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Nurses' Pandemic-Driven Posttraumatic Growth Experiences and Their Satisfaction with Life During the COVID-19 Pandemic: A Cross-Sectional Study

Hemşirelerin COVID-19 Pandemisi Sürecinde Deneyimledikleri Pandemi Travması Sonrası Büyüme Durumları ve Yaşam Doyumları: Kesitsel Bir Analiz

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ABSTRACT Objective: Nurses all over the world have been reported to show high infection rates, extreme fatigue, psychological distress, and mass trauma during the pandemic. Coronavirus disease-2019 (COVID-19), which is an important life trauma, may also contribute to psychological growth. This study was conducted to determine nurses' pandemic-driven posttraumatic growth experiences during the COVID-19 pandemic and its effects on satisfaction with life. **Material and Methods:** The study sample consisted of 517 nurses. The data were collected online between April 13 and June 13, 2021, by using the descriptive information form, the Posttraumatic Growth Inventory, and the Satisfaction with Life Scale. **Results:** The mean scores of the Posttraumatic Growth Inventory and Satisfaction with Life Scale were 51.66±18.97 and 11.44±8.94, respectively. The Posttraumatic Growth Inventory score of those who had lost a relative from COVID-19 was higher than those who had not. Having a family member with a history of COVID-19, providing care for patients with COVID-19, and working in the COVID-19 unit were effective factors in the mean scores of the Satisfaction with Life Scale. A weak, positive, significant, and linear relationship was found between the Satisfaction with Life Scale and Posttraumatic Growth Inventory. **Conclusion:** This study revealed that the pandemic affected nurses' posttraumatic growth and satisfaction with life negatively and that there was a positive relationship between posttraumatic growth and satisfaction with life.

Keywords: COVID-19; nursing; posttraumatic growth; personal satisfaction

ÖZET Amaç: Pandeminin başından bu yana tüm dünyada hemşirelerde; yüksek enfeksiyon oranları, aşırı yorgunluk, psikolojik distres ve kitlesel travma oluştuğu bildirilmektedir. Önemli bir yaşam travması olan koronavirüs hastalığı-2019'un [coronavirus disease-2019 (COVID-19)] psikolojik gelişime katkı verebileceği de düşünülmektedir. Bu nedenle bu çalışmanın amacı, hemşirelerin COVID-19 pandemi sürecinde yaşadıkları travma sonrası büyüme durumlarının ve bunun yaşam doyumlarına etkisinin belirlenmesidir. **Gereç ve Yöntemler:** Araştırmanın örneklemini, 517 hemşire oluşturmuştur. Araştırma verileri çevrim içi olarak 13 Nisan-13 Haziran 2021 tarihleri arasında tanıtıcı bilgi formu, Travma Sonrası Büyüme Envanteri ve Yaşam Doyumu Ölçeği ile toplanmıştır. **Bulgular:** Katılımcıların Travma Sonrası Büyüme Envanteri puan ortalaması 51,66±18,97'dir. Yaşam Doyumu Ölçeği puan ortalaması 11,44±8,94'tür. COVID-19 nedeniyle bir yakınını kaybedenlerin Travma Sonrası Büyüme Envanteri puanı kaybetmeyenlere göre daha yüksekti. Ailesinde COVID-19 enfeksiyonu geçirme, COVID-19 enfeksiyonu olan bir hastaya bakım verme, COVID-19 ünitesinde çalışma, Yaşam Doyumu Ölçeği puan ortalamalarında etkili faktörlerdir. Yaşam Doyumu Ölçeği puanı ile Travma Sonrası Büyüme Envanteri arasında zayıf düzeyde, pozitif yönde, anlamlı ve doğrusal ilişki olduğu belirlendi. **Sonuç:** Bu çalışma, pandeminin hemşirelerin travma sonrası büyüme ve yaşam doyumlarını olumsuz etkilediğini, travma sonrası büyüme ile yaşam doyumu arasında pozitif yönlü bir ilişki olduğunu ortaya koymuştur.

Anahtar Kelimeler: COVID-19; hemşirelik; posttravmatik büyüme; kişisel memnuniyet

With the onset of the coronavirus disease-2019 (COVID-19) pandemic, healthcare professionals have taken on critical responsibilities in controlling the spread of the pandemic, its prevention, care, and treatment. They have provided the necessary health care for patients with COVID-19 by working long hours and under harsh and exhausting conditions at the forefront.[1] Nurses make up about 59% of the

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healthcare workforce. They play an important role in ensuring the quality of care and patient safety, preventing and controlling infections, and combating antimicrobial resistance.[2] Nurses may experience various problems while performing these roles.[3] The International Council of Nurses reported that nurses experienced high infection rates, extreme fatigue, psychological distress, and mass trauma.[4]

The United Nations has emphasized that nurses and healthcare workers are particularly vulnerable to the psychological effects of the COVID-19 pandemic.[3] It is thought that the pandemic exacerbates the stress and anxiety experienced by nurses. In a systematic review examining the effects of the pandemic on the mental health of healthcare professionals, Serrano-Ripoll et al. stated that healthcare professionals experienced high levels of acute stress disorder, anxiety, burnout, depression, and post-traumatic stress disorder both during and after pandemics.[5] Similarly, studies conducted in Türkiye indicated that nurses experienced depression, anxiety, stress, burnout, and secondary trauma during the pandemic.[6,7]

During the COVID-19 pandemic, nurses have experienced traumatic effects. This period of trauma causes decreased sense of security and the occurrence of intense thoughts about the traumatic event. However, nurses' question and seek the meaning of life, which indicates that in addition to the harmful effects of trauma, there can be constructive outcomes of recovery from a traumatic event.[8] Posttraumatic growth (PTG) is defined as positive psychological changes that may occur after the individual struggles with difficult or negative events.[9] According to Friedrich Nietzsche, "that which does not kill us makes us stronger". PTG provides a positive reappraisal of life and is associated with increased satisfaction with life. Therefore, it seems to be a promising approach for individuals traumatized by the pandemic. Adopting this alternative approach to investigating the consequences of the COVID-19 pandemic can be advantageous and potentially beneficial for everyone.[10] Because nurses work at the forefront during the pandemic process, they can experience some positive changes as a result of this trauma. Exploring these changes can help them reflect on and find meaning in their experiences, which can alleviate the negative effects of traumatic work-related experiences and increase satisfaction with life.[11]

Satisfaction with life can be defined as individuals' assessment of the quality of life according to the criteria they have determined and the degree of a positive development of the whole quality of life.[12] Satisfaction with life is also related to health and long life. Higher levels of satisfaction with life are associated with better overall physical health and fewer long-term health conditions.[13] The contribution of nurses to global health is indisputable. Therefore, investing in improving nurses' satisfaction with life and quality of life benefits society. Improved working conditions positively affect not only the well-being of nurses but also their performance and functioning of the entire healthcare system.[14]

It is important to examine the effect of the COVID-19 pandemic on PTG. The findings to be obtained can guide policymakers and practitioners to develop specific interventions in future traumatic events.[10] In addition, publications on the contribution of PTG to health indicate that it can act as a catalyst to increase the individual's satisfaction with life and happiness. Similarly, nurses' PTG during the COVID-19 pandemic is likely to be associated with satisfaction with life. Although the negative effects of the COVID-19 pandemic on the mental health of nurses have been widely investigated, no study that investigated the effects of PTG on satisfaction with life has been found. Increasing nurses' satisfaction with life will contribute positively to their own health and therefore to the health of the society they provide care for. For this reason, it is important to determine the effect of PTG experiences of nurses working in the forefront during the COVID-19 pandemic on their satisfaction with life.

AIM

This study was conducted to determine the pandemic-driven PTG experiences of nurses working in the forefront during the COVID-19 pandemic and the effects of these experiences on their satisfaction with life.

MATERIAL AND METHODS

This study used a cross-sectional design. The study population consisted of nurses working in Türkiye during the COVID-19 pandemic. The sample consisted of nurses who met the inclusion criteria (those who worked as a nurse for at least three months during the COVID-19 pandemic, had not been diagnosed with a psychiatric disease, and volunteered to participate in the study). The study data were collected on an online platform. Participants were invited to the study through announcements made on the professional information sharing/solidarity pages on social media. The snowball sampling method was used to reach enough participants, and new participants were contacted through already reached participants. It took 10-15 minutes to fill out the online questionnaire. The sample was calculated using the sample formula of unknown number of individuals in the population. Previous research undertaken reported the prevalence of PTG among nurses was approximately 30%.[15] Therefore, a total sample size of 323 neurses was needed for this study, using a 0.05 margin of error at a 95% confidence interval. A total of 517 nurses reached between April 13 and June 13, 2021, were included in the study.

DATA COLLECTION

The study data were collected using a descriptive information form, which was developed by the researchers to determine nurses' socio-demographic characteristics and their experiences during the COVID-19 pandemic, the Posttraumatic Growth Inventory (PTGI), and the Satisfaction with Life Scale.

The PTGI

The PTGI, which was developed by Tedeschi and Calhoun, measures propensity to experience difficult events to perceive the benefits. The scale has a five-point Likert-type rating system and consists of 21 items.[16] As a result of the Turkish adaptation study, the measurement tool showed a 3-factor structure: changes in self-perception, changes in the philosophy of life, and changes in relationships. The scores that can be obtained from the scale range between 0 and 105. The scores that can be obtained from the sub-dimensions are as follows: changes in self-perception (CSP): 0-50; changes in the philosophy of life (CPL): 0-30; and changes in relationships (CR): 0-25. High scores mean experiencing positive psychological changes as a result of negative life events. Cronbach's alpha values were found to be α=0.88 for changes in self-perception, α=0.77 for changes in relationships, and α=0.78 for changes in the philosophy of life.[17] In the current study, they were found as 0.89, .81, and 0.73, respectively.

The Satisfaction with Life Scale

The Satisfaction with Life Scale (TSWLS) was developed by Diener et al. to measure satisfaction with life. It is a one-dimensional measurement tool consisting of 5 items. The lowest score that can be obtained from the scale is 5, and the highest score is 25. An increase in the scale score indicates an increase in satisfaction with life.[18] Dağlı and Baysal found Cronbach's alpha value of the scale as 0.88.[12] In the current study, this value was found as 0.87.

DATA ANALYSIS

The study data were analyzed by using the Statistical Package for the Social Sciences (SPSS) 20.0 software package. In addition to descriptive statistics, independent samples t-test, one-way ANOVA test, and Pearson correlation analysis were employed in the analyses.

The Ethical Dimension of the Research

At the outset, the study was approved by Ankara University Health Sciences Sub Ethics Committee (date: April 1, 2021 no: 56). Informed consent was obtained from the participants. The study was conducted in accordance with the Declaration of Helsinki.

RESULTS

PARTICIPANT CHARACTERISTICS

The participants' characteristics are summarized in Table 1. Of the participants, 479 (92.6%) were female, 283 (54.7%) were married, and 358 (69.2%) had an undergraduate degree. The mean age of the participants was 33.16±8.19, 350 (67.7%) worked in the day and night shifts, and 278 (53.82%) worked in a university hospital. The mean work experience of the participants was 11.44±8.94 years, and 263 (50.9%) did not have children (Table 1).

TABLE 1: Results regarding the analysis of scales according to various variables (n=517).

Variables	n (%)	PTGI Mean±SD	CSP Mean±SD	CPL Mean±SD	CR Mean±SD	TSWLS Mean±SD
Sex						
Woman	479 (92.6)	52.12±18.89	27.53±10.30	12.76±4.57	9.58±5.49	13.49±4.11
Man	38 (7.4)	45.89±19.23	24.78±10.42	11.05±4.09	8.26±5.35	12.02±4.66
Analysis†		t=1.955 p=0.051	t=1.577 p=0.115	t=2.233 p=0.026*	t=1.427 p=0.154	t=2.102 p=0.036*
Marital status						
Married	283 (54.7)	50.92±18.46	26.70±9.81	12.53±4.61	9.45±5.35	13.79±4.28
Single	234 (45.3)	52.56±19.56	28.08±10.89	12.76±4.49	9.52±5.66	12.90±3.98
Analysis†		t=-0.980 p=0.328	t=-1.512 p=0.131	t=0.693 p=0.573	t=-0.135 p=0.893	t=2.435 p=0.015*
Education status						
HVHS (a)	33 (6.4)	55.36±18.26	31.45±10.08	12.09±4.73	10.09±4.67	12.15±3.28
Associate/undergraduate (b)	388 (75.0)	51.63±19.17	27.21±10.34	12.68±4.55	9.49±5.47	13.33±4.15
Graduate (c)	96 (18.6)	50.54±18.40	26.36±10.11	12.62±4.55	9.25±5.48	14.03±4.41
Analysis†		F=0.795 p=0.795	F=3.096 p=0.046* (a-c)	F=0.258 p=0.772	F=0.288 p=0.750	F=2.636 p=0.073
Type of working						
Always day (a)	143 (27.7)	50.56±17.46	26.13±9.76	12.63±4.45	9.4±5.34	13.76±4.43
Always night (b)	24 (4.6)	61.12±15.80	34.08±8.12	13.79±4.61	10.95±5.36	14.83±2.64
Shift work (c)	350 (67.7)	51.47±19.61	27.35±10.53	12.55±4.55	9.40±5.55	13.14±4.12
Analysis†		F=3.271 p=0.039* (a-c; b-c)	F=6.198 p=0.002* (a-b; b-c)	F=0.823 p=0.440 (a-b)	F=0.908 p=0.404	F=2.651 p=0.072
Place of work						
FHC/CHC (a)	35 (6.8)	54.65±21.01	27.68±11.93	13.65±4.18	10.62±6.32	15.06±4.06
Public hospital (b)	168 (32.5)	51.05±18.19	27.40±9.98	12.57±4.66	8.92±5.21	13.42±4.43
University hospital (c)	278 (53.8)	51.82±19.38	27.18±10.53	12.63±4.66	9.76±5.56	13.33±4.03
Private health institution (d)	36 (7.0)	50.36±17.59	27.77±8.95	11.91±5.09	8.83±5.20	12.02±3.55
Analysis†		F=0.15 p=0.415	F=0.058 p=0.982	F=0.893 p=0.445	F=1.511 p=0.211	F=3.205 p=0.023* (a-d)
Children						
Yes	254 (49.1)	52.28±18.29	27.30±9.89	12.86±4.46	9.80±5.35	13.76±4.42
No	263 (50.9)	51.07±19.61	27.35±10.75	12.41±4.64	9.17±5.60	13.03±3.88
Analysis†		t=0.723 p=0.470	t=-0.051 p=0.959	t=1.107 p=0.269	t=1.310 p=0.191	t=2.004 p=0.046*

†Independent t-test; One-way ANOVA test; *p<0.05. PTGI: Posttraumatic Growth Inventory; CSP: Changes in self-perception; CPL: Changes in the philosophy of life; CR: Changes in a relationship; TSWLS: The Satisfaction with Life Scale; SD: Standard deviation; HVHS: Health vocational high school; FHC/CHC: Family health center/community health center.

Of the participants, 181 (35%) themselves and the family member of 249 (48.2%) had a history of COVID-19. Also, 108 (20.9%) of the participants stated that they had lost a relative from COVID-19, 366 (70.8%) had cared for a patient with COVID-19, 294 (56.9%) had worked in the COVID-19 unit, 142 (27.5%) had worked in the COVID-19 intensive care unit, and 236 (45.6%) had provided care for a patient who died from COVID-19. The mean duration of working in the COVID-19 unit was 5.99±4.23 months. Moreover, 280 (54.2%) of the participants stated that they experienced small economic losses due to the COVID-19 pandemic, while 408 (78.9%) experienced considerable social losses (Table 2).

THE PTGI AND THE SATISFACTION WITH LIFE SCALE

The mean PTGI score was 51.66±18.97, and the mean scores from the sub-dimensions were as follows: CSP, 27.33±10.33; CPL, 12.63±4.55; and CR, 9.48±5.48. The mean TSWLS was 11.44±8.94.

Participants who always worked at night had a higher PTGI score than those who always worked during the day and worked in shifts (Table 2; p=0.039). The PTGI score of those who had lost a relative due to COVID-19 (55.14±18.62) was higher than those who had not (50.75±18.97) (Table 2; p=0.032). The PTGI score did not show a statistically significant difference in terms of gender, level of education, marital status, place of work, having a child, having a history of COVID-19 infection, having a family member with a history of COVID-19 infection, caring for a patient with COVID-19 infection, working in a COVID-19 unit, working in a COVID-19 intensive care unit, having cared for a patient who died from COVID-19 infection, and experiencing economic and social losses due to the COVID-19 pandemic (Table 2; p>0.05).

The mean CSP score of the nurses who graduated from a Health Vocational High School (31.45±10.08) was higher than those who received postgraduate education (26.36±10.11) (p>0.05). The mean CSP score of nurses who always worked at night (34.08±8.12) was higher than the mean score of those who always worked during the day (26.13±9.76) and those who worked in shifts (27.35±10.53) (p=0.02). The mean CSP score of those who had lost a relative due to COVID-19 (29.30±10.21) was higher than those who had not (26.80±10.31) (p=0.025). Females (12.76±4.57) compared to males (11.05±4.09) and those who did not work in the COVID-19 unit (13.18±4.44) compared to those who worked in the unit (12.21±4.60) had higher mean scores from the CPL sub-dimension (p<0.05). Nurses (9.08±5.39) who had provided care for a patient with COVID-19 infection compared to those who had not (10.45±5.61), those who had worked in the COVID-19 service (9.43±5.40) compared to those who had not (9.50±5.52), and those who had provided care for a patient who died from COVID-19 (8.92±5.61) compared to those who had not (9.95±5.34) had lower mean scores from the CR subscale (p<0.05).

The mean scores obtained from the TSWLS were higher in females (13.49±4.11) compared to males (12.02±4.66) (p=0.036); in married participants (13.79±4.28) compared to the single (12.90±3.98) (p=0.015); in those working in the family health center/community health center (15.06±4.06) compared to those working in a private health institution (12.02±3.55) (p=0.023); and in participants with children (13.76±4.42) compared to those with no children (13.03±3.88) (p=0.046). On the other hand, the mean scores obtained from the TSWLS were lower in those with a family member who had a history of COVID-19 infection (13.00±4.23) compared to those who did not (13.75±4.09); in those who had provided care for a patient with COVID-19 infection (13.06±4.05) compared to those who had not (14.18±4.35); and in those who had worked in a COVID-19 unit (12.74±4.09) compared to those who had not (14.23±4.13) (Table 2; p<0.05). Also, the mean TSWLS scores were lower in those who experienced substantial economic losses due to the COVID-19 pandemic (11.22±4.11) compared to those who experienced small losses (13.44±3.98) or no loss at all (14.70±4.01); and in those who experienced considerable social losses due to the COVID-19 pandemic (12.95±4.08) compared to those who experienced a little social loss (15.43±3.82) (p<0.05).

TABLE 2: Results regarding the analysis of scales according to COVID-19 infection variables (n=517).

Variables	n (%)	PTGI Mean±SD	CSP Mean±SD	CPL Mean±SD	CR Mean±SD	TSWLS Mean±SD
Having had COVID-19 infection						
Yes	181 (35.0)	53.69±18.65	28.53±10.14	12.90±4.72	10.06±5.58	13.19±3.86
No	336 (65.0)	50.57±19.07	26.68±10.39	12.49±4.46	9.17±5.41	13.49±4.32
Analysis†		t=1.787 p=0.075	t=1.943 p=0.053	t=0.971 p=0.324	t=1.769 p=0.077	t=-0.767 p=0.443
Having a family member with a history of COVID-19 infection						
Yes	249 (48.2)	51.67±19.14	27.67±10.26	12.35±4.57	9.52±5.65	13.00±4.23
No	268 (51.8)	51.66±18.84	27.01±10.40	12.89±4.54	9.44±5.34	13.75±4.09
Analysis†		t=0.006 p=0.995	t=0.721 p=0.471	t=-1.342 p=0.180	t=0.162 p=0.871	t=0.382 p=0.042*
Losing a family member due to COVID-19						
Yes	108 (20.9)	55.14±18.62	29.30±10.21	13.10±4.18	10.26±5.32	12.97±4.33
No	409 (79.1)	50.75±18.97	26.80±10.31	12.51±4.65	9.27±5.52	13.50±4.12
Analysi†		t=2.150 p=0.032*	t=2.242 p=0.025*	t=1.193 p=0.233	t=1.669 p=0.096	t=-1.173 p=0.241
Providing care for a patient with COVID-19 infection						
Yes	366 (70.8)	50.89±19.15	27.25±10.43	12.39±4.75	9.08±5.39	13.06±4.05
No	151 (29.2)	53.55±18.44	27.50±10.11	13.21±4.00	10.45±5.61	14.18±4.35
Analysis†		t=-1.454 p=0.146	t=-0.253 p=0.800	t=-1.869 p=0.062	t=-2.539 p=0.010*	t=-2.801 p=0.005*
Working in the COVID-19 unit						
Yes	294 (56.9)	50.53±18.23	27.18±9.96	12.21±4.60	9.05±5.12	12.74±4.09
No	223 (43.1)	53.16±19.83	27.52±10.81	13.18±4.44	10.05±5.89	14.23±4.13
Analysis†		t=-1.565 p=0.118	t=-0.363 p=0.717	t=-2.409 p=0.016*	t=-2.073 p=0.0039*	t=-4.081 p=0.000*
Working in the COVID-19 intensive care unit						
Yes	142 (27.5)	51.50±18.34	27.88±10.16	12.21±4.26	9.43±5.40	12.97±4.04
No	375 (72.5)	51.73±19.22	27.12±10.40	12.79±4.66	9.50±5.52	13.54±4.21
Analysis†		t=-0.120 p=0.905	t=0.744 p=0.457	t=-1.305 p=0.192	t=-0.124 p=0.901	t=-1.406 p=0.160
Having cared for a patient who died from COVID-19						
Yes	236 (45.6)	50.42±19.72	27.28±10.70	12.11±4.72	8.92±5.61	13.12±4.10
No	281 (54.4)	52.71±18.28	27.36±10.02	13.07±4.37	9.95±5.34	13.61±4.22
Analysis†		t=-1.318 p=0.188	t=-0.363 p=0.717	t=-0.086 p=0.932	t=-2.397 p=0.017*	t=-2.140 p=0.033*
Experiencing economic loss due to the COVID-19 pandemic						
Substantial (a)	94 (18.2)	51.08±20.35	27.17±10.13	12.75±4.49	9.51±5.28	11.22±4.11
Small (b)	280 (54.2)	51.95±17.77	27.73±10.87	12.31±4.72	9.41±6.02	13.44±3.98
None (c)	143 (27.7)	51.50±20.37	27.33±10.33	12.63±4.55	9.48±5.48	14.70±4.01
Analysis†		F=0.080 p=0.923	F=0.301 p=0.583	F=0.984 p=0.322	F=0.028 p=0.866	F=21.390 p=0.000** (a-b; a-c)
Experiencing social loss due to the COVID-19 pandemic						
Considerable (a)	408 (78.9)	51.12±18.75	27.12±10.34	12.56±4.57	9.23±5.35	12.95±4.08
A little (b)	85 (16.4)	53.94±19.36	28.22±10.25	12.76±4.39	10.76±5.55	15.43±3.82
None (c)	24 (4.6)	52.79±21.29	27.58±10.64	13.33±5.02	9.20±6.96	13.58±4.73
Analysis†		F=0.816 p=0.443	F=0.401 p=0.670	F=0.358 p=0.699	F=2.781 p=0.063	F=13.060 p=0.000** (a-b)

†Independent t-test; One-way ANOVA test; *p<0.05; **p<0.001; PTGI: Posttraumatic Growth Inventory; CSP: Changes in self-perception; CPL: Changes in the philosophy of life; CR: Changes in a relationship; TSWLS: The Satisfaction with Life Scale; SD: Standard deviation.

TABLE 3: Relationships between participants' scores from the PTGI and the TSWLS and the duration of working in the COVID-19 unit (months) and total work experience (year).

	Mean	SD	PTGI	CSP	CPL	CR	TSWLS	Age	Duration 1	Duration 2
PTGI	51.66	18.97	1	0.947**	0.814**	0.853**	0.371**	-0.038	-0.019	-0.049
CSP	27.33	10.33		1	0.667**	0.722**	0.358**	-0.095*	-0.001	-0.105
CPL	12.63	4.55			1	0.585**	0.264**	0.027	-0.028	0.021
CP	9.48	5.48				1	0.329**	-0.004	-0.028	-0.015
TSWLS	1.44	8.94					1	0.046	-0.012	-0.044
Age	33.16	8.19						1	0.061	0.960**
Duration 1†	5.99	4.23							1	0.051
Duration 2‡	11.44	8.94								1

†Duration of working in the COVID-19 unit (month); ‡Total work experience (year); *p<0.05; **p <0.001 (Pearson correlation analyses); PTGI: Posttraumatic Growth Inventory; TSWLS: The Satisfaction with Life Scale; SD: Standard deviation; CSP: Changes in self-perception; CPL: Changes in the philosophy of life; CR: Changes in relationships.

There was no statistical difference between the scores of the participants from the TSWLS and their education level, type of working, having a history of COVID-19 infection, working in the COVID-19 intensive care unit, and having cared for a patient who died from COVID-19 infection (Table 2; p>0.05).

It was determined that there was a weak, positive, significant, and linear relationship between the TSWLS score and PTGI, CSP, CPL, and CR scores (Table 3; p<0.0001).

DISCUSSION

In this study, we aimed to determine nurses' pandemic-driven PTG experiences during the COVID-19 pandemic and the effect of these experiences on their satisfaction with life.

Healthcare professionals are directly at risk while treating and caring for patients with COVID-19.[19] In this study, 35% of the participants themselves and a family member of 48.2% had a history of COVID-19. Also, 20.9% of the participants stated that they had lost a relative due to the COVID-19. Nurses have the closest contact with patients and spend more time with patients/suspects among healthcare professionals. Therefore, they are at risk of infecting both themselves and their relatives.[20] This situation increases the traumatic effects of COVID-19 on nurses compared to other healthcare professionals.

PTG emerges along with the efforts of individuals to adapt to negative conditions in which they may experience psychological problems.[21] In our study, the mean score of the participants from the PTGI was 51.66±18.97. In a study conducted in China, the PTGI score of nurses during the COVID-19 pandemic was found as 70.53±17.26. Since Cui et al. had carried out this study at the beginning of the pandemic (data were collected in February 2020), nurses may not have experienced the devastating effects of COVID-19, yet.[11] In some studies, conducted in the pre-pandemic period, it was reported that the mean PTGI score of nurses working in different units ranged from 64.65±17.78 to 78.1±23.5.[22-24] It is thought that the mean PTGI score in our study was lower than those of the previous studies, which is thought to be due to the devastating effects of the long-term effects of COVID-19 on nurses. Kira et al. claimed that traumas that occurred once and then resolved were positively associated with PTGI, while an ongoing trauma was negatively associated with PTGI, which supported our study results.[25] The probability of growth may be hindered by the intensity and effects of traumatic events. In this study, it was thought that the low PTGI scores might be due to the intense trauma experienced by the nurses, caused by the severe working conditions of the long course of the pandemic.

In this study, no statistical difference was found between the scores from the PGTI and gender, educational status, marital status, place of work, and having children. Zhang et al. determined that characteristics, such as age, gender, marital status, place of work, and having children, did not affect PGTI scores in nurses working during the pandemic period.[26] These results show that nurses' PTG is similar during the pandemic period, regardless of their sociodemographic characteristics, and that the pandemic affects everyone's life negatively.

The PTG journey is both a process and an outcome in general.[9] In this current study, it was found that having a history of COVID-19, having a family member who had a history of COVID-19, caring for a patient with COVID-19, working in the COVID-19 unit, working in the COVID-19 intensive care unit, having cared for a patient who died from COVID-19, and experiencing economic and social losses due to the COVID-19 pandemic did not lead to a significant difference in PTGI scores. The study of Chen et al. similarly showed that working in the COVID-19 unit and having cared for a patient who died from COVID-19 did not affect PTGI scores.[27] As in the whole world, the pandemic process still continues in our country, that is, the trauma has not yet ended. For this reason, it can be said that the PTG process for nurses may not be over, yet. According to this study, the PTGI score of those who had lost a relative due to COVID-19 was higher than those who had not. In their study examining the factors affecting PTG in nurses, Okoli et al. reported that losing a family member (76.7) was associated with a higher PTGI score than work-related trauma (67.7).[24] These findings support the results of our study indicating that the working conditions did not affect the PTGI score, but that the loss of a family member had a positive effect on the scores.

In this study, the mean score from TSWLS was 11.44±8.94. No study examining nurses' satisfaction with life during the pandemic was found. This score was lower than the scores of nurses working in pediatric intensive care units (24.25±4.93), and nurses working in training hospitals (16.36±6.40) in studies conducted before the pandemic.[15,28] Studies conducted with different occupational groups have revealed that the COVID-19 pandemic negatively affects satisfaction with life.[29,30] In the current study, the mean score of the nurses from the TSWLS was found to be lower than the scores obtained in studies conducted with nurses before the COVID-19 pandemic and community-based studies during the pandemic period. It is thought that the reason for the low TWSLS scores in the study may be due to the nurses being more affected by the pandemic and the ongoing process of the COVID-19 pandemic.

In this study, the scores obtained from the TSWLS were higher in females compared to males, in those who were married compared to those who were single, and in those with children compared to those with no children. It is thought that those who are married and have children experience less loneliness, so their satisfaction with life is higher.

The factors affecting satisfaction with life are abundant and varied. These range from demographic characteristics to subjective factors such as personality, expectations, and values, and from familial and environmental factors to national factors. For this reason, not only individuals' own experiences but also the changes in their environment affect satisfaction with life.[31] In the study, it was determined that having a family member with a history of COVID-19 infection, caring for a patient with COVID-19 infection, and working in the COVID-19 unit decreased the mean TSWLS score. For this reason, it is important to evaluate and consider the family and environment of the individual as well as individual factors in increasing satisfaction with life during the pandemic process.

In this study, it was determined that there was a weak, positive, significant, and linear relationship between scores from the TSWLS and PGI, CSP, CPL, and CR ($p<0.0001$). No study on the relationship between PTG and satisfaction with life in nurses during the COVID-19 pandemic was found. Some studies indicated that nurses' satisfaction with life had a positive relationship with PTG in the pre-pandemic period.[27,32] These findings support our study results.

In the period when the data collection process of the study was in progress, the number of cases increased rapidly in Türkiye, and new measures were put into effect.[33] The collection of study data during this period constituted the strength of the study. In addition, this study is important in terms of showing the long-term results of COVID-19 since it was conducted one year after the outbreak of the pandemic.

The data of this study were collected online due to pandemic conditions. Results were based on self-report. This situation was considered a limitation of the study. Although the gender distribution of nurses in Türkiye is not known clearly, the ratio of males is low. The low number of males participating in our study can be considered as a reflection of this situation. This limits the generalizability of the study results. Since the results of the pandemic process are still uncertain, the results of the current study are limited in determining PTG and satisfaction with life emerging as a result of the pandemic.

CONCLUSION

PTG "leaps forward" under the influence of traumatic factors. It is accepted that some personal assets and resources, such as communication, social support, and coping strategies, are positively associated with PTG.[34] Recognition and further strengthening of these aspects should be a priority for nurses, who are the health professionals who have the closest and longest contact with the patient and whose working conditions have worsened during the pandemic. This is because the strengthening of the mental health of nurses contributes not only to their own health but also to the health of the individuals they care for. This study revealed that the pandemic negatively affected nurses' PTG and satisfaction with life. It is important to increase nurses' satisfaction with life so that the deterioration of their health, professional burnout, and intention to quit during the pandemic period can be prevented. In order to ensure that the negative effects of the pandemic turn positive, it is recommended to establish programs that will increase PTG and satisfaction with life and focus on coping strategies and improving the physical and psychological well-being of nurses.

This study was carried out in a period when the pandemic was still ongoing and the process was uncertain. It is recommended to investigate the level of nurses' PTG and satisfaction with life and the factors affecting these levels after the pandemic, as well.

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Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: *Menekşe Nazlı Aker, İlknur M. Gönenç, Nazan Çalbayram, Simay Akyüz;* ***Design:*** *Menekşe Nazlı Aker, İlknur M. Gönenç;* ***Control/Supervision:*** *Menekşe Nazlı Aker;* ***Data Collection and/or Processing:*** *Menekşe Nazlı Aker, İlknur M. Gönenç, Nazan Çalbayram, Simay Akyüz;* ***Analysis and/or Interpretation:*** *İlknur M. Gönenç, Menekşe Nazlı Aker;* ***Literature Review:*** *Menekşe Nazlı Aker, Nazan Çalbayram;* ***Writing the Article:*** *Menekşe Nazlı Aker, İlknur M. Gönenç, Nazan Çalbayram, Simay Akyüz;* ***Critical Review:*** *İlknur M. Gönenç, Menekşe Nazlı Aker;* ***References and Fundings:*** *Menekşe Nazlı Aker, İlknur M. Gönenç, Nazan Çalbayram, Simay Akyüz.*

REFERENCES

1. Dincer B, Inangil D. The effect of Emotional Freedom Techniques on nurses' stress, anxiety, and burnout levels during the COVID-19 pandemic: a randomized controlled trial. Explore (NY). 2021;17(2):109-14. [Crossref] [PubMed] [PMC]
2. World Health Organization [Internet]. © 2021 WHO [Cited: August 28, 2021]. State of the World's nursing 2020: investing in education, jobs and leadership. Available from: [Link]
3. United Nations. Policy brief: COVID-19 and the need for action on mental health. United Nations Cited: August 28, 2021. Available from: [Link]
4. International Council of Nurses- [İnternet] International Council of Nurses calls on public to support nurses. International Council of Nurses [Erişim tarihi: 28 Ağustos 2021 [Link]
5. Serrano-Ripoll MJ, Meneses-Echavez JF, Ricci-Cabello I, Fraile-Navarro D, Fiol-deRoque MA, Pastor-Moreno G, et al. Impact of viral epidemic outbreaks on mental health of healthcare workers: a rapid systematic review and meta-analysis. J Affect Disord. 2020;277:347-57. [Crossref] [PubMed] [PMC]
6. Murat M, Köse S, Savaşer S. Determination of stress, depression and burnout levels of front-line nurses during the COVID-19 pandemic. Int J Ment Health Nurs. 2021;30(2):533-43. [Crossref] [PubMed] [PMC]
7. Yörük S, Güler D. The relationship between psychological resilience, burnout, stress, and sociodemographic factors with depression in nurses and midwives during the COVID-19 pandemic: a cross-sectional study in Turkey. Perspect Psychiatr Care. 2021;57(1):390-8. [Crossref] [PubMed]
8. Nowicki GJ, Ślusarska B, Tucholska K, Naylor K, Chrzan-Rodak A, Niedorys B. The severity of traumatic stress associated with COVID-19 pandemic, perception of support, sense of security, and sense of meaning in life among nurses: research protocol and preliminary results from poland. Int J Environ Res Public Health. 2020;17(18):6491. [Crossref] [PubMed] [PMC]
9. Tedeschi RG, Shakespeare-Finch J, Taku K, Calhoun LG. Posttraumatic Growth: Theory, Research, and Applications. 1st ed. New York, NY: Routledge; 2018. [Crossref]
10. Tamiolaki A, Kalaitzaki AE. "That which does not kill us, makes us stronger": COVID-19 and posttraumatic growth. Psychiatry Res. 2020;289:113044. [Crossref] [PubMed] [PMC]
11. Cui PP, Wang PP, Wang K, Ping Z, Wang P, Chen C. Post-traumatic growth and influencing factors among frontline nurses fighting against COVID-19. Occup Environ Med. 2021;78(2):129-35. [Crossref] [PubMed] [PMC]
12. Dağlı A, Baysal N. Yaşam Doyumu Ölçeğinin Türkçe'ye uyarlanması: geçerlik ve güvenirlik çalışması [Adaptation of the Satisfaction with Life Scale into Turkish: the study of validity and reliability]. Electronic Journal of Social Sciences. 2016;15(59):1250-62. [Crossref]
13. Siahpush M, Spittal M, Singh GK. Happiness and life satisfaction prospectively predict self-rated health, physical health, and the presence of limiting, long-term health conditions. Am J Health Promot. 2008;23(1):18-26. [Crossref] [PubMed]
14. Giménez-Espert MDC, Prado-Gascó V, Soto-Rubio A. Psychosocial risks, work engagement, and job satisfaction of nurses during COVID-19 pandemic. Front Public Health. 2020;8:566896. [Crossref] [PubMed] [PMC]
15. Rodríguez-Rey R, Palacios A, Alonso-Tapia J, Pérez E, Álvarez E, Coca A, et al. Are pediatric critical personnel satisfied with their lives? Prediction of satisfaction with life from burnout, posttraumatic stress, and posttraumatic growth, and comparison with noncritical pediatric staff. Pediatr Crit Care Med. 2019;20(3):e160-e9. [Crossref] [PubMed]
16. Tedeschi RG, Calhoun LG. The Posttraumatic Growth Inventory: measuring the positive legacy of trauma. J Trauma Stress. 1996;9(3):455-71. [Crossref] [PubMed]
17. Kağan M, Gülec M, Boysan M, Çavuş H. Hierarchical factor structure of the Turkish version of the Posttraumatic Growth Inventory in a normal population. TAF Prev Med Bull. 2012;11(5):617-24. [Crossref]
18. Diener E, Emmons RA, Larsen RJ, Griffin S. The Satisfaction with Life Scale. Journal of Personality Assessment. 1985;49(1):71-5. [Crossref] [PubMed]
19. Kang L, Li Y, Hu S, Chen M, Yang C, Yang BX, et al. The mental health of medical workers in Wuhan, China dealing with the 2019 novel coronavirus. Lancet Psychiatry. 2020;7(3):e14. [Crossref] [PubMed] [PMC]
20. Smith GD, Ng F, Ho Cheung Li W. COVID-19: emerging compassion, courage and resilience in the face of misinformation and adversity. J Clin Nurs. 2020;29(9-10):1425-8. [Crossref] [PubMed] [PMC]
21. Tedeschi RG, Calhoun LG. Posttraumatic growth: conceptual foundations and empirical evidence. Psychological Inquiry. 2004;15(1):1-18. [Crossref]
22. Yılmaz G, Üstün B, Günüşen NP. Effect of a nurse-led intervention programme on professional quality of life and post-traumatic growth in oncology nurses. Int J Nurs Pract. 2018;24(6):e12687. [Crossref] [PubMed]
23. Zerach G, Shalev TB. The relations between violence exposure, posttraumatic stress symptoms, secondary traumatization, vicarious post traumatic growth and illness attribution among psychiatric nurses. Arch Psychiatr Nurs. 2015;29(3):135-42. [Crossref] [PubMed]
24. Okoli CTC, Seng S, Lykins A, Higgins JT. Correlates of post-traumatic growth among nursing professionals: a cross-sectional analysis. J Nurs Manag. 2021;29(2):307-16. [Crossref] [PubMed]
25. Kira IA, Aboumediene S, Ashby JS, Odenat L, Mohanesh J, Alamia H. The dynamics of posttraumatic growth across different trauma types in a Palestinian sample. Journal of Loss and Trauma. 2013;18(2):120-39. [Crossref]
26. Zhang XT, Shi SS, Qin Ren Y, Wang L. The traumatic experience of clinical nurses during the COVID-19 pandemic: which factors are related to post-traumatic growth? Risk Manag Healthc Policy. 2021;14:2145-51. [Crossref] [PubMed] [PMC]
27. Chen R, Sun C, Chen JJ, Jen HJ, Kang XL, Kao CC, et al. A large-scale survey on trauma, burnout, and posttraumatic growth among nurses during the COVID-19 pandemic. Int J Ment Health Nurs. 2021;30(1):102-16. [Crossref] [PubMed] [PMC]
28. Yazdanshenas Ghazwin M, Kavian M, Ahmadloo M, Jarchi A, Golchin Javadi S, Latifi S, et al. The Association between Life Satisfaction and the Extent of Depression, Anxiety and Stress among Iranian Nurses: A Multicenter Survey. Iran J Psychiatry. 2016;11(2):120-7. [PubMed] [PMC]
29. Trzebiński J, Cabański M, Czarnecka JZ. Reaction to the COVID-19 pandemic: the influence of meaning in life, life satisfaction, and assumptions on world orderliness and positivity. Journal of Loss and Trauma. 2020;25(6-7):544-57. [Crossref]
30. Karataş Z, Uzun K, Tagay Ö. Relationships between the life satisfaction, meaning in life, hope and COVID-19 fear for Turkish adults during the COVID-19 outbreak. Front Psychol. 2021;12:633384. [Crossref] [PubMed] [PMC]
31. Rajani NB, Skianis V, Filippidis FT. Association of environmental and sociodemographic factors with life satisfaction in 27 European countries. BMC Public Health. 2019;19(1):534. [Crossref] [PubMed] [PMC]
32. Itzhaki M, Peles-Bortz A, Kostistky H, Barnoy D, Filshtinsky V, Bluvstein I. Exposure of mental health nurses to violence associated with job stress, life satisfaction, staff resilience, and post-traumatic growth. Int J Ment Health Nurs. 2015;24(5):403-12. [Crossref] [PubMed]
33. Türkiye Cumhuriyeti İçişleri Bakanlığı [İnternet]. © Türkiye Cumhuriyeti İçişleri Bakanlığı [Erişim tarihi: 28 Ağustos 2021]. 81 il valiliğine kısmi kapanma genelgesi gönderildi. Erişim linki: [Link]
34. Palacio G C, Krikorian A, Gómez-Romero MJ, Limonero JT. Resilience in caregivers: a systematic review. Am J Hosp Palliat Care. 2020;37(8):648-58. [Crossref] [PubMed]