The Effect of Managers' Crisis Management Skills on the Secondary Traumatic Stress Levels of Nurses in the COVID-19 Pandemic

COVID-19 Küresel Salgınında Yöneticilerinin Kriz Yönetimi Becerilerinin Hemşirelerin İkincil Travmatik Stres Düzeylerine Etkisi

Çiğdem Torun Kılıç[1] , Oya Çelebi Çakıroğlu[2] , Aysel Özsaban[3] , Havva Öztürk[1]

[1]Karadeniz Technical University, Faculty of Health Sciences, Department of Nursing Administration, Trabzon, Türkiye
[2]İstanbul Medeniyet University, Faculty of Health Sciences, Department of Nursing Administration, İstanbul, Türkiye
[3]Karadeniz Technical University, Faculty of Health Sciences, Department of Fundamentals of Nursing, Trabzon, Türkiye

Abstract

Aim: This study aimed to determine the effect of their managers' crisis management skills on the secondary traumatic stress levels of nurses.

Method: This cross-sectional study was conducted with the participation of 203 nurses working at a university hospital. The data were collected using the Information Form, Crisis Management Skills Scale, and Secondary Traumatic Stress Scale. Reporting is consistent with the STROBE checklist for cross-sectional studies.

Results: According to the nurses, the total mean score of the Crisis Management Skills Scale was 3.11 (SD=0.86), and the total mean score of the Secondary Traumatic Stress Scale was 2.77 (SD=0.74). There was a weak significant negative correlation between the scores of the scales (r= -0.202, p= 0.004). Among the nurses, length of service in the university hospital (β_1=0.231; p=0.030), working in the intensive care unit (β_1=0.164; p<0.035), caring for patients with a diagnosis of COVID-19 (β_1=0.207; p<0.01) positively affected their secondary traumatic stress scores, but their managers' crisis management skills (β_1=-0.186; p<0.01) negatively affected these secondary traumatic stress scores statistically (F=2.913, p<0.001, R^2=0.222, Adjusted R^2=0.146).

Conclusion: Secondary traumatic stress levels of the nurses decreased when their managers were able to manage the crises effectively, but this situation was negatively affected by working longer in the university hospital and caring for the COVID-19 patients.

Keywords: COVID-19 pandemic, crisis management, nurses, nursing, secondary trauma.

Öz

Amaç: Bu çalışma, yöneticilerinin kriz yönetimi becerilerinin hemşirelerin ikincil travmatik stres düzeylerine etkisini belirlemek amacıyla yapılmıştır.

Yöntem: Bu kesitsel araştırma bir üniversite hastanesinde çalışan 203 hemşire ile yapılmıştır. Veriler, "Bilgi Formu, Kriz Yönetim Becerileri Ölçeği ve İkincil Travmatik Stres Ölçeği" kullanılarak toplanmıştır. Raporlama, kesitsel çalışmalar için STROBE kontrol listesiyle tutarlıdır.

Bulgular: Hemşirelere göre Kriz Yönetim Becerileri Ölçeği toplam puan ortalaması 3,11 ± 0,86, İkincil Travmatik Stres Ölçeği toplam puan ortalaması 2,77 (SS=0,74) idi. Ölçek puanları arasında zayıf, anlamlı bir negatif korelasyon vardı (r= -0,202, p<0,01). Üniversite hastanesinde çalışma yılı (β_1=0,231; p<0,05), yoğun bakımda çalışma (β_1=0,164; p<0,01), COVID-19 tanılı hastaya bakım verme (β_1=0,207; p<0,01) ikincil travmatik stres puanlarını pozitif yönde etkilerken, yöneticilerinin kriz yönetimi becerileri (β_1=-0.186; p<0,01) ikincil travmatik stres puanlarını istatistiksel olarak negatif yönde etkiledi (F=2.913, p<0,001, R^2=0.222, Düzeltilmiş) R^2=0,146).

Sonuç: Yöneticileri krizleri etkin yönetebildiklerinde, hemşirelerin ikincil travmatik stres düzeyleri azalmış, ancak bu durum üniversite hastanesinde daha uzun süre çalışma ve COVID-19 hastalarına bakım verme durumundan olumsuz etkilenmiştir.

Anahtar Sözcükler: COVID-19 küresel salgını, hemşireler, hemşirelik, ikincil travma, kriz yönetimi, pandemi.

Introduction

Nurses have to cope with several additional problems during the pandemic, such as an increased workload, challenging working conditions, and a lack of equipment (Hiçdurmaz and Üzar-Özçetin, 2020). The fear of catching COVID-19 and transmitting this disease to their relatives is a major source of stress for nurses (Ahmed et al., 2020; Hiçdurmaz and Üzar-Özçetin, 2020; Shanafelt et al., 2020). Therefore, nurse managers are expected to prepare emergency action plans for crisis situations, develop cooperation strategies, and take measures to protect the health of employees (Baykal et al., 2020; Karabacak et al., 2011). Protecting the psychological and mental health of nurses working in a stressful setting during the COVID-19 crisis is a priority for providing effective healthcare. (Hong et al., 2021; Master et al., 2020). The International Council of Nursing (ICN) considers it a priority to take the necessary measures to protect the health and well-being of nurses during the COVID-19 pandemic and to capitalize on nursing leadership (ICN, 2021). Some national and international guidelines emphasize the importance of creating an appropriate environment, providing social and psychological support, and ensuring timely and accurate information flow during the pandemic for healthcare workers to cope with the stress, fear, and anxiety they experience (Baykal et al., 2020; Center for the Study of Traumatic Stress, 2020; ICN, 2020; Turkish Nurses Association, 2020). From this perspective, fast and effective crisis management is necessary to protect the mental health of nurses and sustain the workforce. Nurses' need for sustainable and accessible mental health support in times of crisis should not be overlooked (Canadian Nurses Association, 2020), because witnessing the suffering of individuals and the processes of illness and death while working during disasters and crises can be a traumatic experience (Ahmed et al., 2020; Hiçdurmaz and Üzar-Özçetin, 2020).

Trauma caused by having a professional relationship with a person or persons directly experiencing a traumatic event is defined as "secondary traumatic stress" (Bride et al., 2004). Individuals exposed to secondary trauma may show symptoms similar to those experienced by a person at the center of the traumatic event, and they may have difficulty maintaining their daily lives (Kahil and Palabıyıkoğlu, 2018). Emergencies such as the COVID-19 outbreak can increase the risk of healthcare professionals, including nurses, experiencing secondary traumatic stress (Li et al., 2020a; Li et al., 2020b;Vagni et al., 2020). Providing psychological support for nurses who work on the frontline in times of crisis and reducing their anxiety through effective crisis management is therefore essential to improve their psychological resilience and well-being (Digby et al., 2020).

A literature review on this topic revealed several studies that examined how nurses coped with the COVID-19 pandemic crisis (Liang and Xu, 2021; Morley, 2020) and their experiences of stress (Ahmed et al., 2020; Arpacioğlu, 2020; Master et al., 2020; Shechter et al, 2020). In light of this information, managers who are able to effectively manage crises can reduce nurses' secondary traumatic stress levels and related problems.

Methodology

Aim and Design: The study aimed to determine the effect of their managers' crisis management skills on the secondary traumatic stress levels of nurses.
This study was a cross-sectional study. The study was consistent with the strengthening of the reporting of observational studies in epidemiology (STROBE) statement for cross-sectional studies (See Supplementary File 1).

Setting and Participants: The study population included 358 nurses working in inpatient clinics at a university hospital in the Black Sea region of Türkiye. In this study, no sampling method was used and it was attempted to reach the population. A total of 155 nurses were excluded from the study: 77 of whom were unwilling to participate and 78 of whom were on administrative leave due to illness, pregnancy, childbirth, or the pandemic. The study was carried out with the participation of 203 nurses (%56.7).

Data collection tools: *Information Form:* This form prepared by the researchers contained 11 questions on the nurses' age, gender, level of education, marital status, having children, length of service in the hospital, professional experience, position, the unit they work in, assignment to another unit during the COVID-19 pandemic, and whether they cared for patients diagnosed with COVID-19.
Crisis Management Skills Scale (CMSS): The scale, which was developed by Aksu and Deveci (2009), was used to determine nurses' views on nurse managers' crisis management. The 31-item scale has three subdimensions: "pre-crisis period" (7 items), "crisis period" (8 items), and "post-crisis period" (16 items). Response options on a 5-point Likert scale range from "I strongly disagree" (score = 1) to "I strongly agree" (score = 5). A high mean score indicates that nurse managers have good crisis management skills. The Cronbach α coefficient of the scale was found to be 0.98 for the CMSS total, and 0.98 in our study.
Secondary Traumatic Stress Scale (STSS): The scale used to determine nurses' secondary traumatic stress symptoms was developed by Bride et al. (2004) and adapted to Turkish by Yildirim et al. (2018). The 17-item scale consists of three

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subdimensions: "avoidance" (7 items), "emotional violation" (5 items), and "arousal" (5 items). The 5-point Likert scale is scored as: Never (= 1), Rarely (= 2), Occasionally (= 3), Often (= 4), and Very Often (= 5). A high mean score indicates a high level of secondary traumatic stress among nurses. The Cronbach α coefficient of the scale was found to be .91 for the STSS total, and 0.91 in our study.

Data Collection: Data were collected between May and December 2020, after institutional and ethical permissions were obtained and nurses were asked if they volunteered to participate in the study and their verbal consent was obtained. The researchers distributed the forms/scales to the nurses working in the clinics/units, and the nurses were given enough time to fill in these forms, and then they collected the completed forms/scales.

Data Analysis: The socio-demographic and professional characteristics of the nurses were determined by the frequency, percentage, and mean. The relationship between CMSS and STSS was analyzed using Pearson correlation analysis. The effects of nurses' crisis management perceptions and demographic characteristics on secondary traumatic stress levels were tested using linear regression analyses.

Ethical Considerations: The study was approved by the ethics committee on May 13, 2020 (Number=2020-105). Written consent was obtained from the top management of the university hospital. The study was carried out with the nurses who volunteered to participate in the study, after obtaining their verbal consent.

Limitations: The study relies on the self-reports of nurses working in a public university hospital in a province of the Black Sea region of Türkiye.

Results

Table 1. Participants characteristics (N:203)

	n	%
Sex		
Famale	179	88.2
Male	24	11.8
Marital status		
Single	73	36
Married	130	64
Have a baby		
Yes	122	60.1
No	81	39.9
Education		
High school	28	13.8
Associate degree	25	12.3
Bachelor's degree	133	65.5
Graduate degree	17	8.4
Ward/Unit		
Internal unit	71	35
Surgical unit	82	40.4
Intensive care unit	27	13.4
Emergency unit	23	11.2
Assignment to another unit during the COVID-19 pandemic		
Yes	71	35
No	132	65
Providing care to patients diagnosed with COVID-19		
Yes	75	37
No	128	63
	Mean (SD)	Median (min.-maks.)
Age	34.47 (8.24)	34.00 (20.00- 54.00)
Years of professional experience	12.51 (8.13)	11.00 (1.00- 35.00)
Length of service in the hospital	10.18 (7.71)	8.00 (0.00- 34.00)

Note. SD=Standard deviation, Min=Minimum, Max=Maximum

In the study, nurses had a mean age of 34.47 (SD=8.24) years, 88.2% were women, 64% were married, 60.1% had children, and 65.5% had a bachelor's degree. They had an average of 12.51 (SD=8.13) years of professional experience and 10.18 (SD=7.71) years of working experience in the hospital. Also, 35% of the nurses were assigned to another unit during the COVID-19 pandemic, while 37% cared for patients diagnosed with COVID-19 (Table 1).

Table 2. Nurses' scores on the Crisis Management Skills Scale and the Secondary Traumatic Stress Scale (N:203)

	Mean (SD)	Median	Min - Max
Pre-crisis period	3.30 (0.91)	3.57	1.00 - 5.00
Crisis period	3.13 (0.91)	3.13	1.00 - 5.00
Post-crisis period	3.01 (0.93)	3.13	1.00 - 5.00
CMSS Total	3.11 (0.86)	3.13	1.00 - 5.00
Avoidance	2.72 (0.74)	2.71	1.00 - 5.00
Emotional violation	2.62 (0.81)	2.60	1.00 - 5.00
Arousal	2.97 (0.94)	3.00	1.00 - 5.00
STSS Total	2.77 (0.74)	2.76	1.00 - 5.00

Note. N=203, SD=Standard deviation, Min=Minimum, Max=Maximum,

CMSS=Crisis Management Skills Scale, STSS=Secondary Traumatic Stress Scale.

The nurses' total mean score of the STSS was 2.77 (SD=0.74), and the mean scores of the subscales were as follows: 2.72 (SD=0.74) for avoidance, 2.62 (SD=0.81) for emotional violation, 2.97 (SD=0.94) for arousal. The nurses' total mean score of the CMSS was 3.11 (SD=0.86) and the mean scores of the subscales were as follows: 3.30 (SD=0.91) for the pre-crisis period, 3.13 (SD=0.91) for the crisis period, 3.01 (SD=0.93) for the post-crisis period (p>0.05) (Table 2).

Table 3. The effect of their managers' crisis management and nurses' characteristics on secondary traumatic stress levels (N:203)

	β_0 (%95 CI)	S. Hata	β_1	t	p	r^1	r^2	VIF
Fixed	51.117 (40.676 - 61.558)	5.290		9.663	**<0.001**			
Crisis Management Skills Scale	-2.698 (-4.683 - -0.714)	1.006	-0.186	-2.683	**0.008****	-0.195	-0.199	1.073
Age group (Reference: 35 and below)	-5.509 (-11.36 - 0.341)	2.964	-0.218	-1.859	0.065	-0.033	-0.140	3.064
Gender (Reference: Female)	-2.141 (-7.994 - 3.712)	2.966	-0.053	-0.722	0.471	-0.040	-0.055	1.217
Marital Status (Reference: Single)	-1.449 (-6.772 - 3.874)	2.697	-0.055	-0.537	0.592	0.030	-0.041	2.380
Having a child (Reference: No)	3.249 (-2.159 - 8.657)	2.740	0.127	1.186	0.237	0.067	0.090	2.551
Educational background (Reference: high school)								
Associate Degree	6.31 (-0.624 - 13.244)	3.513	0.160	1.796	0.074	0.145	0.135	1.779
License	-0.08 (-5.928 - 5.768)	2.963	-0.003	-0.027	0.978	-0.095	-0.002	2.772
MSc and PhD	7.55 (-0.246 - 15.347)	3.950	0.171	1.911	0.058	0.125	0.143	1.789
Professional experience (in years) (Reference: 10 and below)	0.102 (-6.439 - 6.643)	3.314	0.004	0.031	0.975	0.032	0.002	3.886
Length of service in the hospital (in years) (Reference: 10 and below)	6.011 (0.603 - 11.419)	2.740	0.231	2.194	**0.030***	0.102	0.164	2.486
Position (Reference: Other)	-1.703 (-6.648 - 3.243)	2.506	-0.055	-0.679	0.498	-0.128	-0.051	1.471
Working unit (Reference: Internal unit)								
Surgical unit	2.493 (-1.521 - 6.506)	2.034	0.097	1.226	0.222	0.020	0.093	1.412
Intensive care unit	8.173 (0.782 - 15.564)	3.745	0.164	2.182	**0.030***	0.158	0.163	1.258
Other	6.938 (-0.173 - 14.049)	3.603	0.139	1.926	0.056	0.134	0.144	1.164
Operating room	1.941 (-4.015 - 7.896)	3.017	0.050	0.643	0.521	-0.106	0.049	1.364
Assignment to another unit during the COVID-19 pandemic (Reference: No)	-1.618 (-5.4 - 2.164)	1.916	-0.061	-0.844	0.400	-0.075	-0.064	1.159
Caring for patients diagnosed with COVID-19 (Reference: No)	5.438 (1.814 - 9.063)	1.836	0.207	2.962	**0.003****	0.230	0.219	1.096

F=2.913, p<0.001, R^2=0.222, Adjusted R^2=0.146

β_0: Unstandardized beta coefficient; Q. Error: Standard Error; β_1: Standardized beta coefficient; r^1: Zero-order correlation; r^2: Partial correlation, CI: Confidence interval

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In this study, there was a statistically weak and negative relationship between STSS total and CMSS total (r= -.202, p<0.01). However, the length of service in the hospital (β1=0.231; p<0.05), working in the intensive care unit (β1=0.164; p<0.05), caring for patients diagnosed with COVID-19 (β1=0.207; p<0.01) positively affected nurses' secondary traumatic stress levels, while the crisis management scale score (β1=-0.186; p<0.01) negatively affected it and was statistically significant. The effects of other characteristics of nurses on secondary traumatic stress scale scores were not statistically significant (p>0.05) (F=2.913, p<0.001, R^2=0.222, Adjusted R^2=0.146) (Table 3).

Discussion

Effective management of the COVID-19 pandemic, which can be considered a crisis, can help protect the mental health and reduce the anxiety of nurses, who make up the majority of the healthcare workforce (Labrague and De los Santos, 2020). Therefore, the crisis management skills of nurse managers are of great importance. As a matter of fact, research has shown that managers exhibiting holistic leadership behaviors in uncertain situations, such as crises, contribute to reducing nurses' stress (Ahmed, 2020) and increasing their motivation (Kurtessis et al., 2017). Therefore, in the COVID-19 pandemic, which is a major crisis for healthcare professionals and the healthcare system, it is important to determine managers' crisis management skills and secondary traumatic stress levels of nurses, and the effect of crisis management on secondary traumatic stress levels.

During the pandemic, the secondary traumatic stress levels were moderate among nurses assigned to different clinics/ units, more than one-third of whom provided care to patients diagnosed with COVID-19. Similar to these results, Ahmed et al. (2020) reported that nurses experienced moderate levels of traumatic stress during the COVID-19 outbreak. Studies determined that both healthcare professionals and nurses have high levels and prevalence of secondary traumatic stress (Alan et al., 2020; Li et al., 2020a; Vangi, 2020). In addition, it was noteworthy that nurses had higher levels and prevalence of anxiety, depression, and secondary traumatic stress compared to healthcare workers (Arpacioğlu et al, 2020; Li et al., 2020b). Nurses may have experienced this stress during the COVID-19 pandemic (Al Maqbali and Al Khadhuri, 2021) because of the problems they face in maintaining their physical, mental, and psychological health (Çakmak and İnkaya, 2020). The problems include the rapid spread of the virus from person to person, constant exposure to the virus, witnessing colleagues become infected, the risk of morbidity and potential death (Wang et al., 2019), prolonged contact with patients, fear of becoming infected and infecting their loved ones, heavy workload; and working with limited equipment (Arpacioğlu et al, 2020; Li et al., 2020b).

Hospital management and nurse managers played an important role in the effective management of the COVID-19 crisis (Baykal et al., 2020), and consequently in reducing nurses' stress levels and protecting their mental and physical health. It is critical for managers to understand that crisis management encompasses increasing the psychological resilience of employees (Stephens et al., 2020). In this study, as the crisis management skills of the nurse managers increased, the secondary traumatic stress levels of the nurses decreased. Furthermore, it was found that the secondary traumatic stress levels of the nurses were affected by their length of service in the hospital, the status of caring for a patient with COVID-19, and their managers' level of crisis management, respectively. In other words, while the secondary traumatic stress levels of nurses who have longer length of service in the hospital, work in the intensive care unit and care for patients with COVID-19 increased, the secondary traumatic stress level of nurses decreased as their managers' crisis management level increased. These four variables explained about 15%, or about one-seventh, of the nurses' secondary traumatic stress levels. These results prove that the nurses' traumatic stress levels can be reduced by effectively managing crisis such as the COVID-19 pandemic. The low impact on stress levels may be due to the impact of various factors on the secondary traumatic stress levels of nurses. In fact, nurses have reported that they needed a more comprehensive assessment of how to prioritize resources in different settings during the COVID-19 crisis (Morley, 2020). In support of the findings of this study, a study conducted during the COVID-19 pandemic reported that stress on nurses could be reduced with an effective crisis management and leadership (Turnipseed and VandeWaa, 2022. In addition, it has been determined that the length of service of the nurses during the COVID-19 process has an impact on the traumas they experience (Pan Cui et al., 2021) and that nurses working in intensive care units who also care for COVID-19 patients experience more posttraumatic stress and need more support (Chen et al., 2021). Therefore, providing adequate organizational support (e.g., structural support, efficient communication, a safe working environment, training on COVID-19, protection for health and well-being), when stress and anxiety are extreme, is vital to help nurses who are struggling with the challenges of the crisis (Alan et al., 2020; Hiçdurmaz and Üzar-Özçetin, 2020; Labrague and De los Santos, 2020; Master et al., 2020). When the management increases support in the institution, the resilience of nurses increases, and their stress decreases (Labrague and De los Santos, 2020). In support of this, Labrague and De los Santos (2020) emphasized that social support, personal resilience,

and organizational support were associated with COVID-19 anxiety. In addition, in support of the current findings, it has been reported that nurses who perceive more support from the organization are more motivated and satisfied and experience less stress when performing their duties (Labrague and De los Santos, 2020, Higazee et al., 2016).

The results of this study show that effective crisis management strategies and managerial approaches that increase social and organizational support and personal resilience play an essential role in managing the secondary traumatic stress of the nurses during the pandemic. Similarly, Baykal et al. (2020) reported that nurse managers play a key role in preparing for the crisis, effectively managing the crisis process, and planning the necessary improvements afterward. On the other hand, a study conducted on nurses' perceptions of crisis management before the pandemic reported that the majority of nurse managers either delegated the responsibility of finding solutions to cope with stress related to crises to senior management or overlooked the crises altogether. Similarly, some studies have found that nurses' crisis management skills were at a moderate level (Mohamed and Bayoumy, 2018); they were not prepared for crisis management and could not cope with the crisis (Appleby, 2019). In this study, the crisis management skills of managers were found to be at a moderate level. However, effective crisis management or strengthening crisis management skills contribute to protecting the mental health of nurses (Canadian Nurses Association, 2020), reducing their anxiety and increasing their psychological resilience (Digby et al., 2020).

Furthermore, in the prevention and control of epidemics, it is of great importance for institutional managers and nurse managers to evaluate perceptions and opinions related to crisis management, especially during crises such as the COVID-19 pandemic (Liang and Xu, 2021). Similarly, Baykal et al. (2020) and Liang and Xu (2021) emphasized the importance of nurse managers sharing their experiences in managing the COVID-19 crisis.

Conclusion

This study showed that although nurses experienced moderate secondary traumatic stress during the COVID-19 pandemic, their secondary traumatic stress levels were affected by length of service in the hospital, working in the intensive care unit, caring for patients with COVID-19, and their managers' crisis management skills. Furthermore, according to the crisis management skills of the nurse managers were average. Thus, the study demonstrated that hospital managers and nurse managers should establish effective coping mechanisms and policies regarding crisis management.

It is important to identify and implement effective crisis management strategies to minimize the negative effects experienced by nurses, who are one of the most vulnerable professional groups to COVID-19. In this context, nurses in managerial positions should provide effective communication, provide continuous and regular information and be accessible in times of crisis. Given the possibility that nurses' levels of secondary traumatic stress may continue to increase, they should be monitored regularly for stress and anxiety, and professional support can be provided with an individualized approach as needed. Programs that teach stress management techniques, such as yoga, meditation, reflexology, and mindfulness, can be made available to nurses to provide useful coping skills. When nurses become ill, psychological first aid can be provided without stigmatization in a supportive atmosphere that includes open communication and peer-colleague support. In addition, working hours can be rearranged, duties and resources can be redistributed appropriately, and institutional arrangements can be made (e.g., financial support and rewards). Finally, it may be beneficial for national and international professional organizations and institutions to collaborate and develop long-term policies to protect this vital constituent of the healthcare workforce.

Acknowledgements

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