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DETERMINATION OF POST-TRAUMATIC GROWTH AND PSYCHOLOGICAL RESILIENCE LEVELS OF NURSES CARING FOR PATIENTS WITH COVID-19

COVID-19 TANILI HASTALARA BAKIM VEREN HEMŞİRELERİN TRAVMA SONRASI BÜYÜME VE PSİKOLOJİK DAYANIKLILIK DÜZEYLERİ

Zahide Gül YAZGI DEMİR[1] Hilal ALTUNDAL DURU[2] Mualla YILMAZ[3]

[1] Lecturer, Harran University Vocational School of Health Services, Department of Elderly Care, Sanlıurfa, Turkiye.

[2] Assist. Prof., Çankırı Karatekin University Faculty of Health Science, Department of Public Health Nursing, Çankırı, Turkiye.

[3] Prof., Mersin University Faculty of Nursing, Department of Mental Health Nursing, Mersin, Turkiye.

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Corresponding author/Sorumlu yazar: zhde.yzgi@gmail.com

ABSTRACT

The study aims to examine the posttraumatic growth and psychological resilience levels relationship of nurses who care for patients with a diagnosis of COVID-19. The population of this cross-sectional, correlational study consisted of nurses caring for COVID-19 patients in Gaziantep, Turkey in March 2021, and the sample of the study using convenience sampling was 167 nurses. Data were collected with the Personal Information Form, the Posttraumatic Growth Inventory, and the Resilience Scale for Adults. For the evaluation, descriptive statistics, and Correlation, Binary Logistic Regression were used. The mean total score of psychological resilience of the nurses was 123.72±18.02, and the mean total score of posttraumatic growth was 70.71±21.02. A moderately positive and significant relationship was found between nurses' psychological resilience and posttraumatic growth levels (r=0.485; p<0.001). Nurses had high levels of resilience and posttraumatic growth, there was a moderately positive and significant relationship between resilience and posttraumatic growth levels. It is recommended to develop empowerment programs for nurses that support their posttraumatic growth and increase their psychological resilience and systematically conduct mental state examinations.

ÖZET

Bu araştırmanın amacı, COVID-19 tanılı hastalara bakım veren hemşirelerin travma sonrası büyüme ve psikolojik dayanıklılık düzeyleri arasındaki ilişkiyi incelemektir. Kesitsel, korelasyonel bu çalışmanın evrenini Mart 2021'de Türkiye'nin Gaziantep ilinde COVID-19 hastalarına bakım veren hemşireler, kolayda örnekleme kullanılan araştırmanın örneklemini ise 167 hemşire oluşturmuştur. Veriler, Kişisel Bilgi Formu, Travma Sonrası Büyüme Envanteri ve Yetişkinler İçin Psikolojik Dayanıklılık Ölçeği ile toplanmıştır. Verilerin değerlendirilmesinde tanımlayıcı istatistikler, Korelasyon, İkili Lojistik Regresyon kullanılmıştır. Hemşirelerin psikolojik dayanıklılık toplam puan ortalaması 123.72±18.02 ve travma sonrası büyüme toplam puan ortalaması 70.71±21.02 idi. Hemşirelerin psikolojik dayanıklılıkları ile travma sonrası büyüme düzeyleri arasında orta düzeyde pozitif ve anlamlı bir ilişki bulunmuştur (r=0.485; p<0.001). Hemşirelerin dayanıklılık ve travma sonrası büyüme düzeylerinin yüksek olduğu, dayanıklılık ile travma sonrası büyüme düzeyleri arasında orta düzeyde pozitif ve anlamlı bir ilişki olduğu sonucuna varılmıştır. Hemşirelerin travma sonrası büyümelerini destekleyen ve psikolojik sağlamlıklarını artıran güçlendirme programlarının geliştirilmesi ve hemşirelerin ruhsal durum muayenelerinin sistematik olarak yapılması önerilmektedir.

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INTRODUCTION

Nurses who stay at the bedside for long hours, both in Turkiye and around the world, have been struggling on the front lines and encountering long-term psychosocial problems since the World Health Organization (WHO) announced the Coronavirus Disease-19 (COVID-19) (WHO, 2020). During the pandemic, nurses have been known to develop obsessive thoughts like fear of death, fear of being infected, fear of infecting their families, emotional distress in announcing the death of patients to their families and feeling restricted due to protective clothing. The COVID-19 pandemic has had significant psychosocial effects on nurses (Zheng et al., 2021), affected their mental health substantially (Khattak et al., 2020) that they experienced anxiety, depression, burnout (Hu et al., 2020), and Post-Traumatic Stress Disorder (PTSD) (Li et al., 2021). However, in their response to the International Council of Nurses (ICN), approximately 80% of the National Nursing Societies reported that nurses working in the fight against COVID-19 suffered from mental distress. The ICN also reported that the COVID-19 pandemic caused massive trauma among nurses (ICN, 2021).

Although there is a widespread belief that negative results will occur after a traumatic experience, they can contribute to an individual's empowerment and help them develop effective coping methods and improve their psychosocial well-being (Özçetin & Hiçdurmaz, 2017). Posttraumatic Growth (PTG) theories view trauma as a catalyst for the promotion of constant personal growth. What produces PTG is not the trauma, but the cognitive and emotional struggle processes that activate the results of positive changes, transformation, and growth after trauma (Calhoun et al., 2010; Tedeschi & Blevins, 2017; Tedeschi et al., 2018). In challenging phenomena such as the pandemic, nurses can experience some positive changes after working on the front lines. These changes can help nurses alleviate the negative impact of traumatic work-related experiences and increase their satisfaction with life (Yang et al., 2020). In a study, it was reported that PTG was moderate to high among nurses working on the

frontline against COVID-19. The same study found that frontline nurses were affected by posttraumatic development, years of work, self-confidence, risk awareness, psychological intervention, or education level (Cui et al., 2021). While the PTG levels of nurses working COVID-19 pandemic were high, a meta-analysis emphasized negative psychological effects on health professionals and psychological interventions should be developed to promote PTG (Batra et al., 2020; Mo et al., 2022). Therefore, it is important to alleviate the negative experiences of nurses during the pandemic and to discover PTG.

Emphasizing the inadequacy of the number of nurses and the need to strengthen nurses with the themes it determines every year, ICN emphasizes the importance of increasing the resilience of nurses to improve health services and solve the existing problems in the health system (ICN, 2020). Resilience is the personal trait or ability to resist the effects of adversity without bouncing back from difficulty or experiencing long-term adverse effects, in other words, it means that many people can adapt to the difficulties of life and protect their mental health despite being exposed to difficulties (Zeller & Levin, 2013). It is emphasized that the protection of the mental health of nurses is essential, while it is necessary to focus on improving nurses' Psychological Resilience (PR) and reducing their perceived stress to protect and maintain their mental health (Karabulak & Kaya, 2021).

Stress factors of nurses in Turkiye during the pandemic are intense working conditions, long working hours, uncertainty, heavy workload, and failure in patient treatment, not being able to access protective equipment (Boran et al., 2022; Chen et al., 2021; Karabulak & Kaya, 2021, Şanlıtürk, 2021). As it has been revealed in the literature, PR can be learned and improved, and it supports individuals to strengthen their traumatic experiences and enables them to grow out of the trauma (McAllister & McKinnon, 2009). In addition, in studies conducted with healthcare professionals who have been involved in difficult processes such as the MERS-CoV epidemic and the COVID-19 pandemic, it has been reported that PR is effective on PTG (Hyun et al.,

2021; Lyu et al., 2021). This study emphasizes the importance of planning interventions in collaboration with hospital management and teams so that nurses working in COVID-19 wards can protect their mental and physical health. Considering the negative psychological effect of the COVID-19 pandemic on nurses and the protective effect of PTG and PR factors on mental health, it becomes important to determine the PTG and PR levels relationship of nurses who care for patients with a diagnosis of COVID-19. The study aimed to determine the PTG and PR levels of nurses who care for patients with a diagnosis of COVID-19 and the relationship between these two cases.

MATERIAL AND METHOD

Study Type

This descriptive and correlational study was carried out in the pandemic services of the hospitals in Gaziantep, Turkiye.

Population and Sampling

Data were collected from the nurses caring for COVID-19 patients in Gaziantep, Turkiye in March 2021. Due to the high number of COVID-19 cases throughout the province, the working places of the nurses were changed many times, and almost all nurses worked in the COVID-19 services alternately. Inclusion criteria of nurses in the study are being older than 18 years of age, being voluntary to participate in the research, caring for a patient diagnosed with COVID-19, and working as a nurse in Gaziantep at the time of the research. The population of the research consists of nurses working in the COVID-19 services in Gaziantep on the relevant dates. The exact number is not known as there are constant service changes and nurses with COVID-19 on leave during these dates. Since the research universe was not known, in the GPower (v3.1.9.2) program, it was calculated that at least 109 nurses were sufficient to participate in the research with a correlation level of effect size 0.50 between the variables, a confidence interval of 95%, and a power of 80% (Faul et al., 2009). Therefore, in this study

using the convenience sampling method, 167 nurses were reached, and this number was sufficient.

Data Collection Tools

Personal Information Form

This form was created by the researchers regarding literature to determine the eight socio-demographic attributes (age, gender, income status, residence, chronic disease status, change of residence, etc.). In addition, there are 8 questions consisting of clinical variables (getting a diagnosis of COVID-19, being quarantined, prior psychological support, getting training during the pandemic process about hygiene, infection, personal protective equipment, mental health protection or coping, clinic studied, working time as a nurse (years), giving care time for patient with a diagnosis of COVID-19 in a shift (hours), working time (months) on COVID-19 clinics) (Cui et al., 2021; Ou et al., 2021).

Posttraumatic Growth Inventory (PTGI)

Turkish validity and reliability of the inventory developed by Tedeschi & Calhoun (1996), were made by Kağan et al. (2012). The scale, which consists of 21 items, has a six-grade Likert type (not at all (0), very much (5)) and three sub-dimensions “Changes in Self-Perception”, “Changes in Philosophy of Life”, and “Changes in Relationship”. The increase in the scores obtained from the scale and sub-dimensions, which do not have any cut-off point, indicates that the individual has experienced a high level of growth after the traumatic experience. The total Cronbach's alpha coefficient of the scale is 0.92 and the sub-dimensions range from 0.77 to 0.88 (Kağan et al., 2012; Tedeschi & Calhoun, 1996). In this study, the PTGI Cronbach Alpha internal consistency coefficient was found to be 0.93, and for the “Changes in Self-Perception”, “Changes in Philosophy of Life”, “Changes in Relationship” sub-dimensions, 0.91, 0.75, and 0.80, respectively.

Resilience Scale for Adults (RSA)

Turkish validity and reliability of the scale developed by Friborg et al. (2003) were made by Basım & Çetin (2011). The 5-point Likert type (1-2–3–4–5) scale consists of 33-item (1, 3, 4, 8, 11, 12, 13, 14, 15, 16, 23, 24, 25, 27, 31, 33 numbered items reversed) and six sub-dimensions "Perception of the Self", "Planned Future", "Structured Style", "Social Competence", "Family Cohesion" and "Social Resources". The higher the scores obtained from the scale, the higher the PR. The total Cronbach's alpha coefficient of the scale is 0.86, and the sub-dimensions range from 0.66 to 0.81 (Friborg et al., 2003; Basım & Çetin, 2011). In this study, the RSA Cronbach Alpha internal consistency coefficient was found to be 0.88, and for the "Perception of the Self", "Planned Future", "Structured Style", "Social Competence", "Family Cohesion" and "Social Resources" sub-dimensions, 0.63, 0.65, 0.64, 0.68, 0.79 and 0.74 respectively.

Data Collection

The data were collected online with a survey form created through Google Forms after obtaining the necessary permissions in March 2021. The questionnaire form was delivered to the nurses by the researchers via online platforms such as social media, WhatsApp, and e-mail. Researchers reached nurses working in the COVID-19 services in Gaziantep through their own social media accounts or staff they knew working in the hospital. Researchers reached nurses working in COVID-19 services in all private and public hospitals in Gaziantep province.

Data Analysis

Data were analyzed using SPSS 22.0 software. The normality of distribution was confirmed with the Kolmogorov Smirnov test. Frequency, percentage, mean, and standard deviation were used for descriptive statistics; correlation analysis was used to determine the relationship between the scales and their sub-dimensions. The significance value was taken as $p<.05$. To determine the variables affecting the PTG and PR levels of nurses, variables that were statistically significant and close to significance in the previous analyses were tested with

Binary Logistic Regression analysis in multivariate analysis. Model fit was evaluated with the Hosmer-Lemeshow test. If the p-value in the model is greater than .05, the predictive value of the model is considered high (Alpar, 2022). As a result of this research, the Hosmer-Lemeshow test p-value was determined as 0.740 for PTG and 0.932 for PR. Therefore, the predictive value of the model is high.

Limitations of the Study

This study had some limitations. Being a cross-sectional study may limit the identification of risk factors for PTG and PR. Additionally, based on all these limitations, these findings are not generalizable to other nurses.

Ethical Committee Approval

Before the research data began to be collected, written consent was obtained from the nurses via the online questionnaire, with the approval of the ethics committee of the Ministry of Health and the relevant university (date: 05 March 2021, decision no:3).

RESULTS

The mean age of the nurses was 29.45±6.37, 82% of them were women, and their average nursing working time was 6.78±6.34 years. 31.7% of the nurses were diagnosed with COVID-19 and 35.3% were quarantined. 87.4% of the nurses were not received any psychological support before the pandemic process. 40.7% of the nurses participating in the study worked in the COVID-19 intensive care units and 59.3% in the COVID-19 clinics. 56.9% of the nurses did not get training during the pandemic process. The average working time of the nurses in the COVID-19 services was 9.15±3.09 months, and the average time of giving care time for patient with a diagnosis of COVID-19 in a shift was 10.78±8.56 hours (Table 1).

Table 1

Sociodemographic and Clinical Characteristics of Nurses (n=167)

Sociodemographic and clinical variables	n	%
Age ($\bar{X}$±SD=29.45±6.37)		
26 years and under	79	47.3
Over 26 years old	88	52.7
Gender		
Female	137	82.0
Male	30	18.0
Education level		
High school-associate degree	24	14.4
Undergraduate-postgraduate	143	85.6
Marital status		
Married	72	43.1
Single	95	56.9
Income status		
Income less than expenses	48	28.7
Income equal to expenses-more	129	71.3
Residence		
Province	149	89.2
District	18	10.8
Chronic disease status		
Yes	19	11.4
No	148	88.6
Change of residence		
Yes	31	18.6
No	136	81.4
Getting a diagnosis of COVID-19		
Yes	53	31.7
No	114	68.3
Be quarantined		
Yes	59	35.3
No	108	64.7
Prior psychological support		
Yes	21	12.6
No	146	87.4
Getting training during the pandemic process		
Yes	72	43.1
No	95	56.9
The clinic studied		
COVID-19 intensive care (newborn, child, adult)	68	40.7
COVID-19 clinics (inpatient service, emergency, operating theater, filiation)	99	59.3
Working time as a nurse (years) ($\bar{X}$±SD=6.78±6.34)		
4 years and below	90	53.9
Over 4 years	77	46.1
Giving care time for patient with a diagnosis of COVID-19 in a shift (hours) ($\bar{X}$±SD=10.78±8.56)		
6 hours and below	72	43.1
Over 6 hours	95	56.9
Working time (months) on COVID-19 clinics ($\bar{X}$±SD=9.15±3.09)		
6 months and below	44	26.3
Over 6 months	123	73.7

The nurses' total mean score of PR was 123.72±18.02, and the mean total score for each sub-dimension was 22.46±3.74 for perception of the self, 14.63±3.38 for planned future, 14.20±3.26 for structured style, 21.58±4.47 for family cohesion, 23.36±4.93 for social competence and 27.46±5.03 for social resources. Considering the scale total score averages, the PR of the nurses was found to be high. The mean total score of nurses' PTG was 70.71±21.02, and the mean total score of each sub-dimension respectively was changes in self-perception 37.95±11.59, changes in philosophy of life was 19.06±6.09, and changes in relationship was 13.70±5.52. Considering the total score averages of the scale, it was determined that the nurses' PTG levels were high (Table 2).

Table 2

Distribution of Nurses' Total Score Averages from PR, PTG and Sub-dimensions (n=167)

Scales of Sub-dimensions	$\bar{X}$±SD	Minimum-Maximum
PR		
PR	123.72±18.02	33-165
Perception of the Self	22.46±3.74	6-30
Planned Future	14.63±3.38	4-20
Structured Style	14.20±3.26	4-20
Family Cohesion	21.58±4.47	6-30
Social Competence	23.36±4.93	6-30
Social Resources	27.46±5.03	7-35
PTG		
PTG	70.71±21.02	21-126
Changes in Self-Perception	37.95±11.59	10-60
Changes in Philosophy of Life	19.06±6.09	6-36
Changes in Relationship	13.70±5.52	5-30

PTG: Posttraumatic Growth, PR: Psychological Resilience

The regression model that emerged in the Binary Logistic Regression analysis between nurses' PTG level and sociodemographic variables was significant (X^2=15.913, p<.05). Using these variables, the created model estimated the nurses' PTG levels by 63.5%. While getting training during the pandemic process increases the PTG levels of nurses 2.1 times, working in the COVID-19 service for more than 6 months decreases it 0.8 times. According to the binary logistic regression analysis results, between nurses' PR levels and sociodemographic variables was significant (X^2=23.374, p<.05). Using these variables, the created model estimated the PR levels of nurses at the rate of 63.5%. Having a high school and associate degree education increases the PR levels of nurses 4.5 times, residing in the city center 3.6 times and getting training during the pandemic process increases 2.2 times (Table 3).

Table 3

Logistic Regression of Variables Affecting Nurses' PTG and PR Levels (n=167)

Variables (reference)	PTG				PR			
	95% Confidence interval for EXP (β)[2]				95% Confidence interval for EXP (β)[2]			
	β	OR	Min-max	*p*	β	OR	Min-max	*p*
Age (26 years and under)	.003	1.003	.889-1.119	.960	-.001	.999	.892-1.118	.981
Gender (female)	.269	1.309	.536-3.193	.555	-.286	.752	.304-1.859	.536
Level of education (high school-associate degree)	.328	1.388	.497-3.877	.531	1.511	4.533	1.427-14.396	.010[a]
Residence (provincial center)	-.139	.870	.285-2.657	.807	1.297	3.657	1.092-12.254	.036[a]
Getting a diagnosis of COVID-19 (yes)	.568	1.765	.406-7.667	.448	.301	1.351	.313-5.834	.687
Be quarantined (yes)	-.784	.456	.107-1.948	.290	-.428	.652	.154-2.760	.561
Prior psychological support (yes)	-.105	.900	.325-2.495	.840	.631	1.879	.661-5.339	.237
Getting training during the pandemic process (yes)	.760	2.139	1.061-4.312	.034[a]	.796	2.216	1.080-4.548	.030[a]
Clinic studied (COVID-19 intensive care)	.307	1.359	.670-2.756	.395	-.146	.864	.434-1.721	.678
Working time as a nurse (4 years and below)	-.014	.986	.878-1.108	.817	-.059	.942	.836-1.062	.331
Working time on COVID-19 clinics (Over 6 months)	-.161	.851	.759-0.955	.006[a]	-.023	.977	.872-1.095	.691
Giving care time for patient with a diagnosis of COVID-19 in a shift (6 hours and below)	.007	1.007	.969-1.047	.709	-.013	.987	.948-1.027	.523
PTG; Nagelkerke R^2: .121; p<.05 Rate of model accurately predicting PTG is high with 63.5% Hosmer - Lemeshow test p: .740					PR; Nagelkerke R^2: .174; p<.05 Rate of model accurately predicting PR is high with 63.5% Hosmer - Lemeshow test p: .932			

[a] p<.05

A moderately positive and significant correlation was found between the nurses' PTG and PR total score mean (r=0.485; p<.001). A moderately positive and significant relationship was found between the nurses' total PR score means in self-perception, the changes in philosophy

of life and changes in relationship sub-dimension (r=0.494, r=0.443, r=0.431 respectively; *p*<.001). A moderately positive and significant relationship was found between the nurses' total PTG score means in planned future and social resources sub-dimension (r=0.429, r=0.415 respectively; *p*<.001). A low level positive and significant relationship was found between the nurses' total PTG score means in perception of the self, structured style, family cohesion and social competence (r=0.281, r=0.362, r=0.255, r=0.389 respectively; *p*<.001) (Table 4).

Table 4

The Relationship Between Nurses' PTG, PR and Sub-dimension Total Mean Scores (n=167)

Scales	PTG			
Sub-dimensions	PTG	Self-Perception	Changes in Relationship	Changes in Philosophy of Life
PR				
PR	.485*	.494*	.431*	.443*
Perception of the Self	.281*	.330*	.168**	.190**
Planned Future	.429*	.435*	.382*	.306*
Structured Style	.362*	.354*	.313*	.292*
Family Cohesion	.255*	.256*	.257*	.158**
Social Competence	.389*	.404*	.340*	.265*
Social Resources	.415*	.400*	.399*	.304*
PTG	1	.951*	.863*	.859*
Self-Perception		1	.736*	.713*
Changes in Relationship			1	.670*
Changes in Philosophy of Life				1

**p<.001 **p<.05*

DISCUSSION

This study determined the PTG and PR levels relationship of nurses who care for patients with a diagnosis of COVID-19. According to the results of this study, it was determined that the PR of nurses who care for patients with COVID-19 was high. In the study conducted by Kılınç & Çelik (2021), it was determined that the PR levels of nurses during the COVID-19 pandemic were moderate. In the study conducted by Ou et al. (2021) with 92 nurses, it was determined that the PR of nurses was high. The literature supports the research findings. Internal factors (hope, self-sufficiency, coping skills, etc.) (Hart et al., 2014), external factors (social support resources, team support, etc.) (Kılınç & Çelik, 2021) and the nurses' experience of working in similar difficult and severe conditions such as the COVID-19 pandemic can be given as examples of the high PR of nurses. However, considering that PR is an important factor in protecting mental health, it is thought that high PR of nurses may contribute to nurses to cope more effectively with psychosocial problems that they may experience during the pandemic process, to increase their psychological well-being, to protect mental health and to prevent the feeling of burnout. At this point, it is important to show the necessary effort to maintain and develop the PR of nurses.

In this study, the PTG levels of nurses were high. Cui et al. (2021) reported that the PTG levels of nurses were moderate to high; Peng et al. (2021) determined that nurses experienced moderate PTG. The literature is in line with the research findings. This finding shows that nurses have the potential power to turn the pandemic process into an opportunity. It is thought that the fact that nurses have high PTG levels will enable nurses to reduce the psychological distress they experience during the pandemic process, to cope with stress more effectively, to become stronger, and to be satisfied with their life and profession. In addition, it is thought that the positive personal change that nurses can experience with PTG during the pandemic process and the improvement in their life perspectives will make them stronger and braver in dealing

with the difficult life conditions they may encounter in the future. Therefore, it can be said that it is important to identify nurses with low levels of PTG and to develop intervention programs that can help nurses transform crises such as pandemics into growth and development.

In this study, having high school and associate degree education, living in the city center, and receiving education during the pandemic process increased the PR level of nurses. In a study conducted with 387 nurses working in Iran during the COVID-19 pandemic, a positive relationship was reported between PR and education level (Afshari et al., 2021). Ramalisa et al. (2018), it was stated that nurses' resilience could be strengthened with in-service training (Ramalisa et al, 2018). In another study, Foster et al. showed that nurses could benefit from resilience training that equips them with cognitive, emotional regulation, and relational skills (Foster et al., 2018). It is thought that determining the factors that increase the level of PR of nurses will be an effective strategy in preventing the negative consequences of the COVID-19 pandemic on nurses. Comprehensive approaches, including strategies at the individual, professional, and organizational levels, are needed to strengthen nurses' mental health and to support their well-being.

According to the results, receiving training during the pandemic increased the PTG level of nurses, and working in the COVID-19 service for more than six months decreased the PTG level of nurses. Atay et al., (2022) support the study findings (Atay et al., 2022). Contrary to this finding, in a study, it was reported that nurses who worked for more than 10 years, received psychological support and training had higher PTG levels (Cui et al., 2021). In addition, as nurses are faced with rapidly changing conditions of patients, they can pay more attention to the patient's condition, think actively, and can give quick and accurate responses. This suggests that nurses were able to take responsibility for managing their own health with the training and information they received regarding their physical and mental health during the pandemic, and their PTG levels increased. Additionally, it is thought that nurses working in pandemic wards

for more than six months may experience burnout and uncertainty. It is thought that organizing training in cooperation with nurse managers and academicians during the pandemic process will play an important role in making nurses think that they are not struggling with a difficult situation alone, feel supported, see themselves as valuable, and increase their motivation. It is important to improve the working conditions of nurses, increase the number of personnel, and create policies blended with such concepts as justice, equality, psychological well-being, etc. to protect the mental health of nurses. Otherwise, it is predicted that nurses will not be able to provide adequate care and psychosocial support to patients diagnosed with COVID-19 with the feeling of burnout they may experience, and they will only work task-oriented, and ignore the psychological state of the patients.

In this study, a moderately positive and significant relationship was found between the PR of nurses and their PTG levels. In studies conducted with healthcare professionals in South Korea, China, and Turkey, moderately significant relationships were found between PTG and PR (Atay et al., 2022; Hyun et al., 2021; Lyu et al., 2021). Nurse leaders can promote health, PTG, and PR through multiple approaches that are both proactive and reactive. Nurse leaders should integrate PTG models into nurses' workflows and should organize training programs periodically (Cunningham & Pfeiffer, 2022). Within this context, the maintenance of qualified and safe health care is possible with health workers competent enough in terms of quantity and quality. Countries should invest in the improvement of nurses' well-being and strengthen their mental health (Çelik et al., 2021; ICN, 2021).

In studies conducted with healthcare professionals having experienced difficult processes, it has been reported that PR can be learned and improved, and that it strengthens individuals when they cope with their traumatic experiences, and it enables them to grow out of trauma (Atay et al., 2022; Hyun et al., 2021; Lyu et al.,2021; McAllister & McKinnon, 2009). Consistent with this finding, in a recent study, it was stated that the level of PTG decreased as the length of

service in nursing increased (Zhang et al., 2021). However, in another study, attention was drawn to a negative relationship between the length of service in nursing and PTG (Cui et al., 2021). In their study (2021), Chen et al. determined that nurses working in intensive care units and caring for COVID-19 patients had higher PTG scores. These increases experienced by nurses may have occurred because they discovered the meaning of a traumatic event while they experienced it. However, the differences in studies dealing with the relationship between the length of service in nursing and PTG may be related to the fact that working in COVID-19 clinics for a long time causes burnout and personality dynamics. Personality dynamics can make PTG either easier or difficult. Therefore, the effects of trauma characteristics and personality dynamics of individuals on PTG should be investigated (Shuwiekh et al., 2018). In addition, clinical rotations should be planned at regular intervals to help nurses overcome this difficult process during the pandemic. Given that PR plays a protective role on mental health, the relationship between PTG and PR is thought that the probability of benefiting the intervention programs will be high. Therefore, the findings we obtained can provide guidance to the fight aimed at protecting and improving nurses' mental health.

CONCLUSION

The pandemic process is stressful for nurses working on the front lines. In order to protect the mental health of nurses, increase their resilience, and enable them to grow after trauma, it is necessary to know the variables that affect the stress they experience. As stated in the literature, it has been emphasized that stress is associated with PR and PTG. In this study, it is seen that results parallel to the literature were obtained. Consequently, in this study, it was concluded that nurses had high PR and PTG levels, and a moderately positive and significant relationship was present between PR and PTG.

In this study, results will help policymakers, hospital administrators, and nurse educators develop programs and interventions to improve nurses' PR and PTG. In this context,

Consultation Liasion Psychiatric (CLP) nurses provide education, management, counseling, and case management; they play important roles due to their direct and indirect roles. During the pandemic process, Consultation Liasion Psychiatric nurses should develop empowerment programs that will support nurses' posttraumatic growth and increase their psychological resilience. In addition, these interventions that improve mindfulness and self-compassion levels can support their PTG and increase their PR for nurses. Mental health nurses should systematically conduct mental state examinations in nurses. In addition to this, it is important to get support from psychiatry nurses on issues such as prevention and reduction of psychiatric morbidity that may occur, development of coping skills, and counseling in times of crisis. Remarkably, the present study will guide nurses to improve their PR and to ensure their PTG by enabling them to reflect on their experiences during the pandemic constructively and to make use of these experiences to improve their nursing skills. This important research focuses on empowering nurses and turning the pandemic process into an opportunity. In addition, we consider that the present study is of great importance because it can help health professionals to get prepared for future pandemics and contribute to the creation of strategic action plans and the content of intervention programs.

ETHICAL COMMITTEE APPROVAL

Before the research data began to be collected, written consent was obtained from the nurses via the online questionnaire, with the approval of the ethics committee of the Ministry of Health and the relevant university (date: 05 March 2021, decision no:3).

AUTHOR CONTRIBUTION

Idea/concept: ZGYD, HAD, MY; Desing: ZGYD, HAD, MY; Consultancy: ZGYD, HAD, MY; Data Collection: ZGYD, HAD, MY; Data processing: ZGYD, HAD, MY; Literature review: ZGYD, HAD, MY. Writing of the article: ZGYD, HAD, MY. Critical review: MY

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

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