Research Article

INVESTIGATION OF THE PREVALENCE OF POST TRAUMATIC STRESS DISORDER IN PEOPLE WITH A PAST COVID-19

Zainab Mohammed Ahmed[#], Sati Dil[**], Younus Khudhur Baez[***]*

[*]**Department of Adult Nursing, University of Kirkuk, College of Nursing, Kirkuk, Iraq;**

[**]**Faculty of Health Sciences, Cankiri Karatekin University, Cankiri, Turkey;**

[***]**Department ofNursing, University of Kirkuk, Kirkuk, Iraq**

Abstract

This paper investigated the prevalence of Post-Traumatic Stress Disorder (PTSD) in people who had tested positive for COVID-19. This study also examined the effect of socio demographic characteristics on PTSD levels in people who had tested positive for COVID-19. This descriptive and cross-sectional study was conducted between May and November 2022 at the Azadi Teaching Hospital Kirkuk in Kirkuk, Iraq. The study population consisted of 980 people who had tested positive for COVID-19. The inclusion criteria were (1) being 18 years or older and (2) having been admitted to the hospital. Data were collected online (Google forms) using a socio demographic questionnaire and a Post-Traumatic Stress Disorder Questionnaire (PTSDQ). The data were analyzed using the Statistical Package for Social Sciences (SPSS, v.26) at a significance level of <0.05. Frequencies, percentages, means, and standard deviations were used for categorical variables. The data were analyzed using a one-way analysis of variance (Kruskal Wallis) and a two-sample t-test. More than half of the participants were women (55.8%). More than a quarter of the participants were 26 to 33 years of age. Participants had a mean PTSDQ score of 47.7 ± 11.9. Gender, educational, and method of infection affected their PTSDQ scores. Female participants had a higher PTSDQ score than male participants. ***ASEAN Journal of Psychiatry, Vol. 25 (12) December, 2023; 1-10*.**

Keywords: Coronavirus; COVID-19; Post-Traumatic Stress Disorder; Coronary Heart Disease; Severe Acute Respiratory Syndrome.

Introduction

What is Post-Traumatic Stress Disorder (PTSD)?

Post-Traumatic Stress Disorder (PTSD) is one of common mental health disorders. That can be diagnosed by a professional when someone experiences a traumatic event and experiences certain types of problems as a result. Like what happened when COVID-19 spread, people suffer with a strong sense of dangers that makes them feel tension and constant arousal even in safe cases as a result of remembering painful events, or seeing and avoiding things associated with them [1].

The relationship between the outbreak of the COVID-19 epidemic and the spread of post-traumatic stress an individual type of trauma can be split into three groups as a result of epidemics of infectious diseases. The first step is to promptly review the signs, pain, and severe treatment. Serious trauma for individuals with severe COVID-19 involves breathing difficulties, respiratory failure, gating, altered states of consciousness, a threat of mortality, tracheostomy, etc., [2].

The second is seeing infected patients develop the illness and ultimately pass away from it, which has an immediate negative impact on other patients, their relatives, or others who assist and care for

them [3].

The third is the fear of social exclusion, stigma, infection, and social isolation, which might be logical or irrational. This has a direct impact on patients, family members, caregivers, and even the general public [4].

These danger factors may shift as the COVID-19 pandemic develops in various ways. Both the individual and environmental factors, such as access to social support, play a role in determining how severely the disorder and trauma manifest themselves.

The study indicates that social support is necessary to promote healthy adaptation after COVID-19 and to enhance resilience in the aftermath of disasters [5].

Another factor that contributes to PTSD is the sense of isolation of those who have been quarantined after having been in contact with an infected person, as well as of the survivors of the infection this group can feel isolated and stigmatized due to the associated fear of infecting their loved ones [6].

Important risk factor for PTSD is moral injury, which is defined as the psychological distress, including feelings of deep shame and guilt, resulting from doing, or not preventing, events that someone believes are "wrong" [7].

Its strongest risk factor is an existing mental diagnosis (history of anxiety and stress disorders). anxiety after a traumatic event. Previous history of mental illness, especially anxiety and depression, has been shown to increase one's vulnerability. ICU patients who recover from their injuries often develop PTSD [8].

Prevention of post-traumatic stress disorder

After surviving a traumatic event, many people experience PTSD-like symptoms at first, normal stress reactions can be prevented from becoming PTSD with the right kind of help and support at the right time. This could mean seeking solace from those closest to you, such as family and friends. This could mean getting some temporary help from a mental health professional. It's possible that some people will find solace in praying or making other religious requests. Support from others may also help prevent you from resorting to unhealthy coping methods, such as misusing alcohol or drugs [9].

Objective

This study investigated the prevalence of PTSD among people who had tested positive for COVID-19 in hospitals in Kirkuk/Iraq.

Research questions

- What is the level of PTSD among people who had tested positive for COVID-19 in hospitals in Kirkuk/Iraq?
- What is the relationship between socio demographic characteristics and the level of PTSD among people who had tested positive for COVID-19 in hospitals in Kirkuk/Iraq?

Limitations

The researcher had difficulty obtaining approval from the Ministry of Health. It was also challenging to meet people who had tested positive for COVID-19. In addition, some patients did not want to fill out the questionnaire.

Materials and Methods

Research design

This descriptive and cross-sectional study was conducted between May 16 and November 3, 2022 in Kirkuk, Iraq.

Preparation

The research setting was the hospitals in Kirkuk, Iraq. The hospitals were selected because they cared for people with COVID-19.

Sample

The study population consisted of 5862 older adults who had tested positive for COVID-19. All older adults had an acute myocardial infarction. Participants were recruited using simple random sampling, a probability sampling method. G. power analysis was performed to determine the sample size. The results showed that a sample of 980 would be necessary to accurately represent a group of 5,862 people based on a theoretical value of 1.96, a 95% confidence interval, and a sampling error of 0.05 at p=0.5, q=0.5, and d=0.05 (Figure 1).

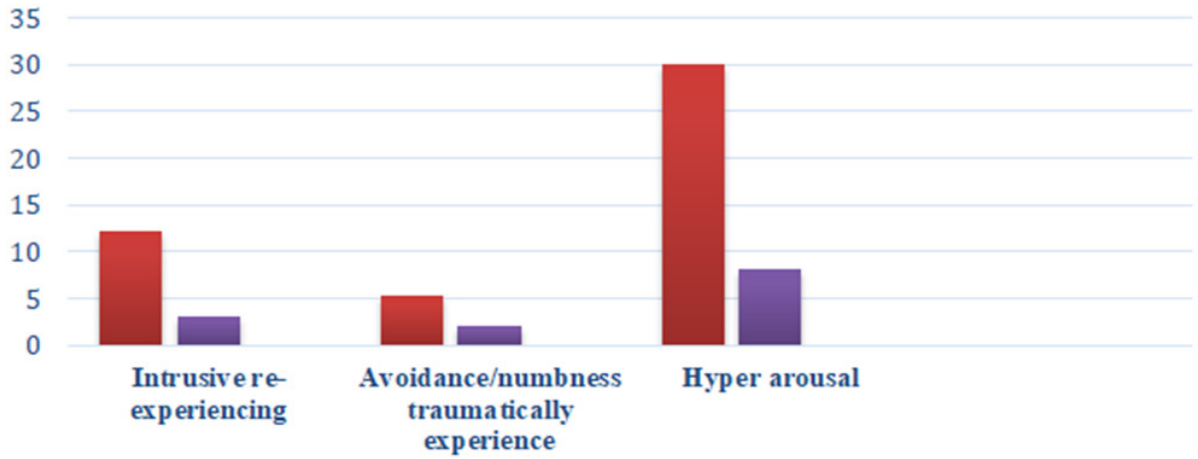

Figure 1. Distribution of PTSD scores. Note: (■) Mean; (■) Std.

Data collection tools

The researcher developed data collection tools divided into two parts. A personal information form was used to determine socio demographic characteristics. The form consisted of ten questions on age, gender, marital status, education, occupation, physical condition, place of residence, method of infection, adherence to the COVID-19 rules, and belief in vaccines [10].

The researcher developed the Coronavirus Disease-Related PTSD Scale based on Davidson et al., and Davidson et al., [11,12]. It was initially developed for the Arabic language and included 17 items measuring three dimensions: Intrusive re-experiencing, avoidance/numbing, traumatic experience, and hyper arousal. The scale has a Cronbach's alpha score of 0.90, which was 0.925 for the Arabic version.

Data collection

The data were collected between 16 May and 3 November 2022 at Azadi Teaching Hospital Kirkuk Teaching Hospital in Kirkuk, Iraq. The sample consisted of 980 patients who had tested positive for COVID-19. This number was distributed among the hospitals according to the monthly goal of treating these cases. The data were collected online (Google forms). The researcher introduced herself and informed the patients about the research purpose. Patients were informed that the data would remain confidential.

Data collection method

The data were analyzed using the Statistical Package for Social Sciences (SPSS, v 26) at a significance level of 0.05. Frequency, percentage, mean, and standard deviation were used for categorical variables. Kurtosis tests were performed to determine whether the data were normally distributed. The Kruskal-Wallis test was used to understand differences between PTSD levels by age, education, occupation, and physical condition. The Mann-Whitney U test was performed to examine whether PTSD level differed by gender, marital status, and place of residence.

Results

Descriptive analysis of demographic components

Table 1 shows the demographic characteristics. The survey included responses from 980 COVID-19 patients receiving medical care at hospitals in the Kerkük region. One third of the participants were 26-33 years of age (n=315, 32.2%). A quarter of the participants were 34-40 years of age (n=253, 25.8%). Less than a quarter of the participants were 18-25 years of age (n=209, 21.3%). Less than a quarter of the participants were over 41 years of age (n=203, 20.7%). More than half of the participants were women (n=545, 55.8%). Most participants were married (n=639, 65.0%) (Table 1).

Table 1. Sociodemographic and clinical charac--teristics.

Demographic characteristics	n	%
Age (year)		
18-25	209	21.3
26-33	315	32.2
34-40	253	25.8

>41	203	20.7
Total	980	100
Gender		
Woman	545	55.8
Man	435	44.2
Total	980	100
Marital status		
Single	341	35
Married	639	65
Total	980	100
Education (degree)		
Literate	44	4.5
Middle school	32	3.3
Prep	127	13.1
Bachelor's degree or higher	777	79.1
Total	980	100
Occupation		
Un-employed	126	13
Housewife	68	6.9
Self-employed	120	12.4
Employee	633	64.3
Retired	33	3.4
Total	980	100
Physical condition		
Very good	100	10.2
Good	482	49.2
Average	359	36.7
Poor	39	3.9
Total	980	100
Place of residence		
Urban	893	91.4
Rural	87	8.6
Total	980	100
Method of infection		
Relatives	270	27.9
Workplace	270	27.9
I do not know	440	44.2
Total	980	100
Adhering to COVID-19 rules		
Yes	492	50.1
Sometimes	402	41.1
No	86	8.8
Total	980	100
Believing in the effectiveness of vaccines		
Yes	635	65
No	345	35
Total	980	100

Most participants had a bachelor's degree or higher (n=777, 79.1%). Less than a quarter of the participants had a prep degree (n=127, 13.1%). Thirty-two participants had a middle school degree (n=32, 3.3%). Forty-four participants were literate (n=44, 4.5%). More than half of the participants were employed (n=623, 64.3%). Less than a quarter of the participants were self-employed (n=120, 12.4%). Less than a quarter of the participants were housewives (n=68, 12.4%). Only thirty-three participants were retired (n=33, 3.4%).

More than half of the participants described their physical conditions as very good or good (n=482, 49.2%), while one-third of the participants reported their physical condition as "average" (n=359, 36.7%). Only thirty-nine participants reported poor physical conditions (3.9%). Most participants lived in urban areas (n=893, 91.4%). Only eighty-seven participants lived in rural areas (8.6%).

All participants were asked how they were infected with COVID-19, whether they adhered to COVID-19 rules, and whether they believed in the effectiveness of vaccines. As Table 2 illustrates, almost half of the participants stated that they did not know how they were infected (n=440, 44.2%). An equal number of participants reported that they either acquired the infection through their relatives (n=270, 27.9%) or in their close relatives' workplaces (n=270, 27.9%). Half of the participants adhered to COVID-19 rules (n=492, 50.1%). Almost half of the participants reported that they sometimes adhered to COVID-19 rules

(n=402, 41.1%). A minority of the participants reported that they did not adhere to COVID-19 rules at all (n=86, 8.8%). More than half of the participants stated that they believed in the effectiveness of vaccines (n=635, 65.0%). More than a quarter of the participants stated that they did not believe in the effectiveness of vaccines (n=345, 35.0%) (Table 2).

All participants were provided with a series of statements related to their potential PTSD and were asked to what extent they agreed to each of these statements. Table 3 illustrates the results. One third of the participants (n=325, 33.5%) stated that they had fantasies, memories, or thoughts related to the possibility of contracting COVID-19. Less than a quarter of the participants reported having nightmares about contracting COVID-19 (n=82; 8.4%). A quarter of the participants regularly experienced the bothersome fear that they may be infected with COVID-19 (n=228). Participants with COVID-19 reported experiencing anger towards anything that reminded them of the virus (n=412). More than one third of the participants said that they avoided reading (news or information) about virus (n=368, 37.7%). One in every three participants reported that they had a feeling that their memory was blurry and that they found it difficult to remember familiar things due to the corona crisis (n=331, 34.1%). More than a quarter of the participants said that they were having trouble enjoying life and returning to their daily routines after the corona crisis (n=265, 27.3%) (Table 3).

A quarter of the participants reported feeling emotionally distant from others and unable to experience joy due to the corona crisis (n=245, 25.3%). Less than a quarter of the participants reported feeling emotionally distant from others and unable to experience joy due to the COVID-19 crisis (n=216, 22.2%). Nearly one-fifth of the participants said they had trouble visualizing themselves living long enough to accomplish their goals (n=171, 17.7%). One-fifth of the participants reported having trouble falling asleep or experiencing disturbed sleep (n=200, 20.6%). About a quarter of the participants experienced episodes of irritability and hostility (n=259, 26.7%). Almost one-third of the participants reported having trouble concentrating (n=297, 30.8%). One-fifth of the participants said they frequently felt overwhelmed to the point of collapse and that it was simple to lose focus (n=180, 18.6%). Almost one-third of the participants noted that they were excessively worried and tense for no apparent reason (n=283, 29.2%). Almost one in every five participants reported feeling scared, their heart beating faster, and becoming upset when people talked about COVID-19 (n=179, 18.4%).

The Kruskal-Wallis test was performed to determine the effect of age, education, occupation, and physical condition on PTSD scores. The Mann-Whitney test used to determine the impact of gender, marital status, and place of residence on PTSD scores. Table 4 shows the results. The results showed that age (χ^2=0.435, df=3, p=0.933), marital status (z=0.006, p=0.995), occupation (χ^2=3.712, df=4, p=0.446), physical condition (χ^2=5.405, df=3, p=0.144), and place of residence (z=0.726, p=0.468) did not affect participants' PTSD scores. On the other hand, there was a statistically significant difference in PTSD scores between male and female participants (z=4.041, p=0.000**). Education also affected participants' PTSD scores (χ^2=16.934, df=3, p=0.001) (Table 4).

Table 2. Comparison of the central tendency of PTSD between averages of viewpoints endorsed for all categories of participants.

	Min	Median	Max	Mean	Std.	Mode
Intrusive re-experiencing	0	13	16	12.3	3.1	16
Avoidance/numbness traumatically experience	0	5	8	5.3	2	8
Hyper arousal	0	31	40	30.1	8.4	40
Total	0	49	64	47.7	11.9	48

Table 3. Distribution of PTSD scores across demographic components (age, gender, marital status, education, occupation, physical condition, and place of residence).

Variable	n	PTSD Score	Statistic	P-value
		Mean ± SD		
Age (year)				
18-25	209	30.5 ± 10.8	0.435	0.933
26-33	315	31.5 ± 11.7		
34-40	253	31.9 ± 11.4		
>41	203	31.6 ± 11.7		
Gender				
Woman	545	32.7 ± 11.1	4.041	0.000
Man	432	29.7 ± 11.7		
Marital status				
Single	341	31.2 ± 11.7	0.006	0.995
Married	632	31.4 ± 11.3		
Education (degree)				
Literate	44	36.0 ± 13.9	16.934	0.001
Middle school	32	34.8 ± 12.5		
Prep	127	32.7 ± 12.4		
Bachelor's degree or higher	768	30.8 ± 11.0		
Occupation				
Un-employed	126	32.0 ± 11.5	3.712	0.446
Housewife	67	31.8 ± 11.9		
Self-employed	120	30.1 ± 11.2		
Employee	623	31.4 ± 11.5		
Retired	33	33.9 ± 9.9		
Physical condition				
Very good	100	32.0 ± 12.3	5.405	0.144
Good	482	30.4 ± 11.1		
Average	359	32.2 ± 11.4		
Poor	38	34.3 ± 12.9		
Place of residence				
City	889	31.2 ± 11.4	0.726	0.468
Countryside	84	32.6 ± 11.9		

Table 4. Differences in PTSD scores across modes of infection, adherence to COVID-19 rules, and belief in vaccines.

Variable	N	PTSD Score	Statistic	P-value
		Mean ± SD		
Method of infection				
Relatives	270	32.6 ± 11.9	6.223	0.045
Workplace	270	31.2 ± 11.2		
I do not know	428	30.9 ± 11.2		
Do you adhere to COVID-19 rules?				
Yes	489	32.3 ± 11.9	4.978	0.083
Sometimes	402	30.8 ± 10.7		
No	86	29.0 ± 11.5		
Do you believe in the effectiveness of vaccines?				
Yes	632	31.6 ± 11.5	0.502	0.616
No	340	30.9 ± 11.2		

The Kruskal-Wallis test was performed to determine whether PTSD scores differed by the way participants were infected and whether they adhered to COVID-19 rules. The Mann-Whitney U test was performed to determine whether there was a significant difference in PTSD scores between participants who believed in the effectiveness of vaccines and those who did not. There was no significant difference in PTSD scores between participants who adhered to COVID-19 rules and those who did not (χ^2=4.978, df=2, p=0.083). There was also no significant difference in PTSD scores between participants who believed in the effectiveness of vaccines and those who did not (z=0.502, p=0.616). However, the results showed that PTSD scores differed by the way participants were infected (χ^2=6.223, df=2, p=00.045) [13,14].

Discussion

This section elaborates on the study's outcomes, delving into the socio-demographic details of the participants and assessing the PTSD levels among COVID-19 patients, supported by relevant data from various sources.

The study involved 980 COVID-19-infected patients receiving medical care in Kerkuk et al., Female patients slightly outnumbered male patients. Lin et al., found that female patients constituted the majority (64%), while Lewis et al., and Knefel et al., reported that female patients accounted for 51.85% and 51.6% respectively. On the other hand, Heubeck et al., found that most participants were male (89.5%), and Heubeck et al., reported that 65.7% of patients were male [15]. Lin et al., observed that out of 1257 participants, 964 (76.7%) were women. Telch et al., found that about 71.6% of participants were female. Wang et al., also noted a majority of women respondents (67.3%). Our research results and previous research share similarities and differences in various aspects. In terms of similarities, both studies demonstrate diverse age distributions, with a balanced representation across different age ranges. Both studies also report a slight majority of female patients.

More than a quarter of our participants were 34-40 years of age (25.8%). Lin et al., found that a large proportion of participants (73.3%) were between the ages of 21 and 30. Wang at al., recorded that the majority of respondents fell into the age range of 21.4 to 30.8 years (53.1%). Heubeck et al., reported a mean age of 32.94 ± 13.2 years. However, Heubeck et al., focused on an older population with an average age of 54.7 years. Lin et al., studied patients with an average age of 47.12 years. Knefel et al., found that most patients were over 34 years old, while Telch et al., reported

a mean age of 57.80 ± 13.33 years. Knefel et al., noted a median age of 42 years (range 16-81 years), with a total of 813 participants (64.7%) aged between 26 and 40 years. In terms of similarities, both studies demonstrate diverse age distributions, with a balanced representation across different age range [4,5,15,9].

The majority of our participants had a bachelor's degree or higher. Knefel et al., found that 28.2% of participants in the UK had a bachelor's degree, while 15.6% had a master's or Ph.D. degree. Knefel et al., reported that the majority of patients had completed higher school education or higher (69%), which corresponds to a college degree. Telch et al., found that about 53% of patients were at least college graduates. Wang et al., recorded that the majority of respondents were well-educated, with 87.9% having at least a bachelor's degree [9].

The majority of our participants were married. Knefel et al., found that the vast majority of patients were married (69%), while Wang et al., reported that 76.4% of respondents were married. In contrast, Telch et al., conducted a study in Italy and found that approximately 67.4% of patients were single. These differences in marital status could be attributed to variations in social norms and cultural practices between western and eastern countries. These findings align with our results, indicating that most patients were young and educated. More than half of our participants were employed. Telch et al., found that 37.9% of patients were employees, while 38% were students. Knefel et al., reported that about 83.4% of patients lived in urban areas. The differences in these studies could be attributed to factors, such as differences in sample sizes, geographical locations, etc [9,5,1].

Most participants suffered from PTSD. This finding is consistent with what Telch et al., found reported that 72.8% of participants had moderate stress levels, while Wang et al., found that only 8.1% reported moderate to severe stress levels [1,5].

Earlier research has investigated the prevalence of PTSD or stress-related symptoms in populations affected by the COVID-19 pandemic. These researchers have tried to understand the psychological impact of the pandemic and explore the prevalence of mental health disorders. Researchers have shown that the prevalence of PTSD in the general population during the pandemic varied between 15% and 10.88%. Furthermore, a meta-analysis estimated the prevalence of PTSD symptoms and psychological stress in the general population to be 23.88% and 24.84%, respectively.

The prevalence of PTSD in Kirkuk might be linked to multiple, repeated stressors faced by COVID-19 patients. These could include economic blockades in Iraq, the region's history of war, the tragic events experienced during the pandemic, and the substantial rise in deaths, all contributing to heightened PTSD levels.

However, researchers have reported different results due to sample sizes, geographical locations, and assessment measures. For example, some studies had larger sample sizes and were conducted in multiple countries, providing more diverse and representative data. In contrast, other studies focused on specific regions or countries, potentially limiting the generalizability of their findings. Our results also showed that female participants had higher PTSD scores than their male counterparts, which is consistent with the literature. The observed pattern could be attributed to culture-specific traumas in Iraq. Female COVID-19 patients face multiple stressors beyond the illness itself. Iraqi society, known for being male-dominated, subject's women to more pressure compared to men. Additionally, infected women often endure isolation, leading to increased negative feelings and a heightened risk of developing post-traumatic stress disorder due to their perception of COVID-19 as a lethal disease.

Our results showed that lower educational levels were associated with an increased risk of PTSD. Knefel et al., found that having a lower level of education was an independent risk factor for increased PTSD. Telch et al., also reported a significant association between lower educational levels and depression, anxiety, and stress. Rudwan et al., further supported these findings by demonstrating that individuals with a master's degree had significantly higher PTSD scores compared to those with intermediate or bachelor's degrees. Additionally, Davidson et al., found that higher levels of education were associated with higher PTS scores. These findings suggest that individuals with higher education may be more affected by stress due to their greater awareness of the complications and consequences of COVID-19. Furthermore, our results showed that participants who were infected by their

relatives experienced higher levels of stress. This finding aligns with the research conducted by Heubeck et al., who identified knowing infected relatives/friends and perceiving a high risk/threat of infection as risk factors for PTSD. Telch et al., and Heubeck et al., also found that patients with lower education levels experienced more PTSD symptoms. The observed outcome might be due to individuals with lower educational levels in Iraq having limited information about COVID-19 and its treatment, leading to increased instances of PTSD [9,1,10,12,15].

Conclusion

In conclusion, while PTSD presents significant challenges, it's crucial to highlight the resilience and strength individuals display in their journey towards healing. Treatment options, including therapy, medication, and support networks, offer hope and avenues for managing symptoms and restoring well-being. Moreover, on-going research and increased awareness contribute to evolving strategies for early detection and intervention.

Raising awareness about PTSD not only reduces stigma but also fosters empathy and support for those affected. It is essential to foster a compassionate and inclusive environment that encourages seeking help without judgment. Ultimately, by acknowledging the complexities of PTSD and providing comprehensive support, we pave the way for individuals to reclaim their lives, rebuild connections, and move towards a brighter, more fulfilling future.

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Corresponding author: Zainab Mohammed Ahmed, Department of Adult Nursing, University of Kirkuk, College of Nursing, Kirkuk, Iraq

E-mail: *zainab.m.ahmed987@gmail.com*

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