthcare systems to address the mental health of COVID-19 patients and combat misinformation's impact on emotional well-being. ***Implications for Nursing:*** Nurses play a pivotal role by integrating routine mental-health assessments, particularly for those with identified risk factors, and addressing both physical- and mental- health needs, emphasizing the necessity of a holistic approach to patient care.

Keywords: Anxiety, Depression, Inpatient, Outpatient, COVID-19.

What does this paper add?

1. The study provides a comprehensive evaluation of anxiety and depression among COVID-19 patients in Jordan, offering insights into the mental-health landscape during the ongoing pandemic.
2. By distinguishing between outpatient and inpatient settings, the paper uncovers nuanced variations in anxiety and depression prevalence, emphasizing the need for tailored nursing interventions based on the care setting.
3. The research identifies specific risk factors, including socio-demographic variables and COVID-

19 experiences, enabling healthcare professionals, particularly nurses, to target interventions effectively and address the unique mental-health needs of diverse patient populations.

Introduction

On March 11, 2020, the World Health Organization (WHO) declared SARS-CoV-2 (COVID-19) to be a global pandemic (*Organization WH. WHO Director-General's Opening Remarks at the Media Briefing on COVID-19-11 March 2020 Geneva, Switzerland2020*, n.d.). By the end of 2022, there were over 600 million confirmed cases of COVID-19, which led to over 6 million deaths around the globe (*Worldometer. COVID-19 Coronavirus Dover, Delaware, U.S.A.2020*, n.d.). The pandemic consequences were not limited to infection symptoms and mortality; it caused economic, emotional, psychological, and behavioral consequences on societies (Salari et al., 2020). In Jordan, the government imposed stringent laws and measures during the years (2020 and 2021) to control the pandemic that could have resulted in several psychological disorders (Akour et al., 2021).

The WHO declared a 25% global increase in the prevalence of depression and anxiety (Choi et al., 2020). One study showed that the prevalence of anxiety and depression in Hong Kong was 14% and 19%, respectively. The study also reported that 25% of participants had mental-health deterioration since the pandemic started (Choi et al., 2020). These findings were higher when compared to previous studies in Hong Kong which found that the prevalence of depression was 10.7% and the prevalence of generalized anxiety disorder was 4.1% (Chin et al., 2015; S. Lee et al., 2007). Another study reported that the prevalence of PTSD was as high as 7% one month after the outbreak of COVID-19 and that women are more prone to acquiring PTSD and experiencing a more severe form of the disorder (Liu et al., 2020). Similarly, a study from Turkey in 2020 reported that during the COVID-19 pandemic, higher rates of both depression and anxiety were reported with a rate of 23.6% and 45.1%, respectively (Özdin & Bayrak Özdin, 2020).

Moreover, neuro-psychiatric disorders associated with the pandemic negatively influence patients' outcomes. A study that aimed to assess neuro-psychiatric disorders among COVID-19 hospitalized patients found that 10% of inpatients requested a psychiatric consultation. These inpatients were more likely to develop delirium, depression, and anxiety (Turan et al., 2021). The risk for delirium was as high as 38.2% and was associated with a longer hospital stay and a higher mortality rate.

Previous outbreaks of other strains of the coronavirus family, such as severe acute respiratory syndrome (SARS), and Middle East Respiratory Syndrome (MERS), affected the mental health of infected individuals, whether in the acute stage or in the after-recovery stage, and consequently resulted in sleep disturbances, anxiety, depression, and post-traumatic stress disorder (PTSD) (Delanerolle et al., 2022). Several factors have been proposed to explain the increased risk of mental-health changes that include brain hypoxia, encephalitis, and cerebrovascular accidents caused by the virus. Moreover, long hospital stays, mechanical ventilation, and social isolation were found to be pre-disposing factors for these mental-health problems (Rogers et al., 2020).

In Jordan, the first confirmed case of COVID -19 was announced on Mar. 2nd, 2020, (*Worldometer. COVID-19 Coronavirus Dover, Delaware, U.S.A.2020*, n.d.). A week later, cases started to rapidly increase. The adherence to non-pharmaceutical intervention measures, such as mask-wearing, handwashing, and maintaining physical distance, was sub-optimal among Jordanians during COVID-19 pandemic. This may account for the significant surge in the COVID-19 virus's infectivity rate over the past few months in the country (Abdel Jalil et al., 2022; Khatatbeh et al., 2021). Few studies aimed to measure the psychological impact on the Jordanian population during the pandemic. One study found that depression, anxiety, and stress were increased among Jordanians during the pandemic, and it was reported that these symptoms were higher among women and younger age groups (Abuhammad et al., 2022). A similar study found that nearly 40% of Jordanians had experienced quarantine-related anxiety and this anxiety was more associated with female gender, younger age, and poor socioeconomic status (Massad et al., 2020). Similarly, another study reported high levels of depression among patients who went through obligatory quarantine in the hospital (Samrah et al., 2020).

There is a scarcity of research specifically evaluating anxiety and depression among COVID-19 patients in Jordan, and studies have primarily focused on the general population, often neglecting the mental-health

variations between inpatients and outpatients. Therefore, in this study aimed to assess anxiety and depression among COVID-19 patients who received treatment in outpatient and inpatient settings in Jordan.

Methods

Study Design

This study is a cross-sectional study that aimed to assess depression and anxiety among COVID-19 patients. The data was collected in the period from April 9th to Sep. 21st, 2021 using a self-administered questionnaire. This study was approved by the Institutional Review Board (IRB) at the King Abdullah University Hospital (KAUH), Irbid-Jordan (reference number 304-2020), according to the Declaration of Helsinki. Informed consent was waived by the committee due to the retrospective nature of the study.

Setting, Data Collection and Study Instruments

This study was conducted at KAUH in Irbid, Jordan, which is the main tertiary hospital that was one of the designated hospitals to treat COVID-19 patients in Jordan. A research assistant identified patients who met the inclusion/exclusion criteria and informed them about the study objectives. Inclusion criteria were as follows: adult COVID-19 patients (18 years old and older) who have positive PCR results and received care at KAUH whether as inpatients or outpatients. Patients less than 18 years of age and who showed signs of diminished cognitive function were excluded from this study. Patients who agreed to take part in the study signed informed consent forms before taking part in the study. Participating patients were also informed that all collected data would be kept completely confidential.

Survey Instruments

The self-administered questionnaire used in this study consisted of three parts. The first part aimed to collect participants' socio-demographic characteristics. The second part aimed to measure depression symptoms using Patient Health Questionnaire-9 (PHQ-9) which corresponds to the DSM-5 criteria for depression (Kroenke et al., 2001). PHQ-9 is a self-report questionnaire that is commonly used to measure depression symptoms and has strong evidence of validity and reliability. The questionnaire comprises nine questions on a four-point Likert scale ranging from 0 ('not at all') to 3 ('nearly every day'). The sum of the item scores could range from 0 to 27 (Kroenke et al., 2001). In this study, we used the Arabic version of PHQ-9. The Arabic version was previously tested for validity and reliability (AlHadi et al., 2017). The third part of the questionnaire aimed to screen for general anxiety and assess its severity using generalized anxiety disorder-7 (GAD-7). GAD-7 comprises of 7 items and uses a four-point Likert scale ranging from 0 ('not at all') to 3 ('nearly every day'). It has strong evidence of validity and reliability. The sum of all item scores is from 0 to 21. The Arabic version of GAD-7 was used in this study. This version was previously tested for validity and reliability (AlHadi et al., 2017; *Pfizer. GAD-7 Arabic for Tunisia*, n.d.). Cronbach's alpha values were generated to assess the reliability of PHQ-9 and GAD-7 and were found to be 0.927 and 0.914, respectively, indicating excellent reliability and superiority to the Cronbach's alpha score by (Pranckeviciene et al., 2022) with 0.86 and 0.91 alpha scores, respectively.

Statistical Analyses

Statistical Package for Social Sciences software®, version 25 (SPSS25) was used to analyze the data. Categorical variables were expressed as frequencies and percentages, and continuous variables as means ± standard deviations. Data normality was assessed using the Shapiro–Wilk test and the p-value of 0.04 indicated not normally-distributed data. Chi-square was used for categorical variables, and the Mann-Whitney and Kruskal-Wallis tests were used for continuous variables. A p-value less than or equal to 0.05 was considered statistically significant.

Results

A total of 236 individuals participated in this study. Inpatient participants were 121 (51.3%), while outpatients were 115 (48.7%). The characteristics of the participants are demonstrated in Table 1. The majority of the participating patients were males (n= 132, 55.9%), married/previously married (n=183, 77.5%), and 56.3% were above the age of 44 years. Among the participants, 75.8% obtained a post-secondary degree of education, 58.6% were employed and 47% reported having a monthly income range of 500-799 JD. Over 94% of the participants did not report a history of anxiety or depression treatment or consulting a psychiatrist for that matter (Table 1). Inpatient participants were mostly for 1-14 days (n=84, 69.4%), while the remaining

participants were hospitalized for more than 14 days (Table 1). There was a significant difference in age groups between inpatient and outpatient groups (p-value<0.001), showing that the majority of outpatients were in the age group 29-44 years, while inpatients were in the age group 45-59 years.

Table 1. Socio-demographic characteristics of the study participants

Characteristics		**Frequency (%)**			**P-value**
		Total n= 236	**Inpatients n=121**	**Outpatients n=115**	
Gender	Male	132 (55.9%)	74 (56.1%)	58 (43.9%)	0.116
	Female	104 (44.1%)	47 (45.2%)	57 (54.8%)	
Age	18-29	37 (15.7%)	9 (24.3%)	28 (75.7%)	<0.001
	29-44	66 (28%)	23 (34.8%)	43 (65.2%)	
	45-59	68 (28.8%)	46 (67.6%)	22 (32.4%)	
	>= 60	65 (27.5%)	43 (66.2%)	22 (33.8%)	
Marital status	Single/Never married	53 (22.5%)	18 (34%)	35 (66%)	0.005
	Married/Previously married	183 (77.5%)	103 (56.3%)	80 (43.7%)	
Monthly income	Less than 500	77 (32.6%)	48 (62.3%)	29 (37.7%)	0.066
	500-799	111 (47%)	50 (45%)	61 (55%)	
	800 or more	48 (20.3%)	23 (47.9%)	25 (52.1%)	
Education	Up to secondary education	57 (24.2%)	38 (66.7%)	19 (33.3%)	0.009
	Post-secondary education	179 (75.8%)	83 (46.4%)	96 (53.6%)	
Employment	Employed	136 (58.6%)	62 (45.7%)	74 (54.4%)	0.046
	Unemployed	96 (41.4%)	57 (59.4%)	39 (40.6%)	
Smoker	Yes	79 (33.5%)	39 (49.4%)	40 (50.6%)	0.682
	No	157 (66.5%)	82 (52.2%)	75 (47.8%)	
Chronic diseases	Yes	110 (46.6%)	65 (59.1%)	45 (40.9%)	0.027
	No	126 (53.4%)	56 (44.4%)	70 (55.6%)	
Have you visited a psychiatrist before or received treatment for anxiety or depression?	Yes	14 (5.9%)	10 (71.4%)	4 (28.6%)	0.168
	No	222 (94.1%)	111 (50%)	111 (50%)	
Does anyone in your family suffer from anxiety or depression?	Yes	32 (13.6%)	14 (43.8%)	18 (56.2%)	0.447
	No	204 (86.4%)	107 (52.5%)	97 (47.5%)	
Do you felt constantly follow the news about COVID-19 on TV or the internet?	Daily	68 (28.8%)	33 (48.5%)	35 (51.5%)	0.398
	Most Days	86 (36.4%)	53 (61.6%)	33 (38.4%)	
	Occasionally	82 (34.7%)	35 (42.7%)	47 (57.3%)	
Length of hospital admission	1-14 days	-	-	84 (69.4%)	-
	More than 14 days	-	-	37 (30.6%)	
Have you received enough support from the government during infection with COVID-19?	Yes	166 (70.3%)	88 (53%)	78 (47%)	0.476
	No	70 (29.7%)	33 (47.1%)	37 (52.9%)	
Have you worried about your life or the lives of your family because of COVID-19 infection?	Yes	160 (67.8%)	87 (54.4%)	73 (45.6%)	0.201
	No	76 (32.2%)	34 (44.7%)	42 (55.3%)	
Have you felt a social outcast because of COVID-19 infection?	Yes	62 (26.3%)	27 (43.5%)	35 (56.5%)	0.184
	No	174 (73.7%)	94 (54%)	80 (46%)	
Were you subjected to any form of bullying because of COVID-19 infection?	Yes	56 (23.7%)	27 (48.2%)	29 (51.8%)	0.648
	No	180 (76.3%)	94 (52.2%)	86 (47.8%)	

The distribution of the frequency of depressive symptoms was ranging from 'not at all' to 'nearly every day') for PHQ-9 items for the whole sample, and disaggregated by treatment setting (i.e., inpatient and outpatient), as shown in Table 2. The mean score of PHQ-9 for all participants was 4.9 ± 6.02, indicating mild depression (participants' scores ranged from 0 to 27). The mean score of PHQ-9 among outpatient participants (5.9 ± 6.36) was significantly higher when compared to that of inpatient participants (3.9 ±5.52; p value= 0.011). The outpatient group had significantly higher mean scores of five items of PHQ-9 (e.g. feeling down, depressed or hopeless and having trouble concentrating on things, such as reading the newspaper or watching television). The highest mean scores among PHQ-9 items were "feeling tired or having little energy" and "little interest or pleasure in doing things", while "thoughts that you would be better off dead or of hurting yourself in some way" had the lowest score (Table 2).

Table2. Prevalence of depression and anxiety by symptom severity, stratified by treatment setting

		All patients (n=236)	Inpatients (n=121)	Outpatients (n=115)
Depression (PHQ-9)	Non-minimal (0-4)	142 (60.2%)	84 (69.4%)	58 (50.4%)
	Mild (5-9)	51 (21.6%)	20 (16.5%)	31 (27%)
	Moderate (10-14)	22 (9.3%)	10 (8.3%)	12 (10.4%)
	Moderately severe (15-19)	12 (5.1%)	3 (2.5%)	9 (7.8%)
	Severe (20-27)	9 (3.8%)	4 (3.3%)	5 (4.3%)
Anxiety (GAD-7)	Minimal anxiety (0-4)	172 (72.9%)	95 (78.5%)	77 (67%)
	Mild anxiety (5-9)	39 (16.5%)	16 (13.2%)	23 (20%)
	Moderate anxiety (10-14)	20 (8.5%)	8 (6.6%)	12 (10.4%)
	Severe anxiety (15-21)	5 (2.1%)	2 (1.7%)	3 (2.6%)

The distribution of the frequency of anxiety symptoms for GAD-7 for the whole sample and disaggregated by treatment setting are presented in Table 3. Overall, participants' mean score showed minimal anxiety (3.1±4.48, minimum= 0, maximum= 21). Similar to PHQ-9 results, outpatient participants had a significantly higher GAD-7 mean score (3.7 ± 4.7) compared to that of inpatient participants (2.5±4.21; p value= 0.038). GAD-7 item "feeling nervous, anxious, or on edge" had the highest mean score compared to other items, while "feeling afraid, as if something awful might happen" was the least reported item among participants. One GAD-7 item 'worrying too much about different things' had a significantly higher mean score in the outpatient group compared to the inpatient group (p-value= 0.023; Table 3).

PHQ-9 and GAD-7 mean-score comparisons across different socio-demographic characteristics are presented in Table 4. Participants who reported that they had a chronic disease(s), a member who suffers from anxiety or depression, felt worried about their lives or the lives of their families, have been socially outcasted or bullied because of COVID-19 infection, or did not receive enough support from the government during infection with COVID-19, had significantly higher scores for both depression (PHQ-9) and anxiety (GAD-7) compared to counterparts. Moreover, participants who were in the age group of 29-44 years, unemployed, visited a psychiatrist before or received treatment for anxiety or depression, and followed the news about COVID-19 on TV or the Internet on a daily basis, had higher GAD-7 scores compared to counterparts. Further, female participants had higher PHQ-9 mean scores compared to male participants.

Table 3. PHQ-9 item-by-item results, for the total sample and stratified by treatment setting

PHQ-9 items		**All patients**	**Inpatients (n=121)**	**Outpatients (n=115)**	**P-value**
Little interest or pleasure in doing things	Not at all	112 (47.5%)	65 (53.7%)	47 (40.9%)	0.030
	Several days	78 (33%)	38 (31.4%)	40 (34.8%)	
	More than half days	28 (11.9%)	11 (9.1%)	17 (14.8%)	
	Nearly everyday	18 (7.6%)	7 (5.8%)	11 (9.6%)	
	Mean (SD)	0.8 (0.93)	0.7 (0.87)	0.9 (0.97)	
Feeling down, depressed or hopeless	Not at all	126 (53.4%)	73 (60.3%)	53 (46.1%)	0.018
	Several days	73 (30.9%)	34 (28.1%)	39 (33.9%)	
	More than half days	22 (9.3%)	9 (7.4%)	13 (11.3%)	
	Nearly everyday	15 (6.4%)	5 (4.1%)	10 (8.7%)	
	Mean (SD)	0.7 (0.89)	0.6 (0.81)	0.8 (0.95)	
Trouble falling asleep, staying asleep, or sleeping too much	Not at all	151 (64%)	87 (71.9%)	64 (55.7%)	0.010
	Several days	49 (20.7%)	21 (17.4%)	28 (24.3%)	
	More than half days	24 (10.2%)	9 (7.4%)	15 (13%)	
	Nearly everyday	12 (5.1%)	4 (3.3%)	8 (7%)	
	Mean (SD)	0.6 (0.87)	0.4 (0.77)	0.7 (0.94)	
Feeling tired or having little energy	Not at all	111 (47%)	64 (52.9%)	47 (40.9%)	0.070
	Several days	55 (23.3%)	26 (21.5%)	29 (25.2%)	
	More than half days	41 (17.4%)	19 (15.7%)	22 (19.1%)	
	Nearly everyday	29 (12.3%)	12 (9.9%)	17 (14.8%)	
	Mean (SD)	0.9 (1.07)	0.8 (1.03)	1.1 (1.09)	
Poor appetite or overeating	Not at all	166 (70.3%)	92 (76%)	74 (64.3%)	0.072
	Several days	37 (15.7%)	15 (12.4%)	22 (19.1%)	
	More than half days	16 (6.8%)	8 (6.6%)	8 (7%)	
	Nearly everyday	17 (7.2%)	6 (5%)	11 (9.6%)	
	Mean (SD)	0.5 (0.91)	0.4 (0.82)	0.6 (0.98)	
Feeling bad about yourself - or that you're a failure or have let yourself or your family down	Not at all	171 (72.5%)	96 (79.3%)	75 (65.2%)	0.085
	Several days	41 (17.3%)	14 (11.6%)	27 (23.5%)	
	More than half days	15 (6.4%)	7 (5.8%)	8 (7%)	
	Nearly everyday	9 (3.8%)	4 (3.3%)	5 (4.3%)	
	Mean (SD)	0.4 (0.78)	0.3 (0.73)	0.5 (0.81)	
Trouble concentrating on things, such as reading the newspaper or watching television	Not at all	172 (72.9%)	97 (80.2%)	75 (65.2%)	0.046
	Several days	39 (16.5%)	14 (11.6%)	25 (21.7%)	
	More than half days	14 (5.9%)	5 (4.1%)	9 (7.8%)	
	Nearly everyday	11 (4.7%)	5 (4.1%)	6 (5.2%)	
	Mean (SD)	0.4 (0.80)	0.3 (0.74)	0.5 (0.85)	
Moving or speaking so slowly that other people could have noticed. Or, the opposite - being so fidgety or restless that you have been moving around a lot more than usual	Not at all	178 (75.4%)	101 (83.5%)	77 (67%)	0.033
	Several days	35 (14.8%)	10 (8.3%)	25 (21.7%)	
	More than half days	16 (6.8%)	7 (5.8%)	9 (7.8%)	
	Nearly everyday	7 (3%)	3 (2.5%)	4 (3.5%)	
	Mean (SD)	0.4 (0.74)	0.3 (0.68)	0.5 (0.79)	

Thoughts that you would be better off dead or of hurting yourself in some way	Not at all	198 (83.9%)	107 (88.4%)	91 (79.1%)	0.069
	Several days	34 (14.4%)	13(10.7%)	21 (18.3%)	
	More than half days	2 (0.8%)	0	2 (1.7%)	
	Nearly everyday	2 (0.8%)	1 (0.8%)	1 (0.9%)	
	Mean (SD)	0.2 (0.47)	0.1 (0.41)	0.2 (0.52)	
PHQ-9 total score		Mean: 4.9 SD: 6.02 Median:2 Min:0 Max:27	Mean: 3.9 SD: 5.52 Median:1 Min:0 Max:27	Mean: 5.9 SD: 6.36 Median:4 Min:0 Max:27	0.011

Table 4. GAD-7 item-by-item results, for the total sample and stratified by treatment setting

GAD-7 items		**All patients (n=236)**	**Inpatients (n=121)**	**Outpatients (n=115)**	**P-value**
Feeling nervous, anxious, or on edge	Not at all	140 (59.3%)	80 (66.1%)	60 (52.2%)	0.051
	Several days	60 (25.4%)	27 (22.3%)	33 (28.7%)	
	More than half days	21 (8.9%)	7 (5.8%)	14 (12.2%)	
	Nearly everyday	15 (6.4%)	7 (5.8%)	8 (7%)	
	Mean (SD)	0.6 (0.89)	0.5 (0.85)	0.7 (0.93)	
Not being able to stop or control worrying	Not at all	165 (69.9%)	93 (76.9%)	72 (62.6%)	0.066
	Several days	43 (18.2%)	16 (13.2%)	27 (23.5%)	
	More than half days	22 (9.3%)	9 (7.4%)	13 (11.3%)	
	Nearly everyday	6 (2.5%)	3 (2.5%)	3 (2.6%)	
	Mean (SD)	0.4 (0.77)	0.4 (0.73)	0.5 (0.80)	
Worrying too much about different things	Not at all	167 (70.8%)	95 (78.5%)	72 (62.6%)	0.023
	Several days	42 (17.8%)	16 (13.2%)	26 (22.6%)	
	More than half days	18 (7.6%)	6 (5%)	12 (10.5%)	
	Nearly everyday	9 (3.8%)	4 (3.3%)	5 (4.3%)	
	Mean (SD)	0.4 (0.79)	0.3 (0.72)	0.6 (0.85)	
Trouble relaxing	Not at all	167 (70.8%)	91 (75.2%)	76 (66.1%)	0.061
	Several days	46 (19.5%)	22 (18.2%)	24 (20.9%)	
	More than half days	16 (6.8%)	6 (5%)	10 (8.7%)	
	Nearly everyday	7 (3%)	2 (1.7%)	5 (4.3%)	
	Mean (SD)	0.4 (0.75)	0.3 (0.65)	0.5 (0.83)	
Being so restless that it is hard to sit still	Not at all	165 (69.9%)	93 (76.9%)	72 (62.6%)	0.073
	Several days	36 (15.3%)	14 (11.6%)	22 (19.1%)	
	More than half days	14 (5.9%)	4 (3.3%)	10 (8.7%)	
	Nearly everyday	21 (8.9%)	10 (8.3%)	11 (9.6%)	
	Mean (SD)	0.5 (0.95)	0.4 (0.90)	0.7 (0.99)	
Becoming easily annoyed or irritable	Not at all	163 (69.1%)	88 (72.7%)	75 (65.2%)	0.160
	Several days	34 (14.4%)	17 (14%)	17 (14.8%)	
	More than half days	27 (11.4%)	11 (9.1%)	16 (13.9%)	
	Nearly everyday	12 (5.1%)	5 (4.1%)	7 (6.1%)	
	Mean (SD)	0.5 (0.89)	0.4 (0.83)	0.6 (0.94)	
Feeling afraid, as if something awful might happen	Not at all	223 (94.5%)	115 (95%)	108 (93.9%)	0.902
	Several days	12 (5.1%)	5 (4.2%)	7 (6.1%)	
	More than half days	0	0	0	
	Nearly everyday	1 (0.4%)	1 (0.8%)	0	
	Mean (SD)	0.1 (0.29)	0.1 (0.34)	0.1 (0.24)	

GAD-7 total score	Mean: 3.1 SD: 4.48 Median:0 Min.:0 Max.:21	Mean: 2.5 SD: 4.21 Median:0 Min.:0 Max.:21	Mean: 3.7 SD: 4.7 Median: 1 Min.:0 Max.:18	0.038

Table 5. PHQ-9 and GAD-7 mean score comparisons across different socio-demographic characteristics

Characteristics		**PHQ-9**		**GAD-7**	
		Mean (SD)	**P-value**	**Mean (SD)**	**P-value**
Gender	Male	4.0 (5.34)	0.015	2.5 (4.13)	0.121
	Female	6.1 (6.64)		3.8 (4.82)	
Age	18-29	2.7 (2.93)	0.081	1.2 (2.55)	0.026
	29-44	5.9 (5.73)		3.9 (4.40)	
	45-59	5.0 (6.77)		2.9 (4.65)	
	>= 60	5.0 (6.56)		3.5 (4.99)	
Marital status	Single/Never married	5.2 (6.06)	0.091	3.4 (4.91)	0.052
	Married/Previously married	4.8 (6.02)		3.0 (4.36)	
Monthly income	Less than 500	4.4 (5.35)	0.160	2.6 (4.06)	0.150
	500-799	4.9 (5.73)		3.3 (4.79)	
	800 or more	4.9 (6.02)		3.1 (4.43)	
Education	Up to secondary education	4.8 (6.89)	0.389	2.8 (4.59)	0.091
	Post-secondary education	4.9 (5.73)		3.1 (4.45)	
Employment	Employed	4.4 (5.31)	0.317	2.6 (4.08)	<0.001
	Unemployed	5.7 (6.94)		3.5 (4.83)	
Smoker	Yes	4.3 (5.24)	0.077	3.0 (4.51)	0.104
	No	5.2 (6.37)		3.1 (4.48)	
Chronic disease(s)	Yes	6.0 (6.53)	<0.001	3.2 (4.45)	0.026
	No	3.9 (5.38)		2.9 (4.51)	
Have you visited a psychiatrist before or received treatment for anxiety or depression?	Yes	5.1 (5.93)	0.703	4.6 (6.22)	0.048
	No	4.9 (6.04)		3.0 (4.35)	
Does anyone in your family suffer from anxiety or depression?	Yes	8.3 (6.33)	<0.001	7.2 (6.13)	<0.001
	No	4.4 (5.81)		2.4 (3.79)	
Do you constantly follow the news about COVID-19 on TV or the internet?	Daily	4.6 (5.17)	0.338	3.5 (4.58)	0.004
	Most Days	4.8 (6.27)		2.9 (4.08)	
	Occasionally	5.2 (6.44)		2.9 (4.81)	
Have you received enough support from the government during infection with COVID-19?	Yes	3.8 (5.04)	<0.001	2.4 (3.99)	0.003
	No	7.6 (7.24)		4.5 (5.21)	
Have you felt worried about your life or the lives of your family because of COVID-19 infection?	Yes	5.8 (6.03)	<0.001	3.5 (4.40)	0.042
	No	3.1 (5.59)		2.2 (4.54)	
Have you felt a social outcast because of COVID-19 infection?	Yes	7.4 (7.80)	<0.001	4.8 (5.61)	<0.001
	No	4.0 (4.98)		2.4 (3.83)	

Were you subjected to any form of bullying because of COVID-19 infection?	Yes	6.9 (7.69)	<0.001	5.0 (5.77)	<0.001
	No	4.3 (5.27)		2.5 (3.81)	
Length of hospital admission (only applicable to inpatient participants)	1-14 days	3.8 (5.68)	0.274	2.6 (4.48)	0.583
	More than 14 days	4.1 (5.24)		2.1 (3.56)	

Discussion

The COVID-19 pandemic not only poses a threat to physical health, but also has significant impacts on mental well-being (Huang & Zhao, 2020). The ongoing COVID-19 pandemic, which is still relatively new and not fully understood, has led to widespread uncertainty about the course of the illness and its potential for transmission. This unpredictability, combined with the virus's rapid spread, intensified feelings of anxiety among people around the world and contributed to an increase in mental-health issues among individuals (Banerjee, 2020; Grillon et al., 2008; Salari et al., 2020). The focus on treating physical illness may result in psychiatric symptoms being overlooked and undertreated, despite the importance of psychological health in promoting recovery (Deng et al., 2021). Moreover, mental health is significantly influenced by psychological flexibility, serving as a primary predictive factor (Rababah & Al-Hammouri, 2022). Previous pandemics, such as SARS and MERS, have also shown detrimental effects on mental health (Kim et al., 2018). The current crisis highlights the need to address mental-health concerns, in addition to controlling the spread of the virus (Kong et al., 2020). A meta-analysis done in 2020 found that the general population has a high prevalence of stress, anxiety, and depression as a result of the pandemic, at 29.6%, 31.9%, and 33.7%, respectively (Salari et al., 2020).

We studied anxiety and depression among COVID-19 patients who received medical care in Jordan as outpatients or inpatients. Results showed that the average PHQ-9 and GAD-7 scores were higher for outpatients compared to those of inpatients, with significant differences. This contradicts with a study in Indonesia that found a low prevalence of mental-health symptoms, especially depression, among non-hospitalized COVID-19 patients (Pradipta Lusida et al., 2022). First, the discrepancy could be due to differences in the measuring instrument used to measure the status of mental health. Additionally, the healthcare system and government response to the pandemic, with better systems and response likely lead to lower rates of depression, anxiety, and stress. We discovered a significant age difference between the inpatient and outpatient groups, with a higher proportion of inpatient participants (66.2%) being over 60 compared to the outpatient group (33.8%). This is demonstrated by a p-value of 0.001. This study backs-up previous findings that older patients are at a higher risk of severe COVID-19 symptoms and death (Yang et al., 2020). These severe symptoms would necessitate inpatient rather than outpatient treatment. There's a significant difference in the prevalence of chronic diseases between inpatient and outpatient groups, with a higher proportion of inpatient participants reporting a chronic disease (59.1%) compared to the outpatient group (40.9%). This is shown by a p-value of 0.027. Also, those with chronic disease had higher mean PHQ-9 scores (6.0) and higher mean GAD-7 scores (3.2) than individuals without chronic disease (3.9 and 2.9, respectively), and these differences were statistically significant ($p<0.001$ for both). Previous studies reached comparable results to ours when it comes to chronic disease, as people with chronic illnesses are amongst the groups heavily affected psychologically by the pandemic (Özdin & Bayrak Özdin, 2020).

Additionally, the study findings indicate that there are notable differences in the mean scores for PHQ-9 and GAD-7 assessments based on various socio-demographic factors, such as gender, age, marital status, monthly income, education, employment status, smoking habits, presence of chronic illnesses, prior psychiatric consultation, treatment for anxiety or depression, family history of anxiety or depression, consumption of COVID-19 news from TV or internet, perception of government support during COVID-19 and experiences of social isolation or bullying due to COVID-19 infection.

In terms of gender, the mean score for the PHQ-9 was higher for females (6.1) than for males (4.0), and this difference was statistically significant ($p=0.015$). Previous research has shown a higher incidence of

anxiety and depressive disorders in women (Leventhal Alexander et al., 2007). Unemployed individuals had a higher average GAD-7 score (3.5) compared to employed individuals (2.6), and this disparity was statistically significant ($p<0.001$). This supports prior research examining the connection between employment difficulties and mental-health disorders. Their sample of unemployed individuals displayed higher rates of mental-health issues during the pandemic (Yao & Wu, 2022). People who visited a psychiatrist before or received treatment for anxiety or depression had an average GAD-7 score of 4.6, which was higher than the average score of 3.0 for those who did not. This difference was statistically significant ($p=0.048$). This finding goes with another study that suggested that individuals with previous psychiatric illnesses have a higher incidence of depression and anxiety, which could be linked to the recurrence of psychiatric disorders before and after the pandemic, as seen in previous studies (Lee et al., 2007). Individuals were unable to leave the house or hospital because of their COVID-19 illness. Also, psychiatric clinics were unable to offer their full services due to safety concerns. This limited the ability of individuals with preexisting psychiatric illnesses to seek medical assistance for their psychiatric conditions (Özdin & Bayrak Özdin, 2020). In terms of a family history of anxiety or depression, individuals with a family history of anxiety or depression had higher mean PHQ-9 scores (8.3) and higher mean GAD-7 scores (7.2). Research indicates that those with family members diagnosed with COVID-19 are more susceptible to depression due to increased family stress and psychological trauma (Jo et al., 2019; Kong et al., 2020; van der Werf et al., 2019). Experiencing isolation and bullying due to COVID-19 infection is significantly correlated with higher scores on measures of anxiety and depression (PHQ-9 and GAD-7). Social support is a critical component of mental health for COVID-19 patients, and the lack of it contributes to increased anxiety and depression symptoms (Kong et al., 2020). Numerous studies have established that during illness, patients need increased social support, including physical and psychological support from loved ones, healthcare providers, and relevant institutions to aid in what they're going through.

As far as we know, this is the only study in Jordan that has evaluated the levels of anxiety and depression among both inpatient and outpatient COVID-19 patients. One particular advantage of this cross-sectional study is that it measured the public psychological state during the pandemic, targeting depression and anxiety. This study has several limitations that should be considered. Firstly, this study is a single-center study, which means that the results may not be generalizable to other populations. Secondly, participants may have had difficulty remembering certain details, which indicates the presence of recall bias which may have affected the accuracy of the data. Thirdly, this study is a cross-sectional study, which means that it can only show associations between variables and not establish causality.

Implications for Nursing

The study highlights crucial implications for nursing in Jordan amidst the COVID-19 pandemic. With a focus on anxiety and depression among patients receiving outpatient care, nurses should integrate routine mental-health assessments, particularly for those with identified risk factors, such as chronic diseases and a family history of mental-health issues. Tailoring interventions for vulnerable demographics, including females, individuals aged 29-44, and those with a history of psychiatric consultation, is essential. As frontline healthcare providers, nurses play a pivotal role in addressing both physical- and mental-health needs, emphasizing the necessity of a holistic approach to patient care.

Conclusion

Overall, this cross-sectional survey-based study suggests that those who were infected with COVID-19 and received treatment in an outpatient setting have higher rates of anxiety and depression compared to those who were treated as inpatients. Additionally, the results suggest that socio-demographic characteristics, including gender, age, chronic-disease status, family history of anxiety or depression, and experiences related to COVID-19, may be associated with depression and anxiety symptoms. Accordingly, healthcare systems should prioritize addressing the mental-health concerns of COVID-19 patients. Clinicians should be aware of neuro-psychiatric disorders that may arise in patients and take steps to address them. Furthermore, governments and health officials have a responsibility to provide accurate information about the pandemic, quickly refute rumors, and mitigate the impact of misinformation on the public's emotional well-being.

Lastly, individuals need to maintain a positive outlook during these difficult times.

Acknowledgements

Not applicable.

Funding or Sources of Financial Support

The study received no financial support from any source.

Conflict of Interests

No conflict of interests is to be declared by the authors.

Availability of Data and Materials

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

REFERENCES

Abdel Jalil, M.H., Alsous, M.M., Hammad, E.A., Mousa, R., Saleh, M.M., & Abu Hammour, K. (2022). Perceived public stress among Jordanians during the COVID-19 outbreak. *Disaster Medicine and Public Health Preparedness*, *16* (1), 240-244. https://doi.org/10.1017/DMP.2020.328

Abuhammad, S., Khabour, O.F., Alomari, M.A., & Alzoubi, K.H. (2022). Depression, stress, anxiety among Jordanian people during COVID-19 pandemic: A survey-based study. *Informatics in Medicine Unlocked*, *30*, 100936. https://doi.org/10.1016/j.imu.2022.100936

Akour, A., AlMuhaissen, S.A., Nusair, M.B., Al-Tammemi, A.B., Mahmoud, N.N., Jalouqa, S., & Alrawashdeh, M.N. (2021). The untold story of the COVID-19 pandemic: Perceptions and views towards social stigma and bullying in the shadow of COVID-19 illness in Jordan. *SN Social Sciences*, *1* (9), 240. https://doi.org/10.1007/s43545-021-00252-0

AlHadi, A.N., AlAteeq, D.A., Al-Sharif, E., Bawazeer, H.M., Alanazi, H., AlShomrani, A.T., Shuqdar, R.M., & AlOwaybil, R. (2017). An Arabic translation, reliability, and validation of patient health questionnaire in a Saudi sample. *Annals of General Psychiatry*, *16*, 32. https://doi.org/10.1186/s12991-017-0155-1

Banerjee, D. (2020). The COVID-19 outbreak: Crucial role the psychiatrists can play. In: *Asian Journal of Psychiatry* (Vol. 50). Elsevier B.V. https://doi.org/10.1016/j.ajp.2020.102014

Chin, W.Y., Chan, K.T.Y., Lam, C.L.K., Lam, T.P., & Wan, E.Y.F. (2015). Help-seeking intentions and subsequent 12-month mental-health service use in Chinese primary-care patients with depressive symptoms. *BMJ Open*, *5* (1), e006730-e006730. https://doi.org/10.1136/bmjopen-2014-006730

Choi, E.P.H., Hui, B.P.H., & Wan, E.Y.F. (2020). Depression and anxiety in Hong Kong during COVID-19. *International Journal of Environmental Research and Public Health*, *17* (10), 3740. https://doi.org/10.3390/ijerph17103740

Delanerolle, G., Zeng, Y., Shi, J.-Q., Yeng, X., Goodison, W., Shetty, A., Shetty, S., Haque, N., Elliot, K., Ranaweera, S., Ramakrishnan, R., Raymont, V., Rathod, S., & Phiri, P. (2022). Mental-health impact of the Middle East respiratory syndrome, SARS, and COVID-19: A comparative systematic review and meta-analysis. *World Journal of Psychiatry*, *12* (5), 739–765. https://doi.org/10.5498/wjp.v12.i5.739

Deng, J., Zhou, F., Hou, W., Silver, Z., Wong, C.Y., Chang, O., Huang, E., & Zuo, Q.K. (2021). The prevalence of depression, anxiety, and sleep disturbances in COVID-19 patients: A meta-analysis. *Annals of the New York Academy of Sciences*, *1486* (1), 90-111. https://doi.org/10.1111/nyas.14506

Grillon, C., Lissek, S., Rabin, S., McDowell, D., Dvir, S., & Pine, D.S. (2008). Increased anxiety during anticipation of unpredictable but not predictable aversive stimuli as a psychophysiologic marker of panic disorder. *The American Journal of Psychiatry*, *165* (7), 898-904. https://doi.org/10.1176/APPI.AJP.2007.07101581

Huang, Y., & Zhao, N. (2020). Generalized anxiety disorder, depressive symptoms, and sleep quality during COVID-19 outbreak in China: A web-based cross-sectional survey. *Psychiatry Research*, *288*. https://doi.org/10.1016/j.psychres.2020.112954

Jo, M., Song, M.K., Knafl, G.J., Beeber, L., Yoo, Y.S., & van Riper, M. (2019). Family-clinician communication in the ICU and its relationship to psychological distress of family members: A cross-sectional study. *International Journal of Nursing Studies*, *95*, 34-39. https://doi.org/10.1016/j.ijnurstu.2019.03.020

Khatatbeh, M., Al-Maqableh, H.O., Albalas, S., Al

Ajlouni, S., A'aqoulah, A., Khatatbeh, H., Kasasbeh, M.A., Khatatbeh, I., Albalas, R., & Al-Tammemi, A.B. (2021). Attitudes and commitment toward precautionary measures against COVID-19 amongst the Jordanian population: A large-scale cross-sectional survey. *Frontiers in Public Health*, *9*, 745149. https://doi.org/10.3389/FPUBH.2021.745149/BIBTEX

Kim, H.C., Yoo, S.Y., Lee, B.H., Lee, S.H., & Shin, H.S. (2018). Psychiatric findings in suspected and confirmed middle east respiratory syndrome patients quarantined in hospital: A retrospective chart analysis. *Psychiatry Investigation*, *15* (4), 355-360. https://doi.org/10.30773/pi.2017.10.25.1

Kong, X., Kong, F., Zheng, K., Tang, M., Chen, Y., Zhou, J., Li, Y., Diao, L., Wu, S., Jiao, P., Su, T., & Dong, Y. (2020). Effect of psychological-behavioral intervention on the depression and anxiety of COVID-19 patients. *Frontiers in Psychiatry*, *11*. https://doi.org/10.3389/fpsyt.2020.586355

Kroenke, K., Spitzer, R.L., & Williams, J. B. (2001). The PHQ-9: Validity of a brief depression-severity measure. *Journal of General Internal Medicine*, *16* (9), 606-613. https://doi.org/10.1046/j.1525-1497.2001.016009606.x

Lee, A.M., GWS Wong, J., McAlonan, G.M., Cheung, V., Cheung, C., Sham, P.C., Chu, C.-M., Wong, P.-C., Tsang, K.W., & Chua, S.E. (2007). Stress and psychological distress among SARS survivors 1 year after the outbreak. In: *The Canadian Journal of Psychiatry*, *52*, 4.

Lee, S., Tsang, A., Chui, H., Kwok, K., & Cheung, E. (2007). A community epidemiological survey of generalized anxiety disorder in Hong Kong. *Community Mental Health Journal*, *43* (4), 305-319. https://doi.org/10.1007/s10597-006-9077-0

Leventhal Alexander, J., Dennerstein, L., Kotz, K., & Richardson, G. (2007). *Women, anxiety, and mood: A review of nomenclature, comorbidity and epidemiology*. https://doi.org/10.1586/14737175.6.9. S45

Liu, N., Zhang, F., Wei, C., Jia, Y., Shang, Z., Sun, L., Wu, L., Sun, Z., Zhou, Y., Wang, Y., & Liu, W. (2020). Prevalence and predictors of PTSS during COVID-19 outbreak in China hardest-hit areas: Gender differences matter. *Psychiatry Research*, *287*, 112921. https://doi.org/10.1016/j.psychres.2020.112921

Massad, I., Al-Taher, R., Massad, F., Qussay Al-Sabbagh, M., Haddad, M., & Abufaraj, M. (2020). The impact of the COVID-19 pandemic on mental health: Early quarantine-related anxiety and its correlates among Jordanians. *Eastern Mediterranean Health Journal*, *26* (10), 1165-1172. https://doi.org/10.26719/emhj.20.115

Organization WH. WHO Director-General's opening remarks at the media briefing on COVID-19-11 March 2020, Geneva, Switzerland, 2020. (n.d.). Organization WH. WHO Director-General's opening remarks at the media briefing on COVID-19-11 March 2020, Geneva, Switzerland, 2020.

Özdin, S., & Bayrak Özdin, Ş. (2020). Levels and predictors of anxiety, depression, and health anxiety during COVID-19 pandemic in Turkish society: The importance of gender. *International Journal of Social Psychiatry*, *66* (5), 504-511. https://doi.org/10.1177/0020764020927051

Pfizer. GAD-7 Arabic for Tunisia. (n.d.). https://www.phqscreeners.com/images/sites/g/files/g10060481/f/201412/GAD7_Arabic%20for%20Tunisia.pdf

Pradipta Lusida, M.A., Salamah, S., Jonatan, M., Wiyogo, I.O., Asyari, C.H., Ali, N.D., Asmara, J., Wahyuningtyas, R.I., Triyono, E.A., Ratnadewi, N.K., Irzaldy, A., & Alkaff, F.F. (2022). Prevalence of and risk factors for depression, anxiety, and stress in non-hospitalized asymptomatic and mild COVID-19 patients in East Java province, Indonesia. *PLoS ONE*, *17* (7 July). https://doi.org/10.1371/journal.pone.0270966

Pranckeviciene, A., Saudargiene, A., Gecaite-Stonciene, J., Liaugaudaite, V., Griskova-Bulanova, I., Simkute, D., Naginiene, R., Dainauskas, L.L., Ceidaite, G., & Burkauskas, J. (2022). Validation of the patient-health questionnaire-9 and the generalized anxiety disorder-7 in a Lithuanian student sample. *PloS One*, *17* (1). https://doi.org/10.1371/JOURNAL.PONE.0263027

Rababah, J., & Al-Hammouri, M.M. (2022). Predictors of depression in older adults with heart failure: An acceptance and commitment therapy-derived linear-regression model. *Jordan Journal of Nursing Research*, *1* (2).

Rogers, J.P., Chesney, E., Oliver, D., Pollak, T.A., McGuire, P., Fusar-Poli, P., Zandi, M. S., Lewis, G., & David, A. S. (2020). Psychiatric and neuro-psychiatric presentations associated with severe coronavirus infections: A systematic review and meta-analysis with comparison to the COVID-19 pandemic. *The Lancet. Psychiatry*, *7* (7), 611-627. https://doi.org/10.1016/S2215-0366(20)30203-0

Salari, N., Hosseinian-Far, A., Jalali, R., Vaisi-Raygani, A.,

Rasoulpoor, S., Mohammadi, M., Rasoulpoor, S., & Khaledi-Paveh, B. (2020). Prevalence of stress, anxiety, and depression among the general population during the COVID-19 pandemic: A systematic review and meta-analysis. *Globalization and Health*, *16* (1), 57. https://doi.org/10.1186/s12992-020-00589-w

Samrah, S.M., Al-Mistarehi, A.-H., Aleshawi, A.J., Khasawneh, A.G., Momany, S.M., Momany, B.S., Abu Za'nouneh, F.J., Keelani, T., Alshorman, A., & Khassawneh, B.Y. (2020). Depression and coping among COVID-19-infected individuals after 10 days of mandatory in-hospital quarantine, Irbid, Jordan. *Psychology Research and Behavior Management*, *13*, 823-830. https://doi.org/10.2147/PRBM.S267459

Turan, Ş., Poyraz, B.Ç., Aksoy Poyraz, C., Demirel, Ö.F., Tanrıöver Aydın, E., Uçar Bostan, B., Demirel, Ö., & Ali, R.K. (2021). Characteristics and outcomes of COVID-19 inpatients who underwent psychiatric consultations. *Asian Journal of Psychiatry*, *57*, 102563. https://doi.org/10.1016/j.ajp.2021.102563

van der Werf, E.T., Busch, M., Jong, M.C., & Hoenders, H.J.R. (2021). Lifestyle changes during the first wave of the COVID-19 pandemic: A cross-sectional survey in the Netherlands. *BMC Public Health*, *21* (1), 1226. https://doi.org/10.1186/S12889-021-11264-Z/TABLES/6

Worldometer. COVID-19 Coronavirus Dover, Delaware, U.S.A. 2020. (n.d.). https://www.worldometers.info/coronavirus/

Yang, X., Yu, Y., Xu, J., Shu, H., Xia, J., Liu, H., Wu, Y., Zhang, L., Yu, Z., Fang, M., Yu, T., Wang, Y., Pan, S., Zou, X., Yuan, S., & Shang, Y. (2020). Clinical course and outcomes of critically ill patients with SARS-CoV-2 pneumonia in Wuhan, China: A single-centered, retrospective, observational study. *The Lancet Respiratory Medicine*, *8* (5), 475-481. https://doi.org/10.1016/S2213-2600(20)30079-5

Yao, R., & Wu, W. (2022). Mental disorders associated with COVID-19-related unemployment. *Applied Research in Quality of Life*, *17* (2), 949-970. https://doi.org/10.1007/s11482-021-09950-6