Psychological Impact and Fear of the COVID-19 Pandemic Among Frontline Registered Nurses in Jordanian Hospital: A Cross-Sectional Study

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Abstract. By the end of year 2019, the coronavirus disease (COVID-19) has emerged. Psychological distress among frontline nurses in response to COVID-19 pandemic was a serious health concern. This study aimed to assess the level of psychological distress among Jordanian nurses during the COVID-19 pandemic. A cross-sectional study conducted using an online self-administered questionnaire. The survey comprised of a socio-demographic questionnaire, the 10-item Kessler Psychological Distress Scale (K10), and Fear of COVID-19 Scale. The mean of total K10 distress scores had significant association with gender ($P = 0.002$) level of education ($p = 0.002$) and experience in current hospital ($p = 0.033$). Most respondents had severe psychological distress (86.7%). There was a statistically significant relationship between psychological distress and level of fear ($P = 0.006$). The COVID-19 pandemic seems to have a major psychological consequence on nurses, making their psychological state more sensitive. As a result, more emphasis should be deposited on providing professional support services for nurses during the COVID-19 pandemic .

Keywords: COVID-19 · Jordan · Psychological Impacts · Healthcare workers

1 Introduction

The COVID-19 represents the greatest threat to global public health and economies in the 21st century. To date, more than 100 million people have been infected and over 2.1 million died [1]. Nurses are the most numerous group of healthcare workers worldwide and they play a critical role in changing the healthcare system and fighting the COVID-19 pandemic. Due to the heavy workload and the variety of physical and psychological stressors, psychological distress has significantly impacted nurses' performance.

It is critical to consider the pandemic's psychological and physiological repercussions on nurses. Failure to estimate and address psychological return to global epidemic

allied stressors could still have a deleterious repercussion on the physiological and psychological functioning of nurses [2]. During pandemics, nurses who provide care to patients are among the people who are most likely to suffer from psychological distress, including depression and anxiety [3, 4]. In Jordan, limited studies looked at nurses' psychological well-being during pandemic. Current reports should that Jordanian nurses have rumored serious psychological distress, depression, anxiety, lethargy, difficulty sleeping, and burnout [5, 6].

1.1 Aims of the Study

The current study assessed the psychological impact (anxiety and depression) and fear among nurses in Jordan during the ongoing COVID-19 pandemic.

1.2 Research Questions

1. What is the level of nursing' fear during COVID-19 and what are the factors affecting?
2. What is the level of nursing psychological anxiety and depression during COVID-19 and what are the factors affecting?
3. Is there a relationship between the fear of COVID-19 and anxiety and depression among nurses?

2 Methodology

2.1 Research Design

A cross-sectional descriptive correlation design was used to examine the relationship between the fear of COVID-19 and anxiety and depression among Jordanian staff nurses.

2.2 Study Population and Sample

The target population of the current study was Jordanian registered nurses who are currently working in public hospitals. Convenience sampling procedure was used to recruit the study sample. Staff nurses who satisfy the study inclusion criteria were asked to fill the study questionnaires by their managers. Nurses were included in the study if they satisfied the following inclusion criteria: being nurses, working with covid-19 patients, and have at least one-year of clinical experience. Nurses were excluded from the sample if they were not working with covid-19 patients, or be under training. The required sample size was 380. However, 480 questionnaires were distributed.

2.3 Measurement

Data were collected through self-reported questionnaires. Data collection package includes the socio-demographic sheet, 10-item Kessler Psychological Distress Scale (K10), and COVID-19 Fear (FCV-19S).

Socio-demographic Sheet The socio-demographic sheet was used to collect socio-demographic information from subjects. This sheet collected information regarding subjects' age, gender, material status, level of education, and years of experience in nursing.

Psychological Distress The 10-item Kessler Psychological Distress Scale (K10) is a nationally and globally proven criterion for analyzing nonspecific depressive symptoms. It consists of 10 queries with five - point Likert scale [7].

K10 was settle to be a valid and reliable appliance for anxiety and depression, with wide applications in research and clinical practice (Victorian population health survey 2001, 2021) [8]. The responses to each item measured on a 5-point Likert scale (none, a little, sometimes, most of the time, all the time). The total score was divided into five grouping: low (score 10–15), moderate (16–21), high (22–29), and very high (score 30+). As per cumulative K10 distress grading system on every entrant, intensity of psychological issue is classified as follows: 10–19 signifies no psychological concern, 20–24 signifies slight psychological concern, 25–29 signifies moderate psychological concern, and 30–50 signifies harsh psychological distress [7].

Fear of COVID-19
The (FCV-19S) Scale is an evaluation means made up of seven items and one dimension, such as "It makes me uncomfortable to think about coronavirus-19," "I am afraid of losing my life because of coronavirus-19," and "When watching news and stories about coronavirus-19 on social media, I become nervous or anxious" [9]. The FCV-19S is valid and reliable and was used in various studies in different cultures [10, 11]. The Cronbach's alpha of the tool is 0.87, with a 5-point Likert - scale type, from 1 (strongly disagree) to five (strongly agree). The total score ranges from 7 to 35, with greater scores suggest a significant fear of COVID-19 [9]. Data collection procedures.

An electronic version of the socio-demographic sheet as well as the three study questionnaires was prepared as Google form format (https://docs.google.com/forms). The electronic form includes in the first page an introduction about (the researchers' name, university name, title of the study, and its aims). The next page is the consent form in which the subjects should agree to participate in the study to move them to the next page which includes the socio-demographic information. Next, the subjects move to the three study questionnaires, and finally they submitted the form and logout. The completed questionnaires were downloaded and saved on the researcher's computer. Then each received package was checked to ensure compatibility with the inclusion criteria, as well as completeness and including all of the required data. The final analysis included 450 completed questionnaires

3   Data Management and Analysis

Initially, all received questionnaires were checked for missing data. No missing data was founded. Data were coded, entered, and analyzed by using the IBM statistical package of social science (SPSS) version 23. Before running analysis data were checked for assumptions (all assumption were met) and outliers. Descriptive statistics were used

to present the sociodemographic data. Sample characteristics described by means and standard deviations for the contentious variables, and frequencies and percentages for the categorical variables. For all the sections, a P-value < 0.05 was considered to be statistically significant. Internal consistency of the instruments calculated using Cronbach's alpha. We checked for normality of the mental health outcomes using the Shapiro-Wilk test (Shapiro ,1965). The data did not meet normality ($p < 0.05$) so non-parametric tests were used for subsequent analyses. Relationships between categorical variables including survey responses analyzed with Pearson's Chi-Square.

4 Results

4.1 Sample Characteristics

A Total 480 Questionnaires Received, and 30 were Excluded due to Incompleteness Therefore, the remaining 450 were included in the analysis. Most participants were females (54%), and most were aged below 20–30 years (73.3%) and were married (62.4%). All participants were registered nurses, held a baccalaureate degree (70%), and all of them provided direct care to patients. Over 38.4% of the participants had 1–5 years of clinical experience. Most of the participants (81%) reported that COVID-19 affected financial situation in negative way, Table 1.

Table 1. Characteristics of the study population.

Variables		N%
Gender	Male	207(46)
	Female	243(54)
Age	20–30	168(37.3)
	30–35	116(25.8)
	35–40	73(16.2)
	40and above	93(20.7)
Marital state	Married	281(62.4)
	Single	111(24.7)
	Other	58(12.9)
Level of education	Diploma	63(140
	Bachelor	315(70)
	Other	72(16)
Years of Experience (in current hospital)	1–5	173(38.4)
	5–10	146(32.4)
	10–20	99(22)
	Above	32(7.1)

Table 1. (*continued*)

Variables		N%
working with COVID-19 patients	yes	450(100)
	no	0
COVID-19 affected financial situation In negative way	yes	365(81.1)
	no	85(18.9)
Self-identification as a frontline worker	yes	450(100)
	no	0
Role in Healthcare (nurse or not)	Nurse	450(10)
	other	0

4.2 Level of Nursing Psychological Anxiety, Depression, and Fear of COVID-19

In terms of psychological distress, the majority (n = 390, 86.**7**%) have been defined as getting very high psychological distress, followed by high psychological distress (n = 48, 11.7%), moderate psychological distress (n = 7, 1.6%), and no psychological distress (n = 5, 1.1%). The analysis of the participants' k10 scale scores indicated an overall mean subscale score of 34.83 (SD = 5.54), As for the distribution of the respondents according to their total scores on scale the analysis showed that 86.7% reported extremely severe depression, anxiety, symptoms. Regarding fear of covid-19 severity distribution, most participants had high fear (n = 238, 53%), while the remaining had low fear (n = 212, 47%) (Tables 2, 3, 4 and 5).

Table 2. Level of psychological distress among the study participants

Level of psychological distress among the study participants Dimension		count
About how often did you feel tired out for no good reason?	None	18(4)
	A little	61(13.6)
	Sometime	158(35)
	Most of the time	137(30.4)
	All the time	76(17)
About how often did you feel nervous that 2thing could calm you down?	None	15(3.3)
	A little	65(14.4)
	Sometime	129(29)
	Most of the time	156(35)
	All the time	85(19)

(*continued*)

Table 2. (*continued*)

Level of psychological distress among the study participants Dimension		count
About how often did you feel hopeless?	None	22(5)
	A little	56(12.4)
	Sometime	141(31)
	Most of the time	146(32)
	All the time	85(190
About how often did you feel RESTLESS OR FIDGETY?	None	21(5)
	A little	73(16)
	Sometime	124(28)
	Most of the time	155(34)
	All the time	77(17)
	None	20(40
About how often did you feel so restless you could not sit still?	A little	70(16)
	Sometime	136(30)
	Most of the time	154(34)
	All the time	70(16)
About how often did you feel depressed?	None	13(209)
	A little	69(15.3)
	Sometime	113(25)
	Most of the time	164(36.4)
	All the time	91(20)
	None	15(3.3)
About how often did you feel that everything was 2t effort?	A little	66(15)
	Sometime	127(28)
	Most of the time	172(38)
	All the time	70(16)
About how often did you feel so sad that 2 thing could cheer you up?	None	18(4)
	A little	63(14)
	Sometime	101(22.4)
	Most of the time	181(40)
	All the time	87(19.3)

Table 2. (*continued*)

Level of psychological distress among the study participants Dimension		count
About how often did you feel worthless?	None	16(3.6)
	A little	73(16)
	Sometime	114(25.30
	Most of the time	161(36)
	All the time	86(19)
About how often did you feel nervous?	None	17(4)
	A little	63(14)
	Sometime	138(31)
	Most of the time	165(37)
	All the time	67(15)
Level of psychological distress (K10categories)		5
Low (score 10–15)		7
Moderate (score 16–21)		48
High (score 22–29)		390
Very high (score 30–50)		

Table 3. Level of fear of COVID-19 among the study participants

Level of fear of COVID-19		Count(n)%
I am most afraid of COVID-19	Strongly disagree	121 (26.9)
	Disagree	72(16)
	Neutral	94(20.9)
	Agree	104(23)
	Strongly agree	59(13)
It makes me uncomfortable to think about COVID-19	Strongly disagree	104(23)
	Disagree	65(14.4)
	Neutral	96(21.3)
	Agree	129(28.7)
	Strongly agree	56(12.4)
My hands become clammy when I think about COVID- 19	Strongly disagree	118(26.2)
	Disagree	70(15.6)
	Neutral	79(17.6)
	Agree	102(22.7)
	Strongly agree	81(18)

(*continued*)

Table 3. (*continued*)

Level of fear of COVID-19		Count(n)%
I am afraid of losing my life because of COVID-19	Strongly disagree Disagree Neutral Agree Strongly agree	111(24.6) 61(13.6) 89(19.8) 117(26) 71(15.8)
When watching news and stories about COVID-19 on social media, I become nervous or anxious	Strongly disagree Disagree Neutral Agree Strongly agree	93(20.7) 58(12.9) 97(21.6) 121(26.9) 81(18)
I cannot sleep because I'm worrying about getting COVID-19	Strongly disagree Disagree Neutral Agree Strongly agree	108(24) 62(13.8) 95(21.1) 112(24.9) 73(16.2)
My heart races or palpitates when I think about getting COVID-19	Strongly disagree Disagree Neutral Agree Strongly agree	116(25.8) 61(13.6) 90(20) 114(25.3) 69(15.3)
Level of fear of COVID-19 (FCV-19S categories) **Low (score 7–21)** **High (score 22–35)**		
		212(47)%
		238(52.9)

4.3 Psychological Anxiety, Depression, and Fear of COVID-19 and Associated Factors

The results of chi square test show that high to very high psychological distress was associated with female gender, age group (20–30), marital status for married, level of education for bachelor degree, 5-10Years of Experience (in current hospital), COVID-19 affected financial situation in negative way. Higher levels of fear of COVID-19, $p = 0.027$ were associated with moderate to very high levels of psychological distress. Analyses showed that being female, aged 20–30, being married, experience 1-5years, COVID-19 affected financial situation in negative way, and level of education for bachelor degree were associated with higher levels of fear of COVID-19 ($p < 0.05$).

Table 4. Factors associated psychological Distress among the study population

		total	Low	Moderate	High	Very high	p-value
gender	male	207	1	2	11	193	0.,002
	female	243	4	5	37	197	
age	20–30	168	0	3	15	150	0.48
	30–35	116	1	2	6	97	
	35–40	73	2	0	6	65	
	40and above	93	2	2	11	78	
Marital state	Married	281	4	3	33	341	0..358
	Single	111	0	3	13	95	
	Other	58	1	1	2	54	
Level of education	Diploma	63	3	2	13	45	0.002
	Bachelor	315	2	5	27	281	
	Other	72	0	0	8	64	
Years of Experience (in current hospital)	1–5	173	4	6	25	138	0.033
	5–10	146	0	1	11	134	
	10–20	99	1	0	11	87	
	Above	32	0	0	1	31	
Working with COVID-19 patients. (Suspected, Confirmed or Both)	yes	450	5	7	48	390	
	no						
COVID-19 affected financial situation In negative way	yes	365	5	5	42	313	0.38
	no	85	0	2	6	77	
Self-identification as a frontline or essential service worker	yes	450	5	7	48	390	0.42
	no						
Role in Healthcare	Nurse	450	5	7	48	390	
	other	0					
Level of fear of COVID-19 (FCV-19S)							0.006
Low score		212	1(0.22)%	1(0.22)%	41(3.12)%	196(43.6)%	
		237	4(0.89)%	6(1.34)%	34(7.57)%	13(42.98)%	
High score							

Table 5. Association between fear and sociodemographic variables

		Total	Low	High	p-value
gender	male	234	110	96	0.18
	female	206	102	141	
age	20–30	168	75	93	0.305
	30–35	116	50	66	
	35–40	72	36	36	
	40and above	93	51	51	
Marital state	Married	280	130	143	0.54
	Single	111	57	58	
	Other	59	25	25	
Level of education	Diploma	63	13	50	0.00
	Bachelor	314	164	150	
	Other	72	35	37	
Years of Experience (in current hospital)	1–5	173	83	90	0.93
	5–10	145	70	75	
	10–20	99	44	55	
	Above	32	15	17	
working with COVID-19 patients	yes	450	223	227	
	no				
COVID-19 affected financial situation In negative way	yes	364	155	209	0.000
	no	85	57	28	
Self-identification as a frontline or essential service worker	yes	450	224	226	
	no				
Role in Healthcare	Nurse	450	223	227	
	other				
Level of psychological distress (K10 categories					
Low (score 10–15)		5(1.1)%	1(0.7)%	4(0.4)%	0.006
Medium to Very high (score 16–50)		444(98.8)%	211(94)%	233(49.9)%	
Level of coping (BRCS categories)					

(continued)

Table 5. (*continued*)

		Total	Low	High	p-value
Low resilient copers (score 4–13)		341(76)%	143(32)%	198(44)%	0.000
Medium to high resilient copers (score 14–20)		108(23)%	69(15.40%	39(7.7)%	

5 Discussion

Fear, depression, and anxiety are all ingredients of psychological well-being, and their assessment in nurses is justified in infectious disease outbreaks in order to identify and assist those in need. The present research adds to previous studies addressing the psychological wellbeing of nurses who faced the COVID-19 related emergency by investigating general psychopathology (i.e., anxiety, depression). This assessment is important as the coronavirus is contagious and deadly, and continues to be no proven cure or vaccine for the disease, it is understandable that many people are experiencing heightened fear and anxiety in these times.

This study showed that 86.7% of nurses have been defined as getting very high psychological distress. Findings related to self-identification as a frontline or essential service worker exhibiting a high level of stress mental health burden on frontline healthcare workers during pandemics [12]. A recent systematic review of 59 studies with 54,707 participants showed that one or two of every five healthcare professionals reported anxiety, depression, distress and/or sleep problems during the current COVID-19 pandemic, which were primarily associated with increased workload [13].

In another finding of the study, it was concluded that age is related to psychological distress and covid-19 fear, especially being in group age 20–30. A similar finding was observed in the study conducted by [14]. Contrarily, older people reveal lower depression levels [15].

Poor financial situation was associated with higher level of psychological distress Financial instability is associated with adverse psychological outcomes [3, 16]. Stupendous association between low levels of education and higher levels of severity of psychological issues (fear, anxiety, depression) was found as confirmed by [17, 18]. Salimi, ElHawary, Diab and Smith [19] submit that education-related differences in knowledge may be related to their finding that individuals with lower levels of education based more on social media and less on public health resources to gain COVID-19-related information.

The current study found that years of employment were associated with the anxiety levels of frontline workers. New and younger workers are more likely to develop psychiatric problems during public health emergencies one of the possible reasons for this finding may be due to simply not having previously experienced a public health emergency. Consequently, the younger workers were prone to remaining isolated in their room and to prevent physical interactions in fear of contagion with the virus, especially in high-risk working environments, contributing to psychological trauma. A recent study

by Elbay, Kurtulmuş, Arpacıoğlu and Karadere [20] reported that the younger frontline healthcare workers who had worked for less time produced a high score of depression, anxiety, and stress.

Among the main findings, it can be highlighted the overall mean score of the FCV-19S, which was (20.5) and the percentage of 52.9% of respondents showing a high level of fear. Compared to other studies, these numbers were higher in Jordan. For studies conducted in India by Doshi, Karunakar, Sukhabogi, Prasanna and Mahajan [21] and Cuba by Broche-Pérez, Fernández-Fleites, Jiménez-Puig, Fernández-Castillo and Rodríguez-Martin [22], the respective percentages were 45.2% and 22.7%, while for that conducted in Russia and Belarus by Reznik, Gritsenko, Konstantinov, Khamenka and Isralowitz [23], the overall mean scores were 17.4 (SD: 4.7) and 16.6 (SD: 4.5), respectively.

In this study, women found to have a higher level of COVID-19 fear than men did which is consistent with previous research [24]. This finding can refer to the fact that women are more delicate and defenseless than men. In inclusion, Bakioğlu, Korkmaz and Ercan [25] settle that it was tolerable for women to express their fears of illness. Additionally our study show female nurses with nearest contact to COVID-19 patient's have the highest mental health risks similar to the study [20, 26].

6 Limitations

Limitations of the present study encompass using the self-report data collection method, self-reporting questionnaire based on subjects' understanding of the items without any additional clarification.

7 Conclusions

The findings of this study have important implications for nursing science, research, practice, administration and education. Findings of this study may contribution the nursing mangers figures understand the psychological impact and fear among nurses working in Jordanian hospitals and enable the necessary changes to improve the current working conditions. In addition, the study findings may provide evidence for recommendations to administrative psychological support to nurses working in Jordanian hospitals. Generally, the staff nurses in these study perceived high levels of psychological distress and they have high level of fear.

8 Recommendations

Based on the experience of conducting this study and in the light of the study limitations; it would be fruitful to replicate this study in different settings, and with larger sample size to get broader understanding about Jordanian nurses. Longitudinal studies would be beneficial to assess the alteration in nurses' psychological health. National study implementing could be more popularized to the Jordanian nurses. Findings of the current study may stimulate and assist nursing administrators to empower their nurses, and

improve their working conditions. There is a need for governments, policy developers, and health care organizations to actively participate in propping up nurses both during and for any future pandemic or epidemic. Nurses should obtain precise information about finest practice nursing care and infection control, to utilize their safety. Psychological impact of working during a pandemic or epidemic on nurses needs to be acknowledged and professional support services should be provided.

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