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ARAŞTIRMA MAKALESİ

Self-Efficacy in Nurses Caring for Covid-19 Patients

Ayşe ELKOCA[1], Çağla YİĞİTBAŞ[2], Handan ÖZCAN[3]

[1] Gaziantep University, Faculty of Health Sciences, Departman of Midwifery, Gaziantep, Türkiye
[2] Giresun University, Faculty of Health Science, Faculty of Health Sciences, Department of Midwifery, Giresun, Türkiye
[3] University of Health Sciences, Faculty of Health Sciences, Department of Midwifery, Istanbul, Türkiye
Ayşe Elkoca https://orcid.org/0000-0002-3936-4122
Çağla Yiğitbaş https://orcid.org/0000-0002-3789-1156
Handan Özcan https://orcid.org/0000-0002-7131-1856

Abstract
Objective: The aim of this study was to determine the self-efficacy status of the nurses who care for COVID-19 patients and the factors affecting this process.
Methods: The study is based on descriptive and relational design. Ethics committee approval was obtained before the study, the formula n = t2 x p x q / d2 was used in the sample calculation, and data were collected in a digital environment.
Results: Self-efficacy levels are observed to be high in nurses involved in the COVID-19 process. It has been found that age, gender, educational background, affiliated institutions of participants does not affect self-efficacy. The self-efficacy level is high among nurses who are satisfied with the unit they work in. Besides, those with high levels of anxiety also have high self-efficacy total and subscale scores. It can be said that those with high anxiety are constantly on the alert and are more diligent in patient care and professional practice.
Conclusion: It has been observed that workplace satisfaction is important to increase the self-efficacy of nurses, and relevant improvements should be achieved to provide them comfort and increase their satisfaction.

Keywords: COVID-19, nurse, self-efficacy, anxiety

Covid-19 Hastalarına Bakım Veren Hemşirelerde Öz Yeterlilik

Öz
Amaç: Bu çalışmanın amacı, COVID-19 hastalarına bakım veren hemşirelerin öz-yeterlik durumlarını ve bu süreci etkileyen faktörleri belirlemektir.
Yöntem: Çalışma tanımlayıcı ve ilişkisel desendedir. Çalışma öncesi etik kurul onayı alınmış, örneklem hesabında n=t2 x p x q/d2 formülü kullanılmış ve veriler dijital ortamda toplanmıştır.
Bulgular: COVID-19 sürecine dahil olan hemşirelerde öz yeterlilik düzeylerinin yüksek olduğu görülmektedir. Katılımcıların yaşı, cinsiyeti, eğitim durumu, bağlı olduğu kurum öz yeterliği etkilemediği bulunmuştur. Çalıştığı birimden memnun olan hemşirelerin öz-yeterlik düzeyi yüksektir. Ayrıca kaygı düzeyi yüksek olanların öz-yeterlik toplam ve alt ölçek puanları da yüksektir. Kaygısı yüksek olanların sürekli tetikte oldukları, hasta bakımı ve mesleki uygulamalarda daha gayretli oldukları söylenebilir.
Sonuç: Hemşirelerin öz-yeterliklerini artırmak için iş yeri memnuniyetinin önemli olduğu, onlara rahatlık sağlamak ve memnuniyetlerini artırmak için ilgili iyileştirmelerin yapılması gerektiği görülmüştür.

Anahtar Kelimeler: COVID-19, hemşire, öz-yeterlik, kaygı

Yazışma Adresi/Address for Correspondence:
Ayşe ELKOCA
Gümüşhane University, No: 38, 29000 Gümüşhane, Türkiye
Telefon/Phone: +90 506 161 6326 ***E-mail:*** ayse.elkoca@hotmail.com
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INTRODUCTION

COVID-19 belongs to the same virus family causing "Severe acute respiratory syndrome and Middle East Respiratory Syndrome" (1). This new coronavirus infection (SARS-CoV-2) can be asymptomatic or progress with mild or severe symptoms (2). On January 31, 2020, the World Health Organization reported that the COVID-19 epidemic is a public health problem that requires international concern and emergency (3). Although estimates are made concerning the host interaction of the virus, the progress of the outbreak, and possible timing of its peak, many uncertainties remain (4). The epidemic has adverse economic, social, and psychological effects all over the world (5, 6). In this global crisis, the health sector assumes the utmost centrality. Whereas all industries face massive problems such as employee health and safety, or disruption of supply chains, the health sector is constantly active in preventing the spread of the disease and provide health services to those affected (7). While managing this process, the sector has to encounter various problems and challenges. Occupational Safety and Health Administration has reported that the highest risk group for COVID-19 infection in healthcare workers (8). The self-efficacy of health personnel is also an important factor in the successful management of the pandemic process (9). Nurses with high self-efficacy level can provide better care to patients, easily cope with problems, and can attain effective results by developing new strategies in the face of setbacks. They also strive for professional development, are open-minded, and farsighted. They know the importance of teamwork and share the knowledge, skills, and equipment they have acquired with their teammates and lead the way in quality patient care. Nurses with low self-efficacy immediately give up in the face hardships, become desperate and fail to meet professional requirements, resulting in poor patient care quality (10-12). It is of utmost importance that crisis periods such as pandemic are successfully managed by healthcare professionals. The aim of this study was to determine the self-efficacy status of the nurses providing care to COVID-19 patients and the factors affecting this process.

Research Questions:

1- What are the self-efficacy levels of nurses during the COVID-19 process?

2- What are the factors affecting the self-efficacy levels of nurses who care for COVID-19 patients?

METHODS

The data of the study were collected by researchers from 1 July 2020 to 1 August

2020. COVID service, COVID intensive care unit and COVID emergency services in hospitals in Turkey (n= 307). Prior to the data collection, permissions to use the scales were obtained from their respective authors, given ethical approval to carry out the study, and received authorization to carry out the study. As well as being faster and more comfortable because of the ongoing curfew and hospitals posing a risk to individuals, data was collected in internet-based digital media (Google Surveys). Before the data collection process, informed the participants about the study and obtained written consents from those who agreed to participate.

Since the validity and reliability study of the scale used as measurement method in the research was recently conducted and this study is a first in the literature, the earlier work of the Isci and Altuntas was taken as reference in the sample calculation (13). The formula n = t2 x p x q / d2 was used in the sample calculation. In this context, the frequency of occurrence examined was accepted as (p = 15) and the frequency of non-occurrence as (q = 85); sampling error for the frequency of occurrence was accepted as (d = 0.04) and calculated as n = 306, and 307 people were reached in total.

Measurement

As data collection tools, Personal Information Form and Nursing Profession Self-Efficacy Scale (NPSES) were used. The independent variables of the research consisted of the questions in the personal information form, whereas the scale used and its subscales supplied the dependent variable.

Personal information form: This form is intended to determine certain characteristics of the participants (age, gender, educational status, condition of chronic disease, unit where she/he works, satisfaction with the workplace, presence of COVID-19 diagnosis in oneself or colleagues, anxiety level, service time in the profession, weekly working hours, the type of hospital where she/he works, etc.)

Nursing profession self-efficacy scale (npses): This scale was developed by Caruso et al. to evaluate the professional self-efficacy of nurses (14). The original scale consists of two subscales, 19 items, and is 5-point Likert type. The Turkish form of this scale, whose Turkish validity and reliability analysis was made by Kacaroglu Vicdan and Tastekin in 2019, consists of 16 items. All questions are affirmative type and are scored as "absolutely agree (5), agree (4), undecided (3), disagree (2), strongly disagree (1)." The first subscale is "Quality of Patient Care" (QPC: items 1., 2., 3., 4., 5., 6., 7., 8., and 9), the second subscale is "Professional Status" (PS; items 10, 11, 12, 13, 14, 15 and 16). Professional self-efficacy increases as

the scale score increases. The Cronbach α value was reported as .87 for NPSES.(15) In this study, NPSES was determined to be "highly reliable". In this study, the Cronbach α value coefficient was found to be .885.

Data analysis

Data were analyzed by using the SPSS-22 program, and error checks, tables, and statistical analyses were made. Number and percentage values were given in statistical evaluations. Before normality analysis, lost data and extreme value extractions were made. Then, a histogram was drawn for compliance with normal distribution, skewness, and kurtosis values were examined, and Kolmogorov-Smirnov analyses were performed.

After all these steps, logarithmic transformations were applied to the NPSES scale that did not show normal distribution, but it was once again determined that normal distribution conditions did not occur. Therefore, Mann-Whitney U (MWU) and Kruskal-Wallis (KW) tests were conducted to determine whether independent variables make a difference on NPSES. In addition, Chi-square and Spearman correlation tests were performed and $p < 0.05$ was accepted as a statistical significance level.

RESULTS

The mean age of the participants in the study is 29.64 ± 7.06 (min-max: 20-55), with 85.3% being female and the rest, male. 41.0% are married, 56.7% are single, and the rest are divorced. 64.7% of the participants indicated that their spouses are also employed. Among these, those whose spouse work "always during the day" is 41.0%, those who work "night shift" is 24.5%, those who work "shift" is 7.2%, the remaining ones being other than these three situations. Those without children are %77.8. 60.6% of the nurses stated that their children were given care by parents, 25.0% by one of the parents, and 14.4 % by siblings. The education level of participants was indicated as 7.2% vocational high school, 10.7% associate degree, 71.0% undergraduate, and 11.1% postgraduate. 17.3% of the participants had a chronic disease. The rate of those who stated having newly started the profession was 8.5%. It was determined that the average professional service time of the participants was 8.16 ± 7.35 years (min: max: 0-36 years).

Some characteristics of the participants concerning COVID-19 are shown in Table 1. The mean scores of the participants in this study were 68.62 ± 5.64 (min-max: 49-80) for the NPSES total, 40.00 ± 3.49 (min-max: 28-45) for the subscale QPC, and 28.62 ± 2.80 (min-max: 21-35) for the PS.

Table 1: Some characteristics of the participants concerning COVID-19 (N=307)

Variable	Characteristic	n	%
Affiliated unit	COVID service	138	45.0
	COVID intensive car	102	33.2
	Emergency department	67	21.8
Satisfaction with the workplace	Strongly disagree	28	9.1
	Disagree	65	21.2
	Undecided	77	25.1
	Agree	127	41.4
	Absolutely agree	10	3.2
Reasons for not being satisfied (N=120)	Irregular working time	13	10.8
	Density of patients	14	11.7
	Risk of infection	54	45.0
	Problems with colleague	2	1.7
	Attitudes and behaviors of managers	29	24.2
	Various reasons	8	6.6
COVID diagnosis in oneself	Yes	12	3.9
	No	270	87.9
	Suspect	25	8.2
COVID-19 diagnosis in colleagues	Yes	112	36.5
	No	172	56.0
	Suspect	23	7.5
Anxiety-related to health	Yes	183	59.6
	No	22	7.2
	Suspect	102	33.2

Participants' NPSES Scores According to Satisfaction with Affiliated Unit

In this study, it was examined whether independent variables make a difference in terms of the NPSES scale total score, and only the situations that make a difference are shown in Table 2.

Table 2: Participants' NPSES Scores According to Satisfaction with Affiliated Unit (N = 307)

Variable	Characteristic	NPSES		Test Value and p
		Mean Rank	Median (%95 CI)	
Satisfaction with affiliated unit	Strongly disagree	171.00[a,b]	69.50 (67.89-71.32)	KW = 18.201 p = 0.001
	Disagree	128.72[a,c,d]	66.00 (65.81-68.46)	
	Undecided	145.44[e]	68.00 (66.62-96.22)	
	Agree	161.30[c,f]	69.00 (68.12-70.13)	
	Absolutely agree	243.95[b,d,e,f]	74.50 (71.58-77.62)	

[a,b,c,d,e,f] show the groups causing differentiation. Kruskal-Wallis analysis was performed.

Distribution of participants according to certain characteristics of QPC and PS subscale scores

Table 3 shows the distribution of participants' QPC and PS subscale rankings on chronic disease status and satisfaction with the unit where they work. In the study, it was determined that those with chronic disease had higher PS and those who were very satisfied with the unit they worked in had higher QPC and PS medians and this caused a differentiation ($p < 0.05$). In addition, it was found that independent variables other than chronic disease status and satisfaction with the affiliated unit did not make any difference in terms of QPC and PS subscales ($p < 0.05$).

In the study, Chi-square analyses were also conducted to determine whether the distribution of independent variables would make a difference in terms of whether the participants experienced health-related anxiety, but it was determined that none of the independent variables made any difference in this regard. ($p > 0.05$).

Table 3: Distribution of participants according to certain characteristics of QPC and PS subscale scores (N = 307)

Variable	Characteristic	QPC		Test Value and p	PS		Test Value and p
		Mean Rank	**Median (%95 CI)**		**Mean Rank**	**Median (%95 CI)**	
Chronic Disease	Yes	152.33	40.00 (39.54-40.39)	U= 6409.00	148.86	28.00 (28.14-28.83)	U= 5529.00
	No	159.08	41.00 (39.10-41.19)	p = 0.612	175.67	29.00 (28.49-30.07)	**p = 0.043**
Satisfaction with affiliated unit	Strongly disagree	185.91[a,b,c]	42.00 (40.13-42.51)		146.86[a]	28.00 (27.37-29.19)	
	Disagree	131.92[a,d]	40.00 (38.25-40.02)		134.19[b,c]	28.00 (27.38-28.61)	
	Undecided	144.56[b,e]	40.00 (38.78-40.40)	KW = 18.510	148.63[d]	28.00 (27.68-28.96)	KW = 12.919
	Agree	157.13	41.00 (39.55-40.74)	**p = 0.001**	162.83[b]	28.00 (28.47-29.49)	**p = 0.012**
	Absolutely agree	241.05[c,d,e]	44.50 (41.18-45.21)		232.00[a,c,d]	31.50 (29.20-33.59)	

[a,b,c,d,e] show the groups causing differentiation. Mann Whitneu U+ Kruskall Wallis analysis was performed.

Relationship between the participants' dependent and independent quantitative variable characteristics

As shown in Table 4, a positive correlation was found between the anxiety scores of the participants and the NPSES and its QPC and PS subscales, as well as between the scale total score and the subscale scores.

Table 4: Relationship between the participants' dependent and independent quantitative variable characteristics (N = 307)

		Age	Service time in the profession	Anxiety level score	NPSES	QPC	PS
Age	Rho	1					
	p						
Service time in the profession	Rho	.779**	1				
	p	**.001**					
Anxiety level score	Rho	115	.003	1			
	p	.057	.956				
NPSES	Rho	.009	.016	.172**	1		
	p	.870	.785	**.004**			
QPC	Rho	.021	.017	.186**	.922**	1	
	p	.710	.765	**.002**	**.001**		
PS	Rho	-.003	.010	.135*	.830**	.581**	1
	p	.957	.864	**.025**	**.001**	**.001**	

* .05, ** .001 significance level, Spearman correlation analysis was performed.

DISCUSSION

This study investigates the factors affecting nurses' self-efficacy during the COVID-19 pandemic. The results of the study can contribute to institutions and nurse managers to increase the self-efficacy of nurses during the COVID-19 pandemic and similar crises.

The mean age of the nurses participating in the study is 29.64 and the majority (85.3%) is women. In the study conducted by Glissen et al. in Belgium (2020), the majority of the participants were women (90%) and their mean age was 42 (16). Generally, younger nurses are employed in COVID-19, intensive care, and emergency units. The mean professional service time of the participants is approximately 8 years (min-max: 0-36 years). The vast majority of

nurses (78.2%) work in state (public) hospitals and almost half of them work over 40 hours a week.

The mean total NPSES score of nurses working in COVID-19 units is 68.62, mean QPC subscale score is 40.00, and mean PS subscale score is 28.62. In our study, nurses' self-efficacy levels were found to be high. According to the validity and reliability study of the scale, Vicdan et al. (2019) have conducted in Turkey, the scale scores were 69.44, and its subscales are 36.16 and 33.2 points, respectively. As the scores obtained from the scale increase, professional self-efficacy increases (17). Our findings are similar to the work of Vicdan. This shows us that nurses have high self-efficacy working in pandemic or normal situation. There are different conclusions in the literature, and in the study of (18), the self-efficacy of the nurses was found to be at a moderate level.

In our study, it was determined that the age, gender, educational status, affiliated institution of the participants had no effect on their self-efficacy. The self-efficacy level is high only among nurses who are satisfied with the unit they work for. In the study conducted by Tambag et al. nurses who are satisfied with the unit they work for have significantly high mean subscale scores of quality management, professional relationships, and job satisfaction (19). The fact that nurses love their affiliated unit leads to high job satisfaction and self-efficacy. To the extent that nurses work in a unit they feel satisfied either in normal conditions or during crisis periods like a pandemic, their professional self-efficacy will increase.

The participants in our study were asked to score between 1 and 10 for "the anxiety they experienced due to the current situation." The mean anxiety score was found to be 6.59. The level of anxiety experienced by the participants due to the COVID-19 process was determined as 6.59 out of one to ten. It was determined that the independent variables did not affect the level of anxiety. However, those with high levels of anxiety also have high self-efficacy total and subscale scores. We may conclude that those with high anxiety are constantly on the alert and are more attentive in patient care and professional practice. On the other hand, anxiety not only allows the person to adapt to new conditions but may also cause mental distress when not controlled (20). In their study with nurses providing care for COVID-19 patients, Sun et al. (2020) indicated that the anxiety levels of nurses decreased over time despite the difficult conditions and 60% claimed to happy (21). In the study of Chew et al. conducted in Singapore and India, 15.7% of clinical nurses working in COVID-19 services had high anxiety levels, with approximately 10.6% having depression,

5.2% stress, and 7.4% post-traumatic stress disorder. In another study conducted on physicians and nurses during the COVID-19 pandemic process, Lai et al. (2020) demonstrated that a significant percentage of participants experienced depression (50.4%), anxiety (44.6%), insomnia (34.0%) and distress (71.5%) (22). In addition, Tan et al. (2020) found that the level of anxiety in non-medical healthcare personnel was 20.7%, and the psychological effect of COVID-19 (especially anxiety) was reported to be more prevalent among medically less-educated healthcare workers (23). The psychological reactions of healthcare workers during the pandemic process are reported to be complicated. This may include feelings of lack of resources, vulnerability, loss of control and psychological soundness, and concerns about the spread of the virus, the health of family members, changes in work conditions, and being isolated (24).

It has also been reported that nurses are concerned about the safety of their families, patients, and colleagues, and are afraid of the high risk of mortality due to the infection (25). In our study, the PS subscale scores of nurses with chronic disease are high. This result seems to be related to anxiety. Since nurses with chronic diseases have higher levels of anxiety, they pay more attention to professional requirements and verities. In another study, in a statistical comparison based on chronic disease status, the mean stress management score of nurses with chronic disease was found to be significantly lower (26). The chronic stress nurses are exposed to leads them to develop alternative defense mechanisms, which, together with their anxiety-depression experiences, may escalate up to a pathological level, causing the development of burnout syndrome (27).

In our study, it was observed that those who were satisfied with the unit they worked for had higher QPC and PS scores, causing differentiation. In their study, Kacan et al. (2016) found that the nurses who were not satisfied with their unit had higher emotional exhaustion and depersonalization, and lower mean personal achievement. Analyses have shown that satisfaction with the affiliated unit leads to a decrease in emotional exhaustion and depersonalization, and increase in personal achievement score (28). Especially in times of crisis such as a pandemic, it is suggested that allowing healthcare professionals to work in the unit they want (clinical service, emergency department, intensive care, etc.) will help control the crisis more easily.

CONCLUSION

In the study, the self-efficacy scores of nurses related to patient care and professional status were found to be above moderate levels, and whereas

sociodemographic characteristics did not make a difference in this regard, the level of satisfaction with the affiliated unit made a difference in terms of self-efficacy and its subscales. In addition, the absence of chronic disease made a difference in scores related to the professional condition, and there was a relationship between the service time in the profession and the level of anxiety, and self-efficacy and its subscale scores.

Satisfaction with the affiliated unit is important to increase the self-efficacy of nurses. So, the awareness of decision-makers and policy-makers should be raised in terms of achieving improvements in workplace conditions for nurses and ensuring the continuity of the welfare created in this regard, and in addition, measures must be taken to increase satisfaction in order to provide the necessary comfort to nurses.

Ethical Approval: This study was approved by Gümüşhane University Scientific Research and Publication Ethics Committee (Date: 28/05/2020) with Decision no: E.13203. After receiving ethical approval, institutional permissions were obtained from the Ministry of Health in which the study was conducted. Permissions to use the scales in the study were obtained from the respective scale developers (Kacaroğlu, Vicdan and Taştekin) via email. The participants were informed about the study, and those who voluntarily agreed to participate after being informed provided their written consents.

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