Original Article

Role of Psychological Distress and Difficulties in Emotion Regulation in the prediction of Post-Traumatic Stress in Nurses During the COVID-19 Pandemic

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Abstract

Background: During the COVID-19 pandemic, nurses experienced a variety of psychological traumas due to their close encounters with patients.

Objectives: In this regard, the present study aimed to investigate the role of psychological distress and difficulty in emotion regulation in the prediction of post-traumatic stress in nurses during the COVID-19 pandemic.

Methods: The present study was conducted based on a descriptive correlational design. The statistical population of the study consisted of male and female nurses working in medical centers in the fifth and sixth districts of Tehran in 2021. A sample of 300 nurses was selected via the convenience sampling method, and the data were then collected using the questionnaires of post-traumatic stress disorder, psychological distress, and difficulty in emotion regulation.

Results: Based on the results, post-traumatic stress was significantly positively correlated with depression, anxiety, stress, rejection of emotional responses, impulse control difficulties, lack of emotional awareness, difficulty in performing purposeful behavior, limited access to emotional regulation strategies, and emotional state (P<0.01). The results of multiple regression analysis also illustrated that psychological distress and difficulty in emotion regulation predicted 75% of post-traumatic stress in nurses.

Conclusion: The results indicate that post-traumatic stress disorder was significantly correlated with psychological distress and difficulty in emotion regulation in nurses during the COVID-19 pandemic. Due to the fact that nurses have been infected with this deadly virus since the beginning of the COVID-19 pandemic and experienced a lot of stress, it is necessary to take measures to improve their mental health.

Keywords: COVID-19, Difficulty in emotion regulation, Nurses, Post-traumatic stress, Psychological distress

1. Background

Coronavirus disease 2019 (COVID-19) was initiated in Wuhan, Hubei Province, China, in late December 2019, and just months later, the World Health Organization declared it a global pandemic (1). COVID-19 which is an acute respiratory infectious disease with high transmission and prevalence develops the main symptoms of fever, cough, and shortness of breath, (2). The COVID-19 pandemic and subsequent changes, such as the closure of high-risk jobs, the creation of emergency public health levels, and home quarantine, exerted dramatic effects on social and economic relationships, and the lifestyle of individuals (3).

A dramatic increase in the number of patients, long working hours, and no definitive treatment for COVID-19 posed new serious challenges to nurses and negatively affected their mental health (4). In fact, the high workload, networking, lack of equipment, novelty of this disease, absence of required training, the death of people who may not have normally passed away, the fear of being infected with COVID-19 and its transmission to the family and relatives, witnessing the death of patients, and prolonged separation from family can lead to post-traumatic stress disorder (PTSD), psychological distress, and difficulty in emotion regulation among nurses (5-6).

The PTSD is a psychological disorder that may occur after experiencing very threatening events, such as accidents, natural disasters, pandemics, deaths of close ones, and other stressful events (7). The main features of this disorder include disturbing thoughts or memories about traumatic situations, restlessness, anxiety, fear, and increased reactions to war and flight (8). Although the symptoms of PTSD last up to a month, it may also have consequences for many years, affecting the performance of nurses (9). During the COVID-19 pandemic, the unknown nature of the virus, its high prevalence, lack of definitive treatment, and the death of their patients put a lot of stress on nurses (10). Research in this field also indicated a high prevalence of PTSD and psychological distress in nurses (11-12).

Psychological distress is used to describe a

condition in which a person becomes emotionally disturbed and his/her normal functioning is disrupted. These conditions are usually characterized by such symptoms as stress, anxiety, and depression (13). Numerous factors, such as underlying medical history, gender, age, and low level of education, can predict psychological distress in turbulent and stressful situations (14). The prevalence of COVID-19, as well as strict control measures, has caused changes in nurses' lifestyles, social interactions, and occupations, which in turn, increased their psychological distress (15).

In this regard, Di Tella et al. (16) examined anxiety, depression, and PTSD in nurses during the Covid-19 pandemic. Studies have pointed to a high prevalence of anxiety, depression, and PTSD in nurses and physicians working in Covid-19 wards. The symptoms of psychological disorders were more frequently observed in nurses due to their heavy workload during the outbreak of COVID-19. In another study, Ranieri et al. (17) assessed the predictors of PTSD in nurses during the outbreak of COVID-19. The results of the stated study demonstrated a positive correlation between anxiety and PTSD. Moreover, the nurses who worked in the COVID-19 intensive care unit were more stressed.

One of the factors that play a major role in adapting to and controlling the anxious conditions caused by COVID-19 is the ability to regulate emotion (18). Adaptive emotion regulation allows an individual to function successfully in the environment (19). People who use adaptive emotion regulation in a controlled manner in the face of difficult emotional experiences can successfully control these emotions and continue with goal-oriented behaviors (20-21). Adaptive emotion regulation is achieved by underlying emotion regulation skills, including emotional awareness, emotional acceptance, and the use of cognitive emotion regulation strategies (22).

On the contrary, a person who uses maladaptive emotion regulation does not have enough ability or capacity to tolerate emotional experiences and continue with goal-oriented or experiential behaviors in the face of difficult emotional experiences. Emotions do not allow them to go through their natural course (23). During the COVID-19 pandemic, many nurses were under a lot of stress due to their inability to regulate emotions (24-25).

In this regard, Sogultu et al. (26) examined the relationship of difficulty in emotion regulation with anxiety, anger, and sleep during the Coronavirus 2019 pandemic. According to the results of the stated study, the levels of anxiety, anger, insomnia, and difficulty in emotion regulation were 50.5%, 34.8%, 35.4%, and 36.1%,

respectively. The results also showed that people who have difficulty in emotion regulation had more anxiety and anger, which in turn, led to disturbed sleep patterns. In another study, Wang et al. (27) assessed anxiety, depression, and cognitive emotion regulation in nurses during the COVID-19 pandemic. The findings of the referred study illustrated that 27.6% and 32.8% of nurses have symptoms of anxiety and depression, respectively. In addition, low self-blame, lack of rumination, and positive acceptance led to a decrease in anxiety and depression in nurses.

Nearly two years after the outbreak of COVID-19, we are still witnessing the mutation and spread of this deadly virus worldwide, and COVID-19 is expected to remain in the world for many years to come. Since nurses are among the first groups to be at the forefront of the fight against COVID-19, they have suffered a great deal of psychological and physical harm (28). In fact, many nurses spent months away from family and friends, were terrified of COVID-19, witnessed the death of their patients, experienced a lot of work stress, and did not know when the epidemic would end (29). Since nurses' mental health plays a major role in their job performance, it is necessary to pay more psychological attention during this period to receive the necessary psychological interventions if necessary. All of these factors led the present study to investigate the role of psychological distress and difficulty in emotion regulation in the prediction of PTSD in nurses during the COVID-19 pandemic.

2. Objectives

In this regard, the present study aimed to investigate the role of psychological distress and difficulty in emotion regulation in the prediction of post-traumatic stress in nurses during the COVID-19 pandemic.

3. Methods

The present study was conducted based on a descriptive correlational design. The statistical population of the study consisted of male and female nurses working in medical centers in the fifth and sixth districts of Tehran in 2021. Out of them, 250 nurses were estimated using the Cochran formula. In this study, 300 nurses were selected by the convenience sampling method to ensure the sample size (30). The inclusion criteria were personal satisfaction and Internet access. On the other hand, the exclusion criteria entailed not belonging to the research community, a chance to answer questions, and leaving questionnaires incomplete.

The research was conducted in such a way that

initially the necessary measures were taken to obtain the code of ethics from Baqiyatallah University of Medical Sciences (IR.BMSU.REC. 1399.139). In order to collect data, study questionnaires were first uploaded to the Google Docs site. The link was then provided to the nurses and they were asked to answer the questions at a time when they had time and full access to the Internet. Finally, after the number of samples reached the appropriate level, data collection was stopped. It should be noted that nurses were provided with the purpose and importance of research, the principle of confidentiality, as well as the anonymity of personal information and analysis in general.

Post-Traumatic Stress Questionnaire

This 39-item scale is designed to assess PTSD. The items are rated on a 5-point Likert scale, ranging from 1-5, and some of them are reversely scored. Total scores range from 0-195. Scores below 65, 65-130, and above 130 indicate mild, moderate, and severe impairments, respectively. This questionnaire consists of four subscales: penetrating memories, difficulty in interpersonal communication, inability to control emotions, and depression. Regarding the validity of this questionnaire, it was demonstrated that its sensitivity coefficient for separating groups with disorder and groups without disorder was 0.93 (31). In Iran, the validity of the test by internal consistency method and split-half method was 0.92; moreover, it was obtained at 0.91 based on the test-retest method with a one-week interval (32). In the present study, Cronbach's alpha coefficient for the whole scale was 0.86.

The Depression, Anxiety, and Stress Scale (DASS-21)

The short form of the Psychological Distress Scale consists of 21 items and three subscales of depression, anxiety, and stress (33). Each subscale consists of seven items that are scored on a 4-point Likert scale, from 0-3. The subjects are asked to rate the extent to which they experienced each state in the past week using a 4-point intensity/frequency scale. Henry and Crawford (34) reported the Cronbach's alpha coefficients of 0.93, 0.88, 0.82, and 0.90 for the whole scale, as well as the subscales of depression, anxiety, and stress, respectively. In Iran, Samani and Joukar (35) obtained the test-retest reliability coefficients of 0.82, 0.81, 0.78, and 0.80 for the whole scale, subscales of depression, anxiety, and stress, respectively. They also reported Cronbach's alpha coefficients of 0.85, 0.75, and 0.87 for depression, anxiety, and stress, respectively. In the present study, Cronbach's alpha coefficient of depression, anxiety, and stress were 0.82, 0.78, and 0.84, respectively.

Difficulties in Emotion Regulation Scale

This 36-item questionnaire examines emotion regulation patterns in six subscales (rejection of emotional responses, difficulty in controlling impulse, lack of emotional awareness, difficulty in performing goal-oriented behavior, and limited access to regulation strategies). Emotion (emotional uncertainty) is measured and emphasizes, above all, the problems of emotion regulation. The items are rated on a 5-point Likert scale, from 1 (very rarely) to 5 (almost always). A higher score on each of the subscales and on the whole scale indicates more difficulty in regulating emotion. The psychometric properties of the Emotion Regulation Difficulty Scale, including internal consistency, test-retest reliability, as well as construct and predictive validity, in clinical and non-clinical specimens, have been confirmed in the studies performed abroad (20). In Iran, internal consistency coefficients for non-acceptance of emotional responses, impulse control difficulties, lack of emotional awareness, difficulty in engaging in goal-oriented behavior, limited access to emotion regulation strategies, and emotional clarity were 0.88, 0.81, 0.81, 0.74, 0.66, and 0.83, respectively (36). In the present study, Cronbach's alpha coefficients of non-acceptance of emotional responses, impulse control difficulties, lack of emotional awareness, difficulty in engaging in goal-oriented behavior, limited access to emotion regulation strategies, and emotional clarity were 0.82, 0.74, 0.79, 0.86, 0.89, and 0.84, respectively.

Statistical Analysis

After completing the questionnaires, the data were entered into SPSS software (version 24) and analyzed by descriptive statistics (mean, standard deviation, and frequency). Simultaneous regression was used to determine the relationship of psychological distress and difficulty in emotion regulation with the dependent variable (PTSD). It should be noted that the significance level of 0.05 was considered for all hypotheses.

4. Results

A total of 300 nurses (208 females and 92 males) with a mean age of 32.86 participated in this study. In terms of marital status, 188 nurses were married and 112 were single. In addition, 75% of the nurses had COVID-19 and 20% of them were hospitalized due to COVID-19. Table 1 describes the descriptive indicators of PTSD, psychological distress, and difficulty in regulating emotion, including mean and standard deviation. Before data analysis, its assumptions were tested.

The volume of variance for the predictor variables ranged from 1.349-3.827, which was a long distance from 10; therefore, multiple lines were rejected.

In addition, the Watson camera value was 1.819, which was a long distance from 0 and 4; accordingly, the residual correlation was also rejected. Furthermore, skewness and elongation tests were used to check the normality of the distribution of variables. Kline (37) suggested that the absolute magnitude of the skewness and kurtosis of the variables should be between ±2. According to Table 1, the absolute value of skewness and kurtosis of all variables is less than one; therefore, this assumption of data normality is also established.

Table 2 presents the results of the assessment of the correlation of PTSD with psychological distress and difficulty in emotion regulation. As illustrated in Table 2, depression, anxiety, stress, rejection of emotional responses, impulse control difficulties, lack of emotional awareness, difficulty in performing purposeful behavior, limited access to emotional regulation strategies, and lack of emotional state are positively correlated with stress after trauma (*P<0.01*). In other words, a decrease in the mentioned variables led to a higher level of stress after the trauma among nurses and vice versa.

Table 3 illustrates the results of the assessment of the role of psychological distress and difficulty in emotion regulation in the prediction of PTSD in nurses. According to Table 3, the correlation coefficient of predictor variables with PTSD in nurses is 0.86, and these nine variables were able to significantly predict 75% of PTSD changes (*P<0.001*). Moreover, due to the beta value, the variables of depression (β=0.63), limited access to emotion regulation strategies (β=0.38), impulse control difficulties (β=0.34), lack of emotional awareness (0.33), anxiety (β 0.27), difficulty in engaging in goal-oriented behavior (β=0.17), lack of emotional state (β=0.16), rejection of emotional responses (β = 0.14) β), and stress (β = 0.13) had a significant effect on predicting PTSD in nurses (*P<0.05*).

Table 1. Descriptive indicators and the results of examining the normality of research variables

Variables	Mean	SD	Skewness	Kurtosis
Post-traumatic stress	117.98	8.65	-0.368	-1.63
Depression	14.53	4.32	0.578	-0.730
Anxiety	16.03	2.52	0.802	-1.22
Stress	16.29	2.08	0.325	1.23
Not accepting emotional responses	23.73	3.39	-0.904	1.83
Difficulty in controlling impulse	22.38	2.49	-0.761	1.05
Lack of emotional awareness	23.55	5.68	1.12	1.86
Difficulty in engaging in goal-oriented behavior	20.05	2.75	-0.943	0.471
Limited access to emotion regulation strategies	28.21	2.81	-1.52	0.862
Lack of emotional clarity	19.92	4.34	0.307	1.03

Table 2. Results of correlation between post-traumatic stress, psychological distress, and difficulty in emotion regulation

Variables	1	2	3	4	5	6	7	8	9	10
Depression	1									
Anxiety	0.740**	1								
Stress	0.413**	0.625**	1							
Not accepting emotional responses	0.548**	0.657**	0.749**	1						
Difficulty in controlling impulse	0.585**	0.634**	0.720**	0.821**	1					
Lack of emotional awareness	0.542**	0.625**	0.646**	0.726**	0.892**	1				
Difficulty in engaging in goal-oriented behavior	0.540**	0.632**	0.572**	0.573**	0.769**	0.841**	1			
Limited access to emotion regulation strategies	0.335**	0.509**	0.496**	0.526**	0.497**	0.548**	0.702**	1		
Lack of emotional clarity	0.501**	0.683**	0.597**	0.665**	0.744**	0.714**	0.807**	0.749**	1	
Post-traumatic stress	0.694**	0.797**	0.624**	0.676**	0.629**	0.622**	0.629**	0.587**	0.723**	1

*P<0.05 **P<0.01

Table3. Results of multiple regression analysis for psychological distress and difficulty in emotion regulation

Variables	B	SE	β	T	Sig	Tolerance	VIF
Constant	30.34	3.37	-	8.98	0/001	-	-
Depression	5.92	0.590	0.63	10.04	0/001	0.387	2.509
Anxiety	2.16	0.651	0.27	3.32	0/001	0.562	3.637
Stress	1.09	0.398	0.13	2.75	0/006	0.287	1.349
Not accepting emotional responses	0.884	0.303	0.14	2.92	0/004	0.802	1.904
Difficulty in controlling impulse	2.80	0.374	0.34	7.48	0/001	0.762	2.649
Lack of emotional awareness	2.27	0.391	0.33	5.82	0/001	0.308	3.391
Difficulty in engaging in goal-oriented purposeful	2.08	0.584	0.17	3.56	0/001	0.397	1.861
Limited access to emotion regulation strategies	1.95	0.279	0.38	6.98	0/001	0.543	2.568
Lack of emotional clarity	1.72	0.701	0.16	2.45	0/015	0.285	3.827

R= 0.86   R²= 0.75   F=97.26   P<0.001

5. Discussion

The present study aimed to assess the role of psychological distress and difficulty in emotion regulation in the prediction of PTSD in nurses during the COVID-19 pandemic. The obtained results pointed out that stress, depression, and anxiety were positively and significantly correlated with PTSD in nurses. In fact, nurses with high levels of psychological distress experienced more PTSD during the COVID-19 pandemic. These results are in line with those reported by Shechter et al. [13], Labrague et al. [14], and Dobson et al. [15].

These findings can be justified on the ground that nursing is one of the most stressful and difficult occupations, making them prone to depression and anxiety during their career. During the Covid-19 pandemic, nurses also experienced high anxiety due to long shifts, networking, fear of COVID-19, and inadequate protective equipment [6]. Moreover, severe limitations, distance from family, and social distancing caused them to suffer psychologically and develop depressive symptoms [4]. In general, COVID-19 provoked fear and anxiety in hospitals during the pandemic, especially nurses working in the intensive care unit were more fearful and anxious since they cared for critically ill patients with Covid-19 [5].

Due to the fact that there was no definitive treatment and the nurses could not do anything, they became depressed and inefficient [3]. Accordingly, nurses experienced PTSD during the COVID-19 pandemic and were unable to manage their emotions [38]. In this regard, Moon et al. [11] examined PTSD and its related factors in coronary artery nurses. The mean PTSD was obtained at 68.20. Moreover, 36.7% of nurses run a high risk of PTSD. Female nurses and those with psychological distress also had more PTSD.

On the other hand, the findings of the present study pointed out that the difficulty in emotion regulation had a positive and significant correlation with PTSD during the COVID-19 pandemic. In fact, no matter how difficult it is for nurses to regulate their emotions, they are not able to regulate and manage their emotions during the outbreak of COVID-19 and experience a lot of stress. These results are consistent with those reported by Zhu et al. [24], Pinho et al. (25), SÖĞÜTLÜ et al. [26], and Wang et al. [27].

These findings can be justified on the ground that nurses who manage and control their emotions during the COVID-19 pandemic have better mental health [39]. When a person is faced with emotional crises, feeling good and optimistic is not enough to control the emotion, rather the best cognitive function is needed in these situations. In principle, in emotion regulation, an optimal interaction of cognition and emotion is needed to deal with negative situations. Since people interpret every stimulus and situation they encounter, cognitive interpretations determine people's reactions [25]. As a result, the nurses who use negative and weak cognitive styles, such as rumination, catastrophizing, and self-blame, during the COVID-19 pandemic, are more vulnerable to emotional problems than others [27].

In fact, nurses who are unable to properly manage their emotions in the face of stress caused by COVID-19 show more stress, depression, and anxiety. When nurses with high anxiety symptoms have more difficulty in regulating their emotional functions, they are less able to recognize and accept their emotions and are more likely to show negative emotions in ambiguous emotional situations [26]. In the COVID-19 pandemic, emotion regulation strategies also play an important role in depression, anxiety, and PTSD [10]. The studies on the prevalence of COVID-19 have demonstrated that nurses with self-blame, rumination, and rejection experience high PTSD [23]. On the contrary, individuals who used adaptive emotional cognitive regulation, such as positive reassessment and positive refocusing on planning, had better mental and physical health [21]. On the other hand, studies have shown that worry and fear of developing COVID-19 increase anxiety in people. Meanwhile, cognitive regulation of emotion as a mediating variable can moderate this anxiety and reduce fear [22].

Finally, it is necessary to note that the present study suffered from a number of limitations. The statistical population of the study consisted of all male and female nurses in medical centers in Tehran in 2021. Therefore, caution should be exercised in extending the results to other groups and regions. The

restriction of research to self-report and online questionnaires is another limitation of the research. In this regard, it is suggested that in future studies, research questionnaires be distributed in person with social distancing and observance of health protocols. On the other hand, considering the long-term consequences of the Covid-19 pandemic on nurses 'psychological health, it is necessary to take measures to identify nurses with PTSD, depression, anxiety, and stress to promote mental health and improve nurses' performance. Therefore, hospitals and health care centers should have a mental health base to be held by holding workshops and training sessions to help raise the awareness of nurses.

Study Limitations

The study's statistical population consists of all male and female nurses in medical centers in Tehran in 2021. Therefore, caution should be exercised in extending the results to other groups and regions. Limited research to self-report and online questionnaires is another limitation of the research. In this regard, it is suggested that in future studies, research questionnaires be distributed in person with social distance and observance of health points. On the other hand, considering the long-term consequences of the coronavirus 2019 pandemic on nurses 'psychological health, it is necessary to take measures to identify nurses with post-traumatic stress, depression, anxiety and stress to promote mental health and improve nurses' performance. For this purpose, hospitals and health care centers should have a mental health base to be held by holding workshops and training classes to help increase the awareness of nurses.

Strength of the study

The results of the present study can be decisive in future planning to improve the mental health of nurses.

6. Conclusion

As evidenced by the results of the present study, psychological distress and difficulty in emotion regulation significantly predicted PTSD in nurses during the COVID-19 pandemic. The prevalence of PTSD is affected by the severity, duration, and proximity of the experienced trauma; therefore, nurses are prone to PTSD. Crisis is a special situation that requires the management of the company and the cooperation of all trained members of the health team. The occurrence of various events, such as pandemic diseases, highlights the need for experienced nursing manpower with sufficient knowledge, skills, and attitudes to apply the appropriate communication

skills with the patient and consider ethical and legal issues (12). Skillful management is also one of the special plans of nurses. Working conditions in hospitals change completely in the face of disasters. During the outbreak of COVID-19 and an increase in the number of patients, nurses must be equipped with sufficient skills to accept and treat patients. Therefore, in case of unexpected events, hospitals should be organized differently.

Acknowledgments

Conflicts of interest

The authors declare that they have no conflict of interest.

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