



The Effect of Nomophobic Behaviors on Caring Behaviors in Nurses Working in Intensive Care Clinics

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Abstract

Aim: It is known that nomophobia, which occurs as a result of phone addiction, causes individuals to experience more anxiety, depression and sleep problems than usual, and their quality of life and work performance are adversely affected. In this study, it was aimed to determine the effect of nurses exhibiting nomophobic behaviors on their care behaviors.

Material and Methods: This research was conducted in a descriptive and relationship-seeking type. The minimum sample volume to be reached was calculated as 270 according to the known sample formula. The study was conducted with 284 nurses working in intensive care units. The research data were collected with Google Forms in February-May 2022. Introductory information form, Nomophobia Scale Caring Behaviors Inventory-24 were used to collect data.

Results: Nomophobia scores were moderate with 90.09 ± 28.47 , and caring behaviors scores were high with 124.05 ± 18.49 . A low negative correlation ($r = -0.178$, $p < 0.01$) was found between the total score of the Nomophobia and the total score of caring behaviors.

Conclusions: In this research, it was found that nurses' nomophobic behaviors affected their caring behaviors negatively. To eliminate the negative effect of nomophobia on caring behaviors, we recommend that the awareness of intensive care nurses about phone dependency and the effects of this dependency be raised.

Keywords: Care behavior, intensive care clinics, nomophobic behaviors, nursing, smartphone addiction.

INTRODUCTION

It is asserted that almost half of the world's population used social media platforms actively and spent most of their time on the internet. Today, internet and social media use progressively becomes more popular (1,2). According to the results of the household information technologies usage research conducted in Türkiye in 2021, percentages of the Turkish population using mobile phones and the internet were consecutively 96% and 82.6%, and the mean duration of time spent daily on the internet by the Turkish population was approximately eight hours (3,4).

The term, nomophobia, which comes forward as a consequence of phone dependency in line with these high percentages, is derived from the phrase, "NO Mobile PHOBIA", and is illustrated as the case in which individuals have the feelings of distress, worry, anxiety, and anger upon being disconnected from the mobile phone or computer (5,6). As a matter of fact, in previous studies, it is stated that nomophobic individuals experienced more anxiety, depression, and sleep disorders, and additionally, the quality of their lives besides their work performance was negatively affected by nomophobia (7,8). In professions

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where work performance and time management are vital, the development of this dependency is an extremely risky situation. It is stated that internet dependency became more prevalent in nursing, which was one of these professions (9). Intensive care units are the service units where advanced technological monitoring practices need to be closely followed for the follow-up, treatment, and care of critical patients diagnosed with multiple organ failure. In the relevant literature, it is put forward that intensive care units were the service units with high rates of error which, in turn, gave rise to grave consequences (10). As a consequence of having nomophobia, nurses working in special units such as the intensive care service can neglect their care duties and commit medical errors. The committed medical errors extend the duration of the patient's stay at the intensive care unit, increase the care cost per patient, and can lead to consequences disabling the patient and even ending in the patient's death. To prevent the medical errors that are likely to occur, raising the awareness of nurses about phone dependency and the effects of this dependency is important (11-14). In the relevant literature, there were studies about nomophobia in nurses and nursing students (11,13,15) however, there was no study that analyzed the effect of nomophobic behaviors on caring behaviors in nurses who were working in intensive care clinics. In this respect, this study aimed to identify the effect of nomophobic behaviors on caring behaviors in nurses working in intensive care clinics.

MATERIAL AND METHOD

Study Type

This is a descriptive and correlational research.

Research Design and Participants

This study was performed to identify the effect of nomophobic behaviors on caring behaviors in nurses working in intensive care clinics. The research population was the nurses working in intensive care units. Upon the review of the relevant literature (16) the one-sided hypothesis that the nomophobia affected nursing care behaviors was proposed in this study. Research results verified the above hypothesis ($r=-0.178$, $p<0.01$). In the research, the sample size was calculated with the G*Power 3.1.9.7 software. In the calculation performed with a medium effect size ($f^2=0.15$), a 5% margin of error, and 80% power ($1-\beta=0.80$), the sample size was found as 270 for the simple linear regression analysis. Nurses who were working in intensive care clinics, had no dyslexia, had no hearing or speaking disorder, and had no mental illness were included in the research. In this regard, a total of 284 intensive care nurses who satisfied the above inclusion criteria took part in the data collection process (17,18).

Data Collection and Measures

The research data were collected with Google Forms in

February-May 2022. The data were collected from nurses who were selected with the snowball sampling method through social media platforms from among intensive care nurses satisfying the above inclusion criteria.

Data Collection Tools

In the data collection process, the Personal Information Form, the Nomophobia Questionnaire, and the Caring Behaviors Inventory-24 were used.

The Personal Information Form

Prepared in light of the review of the relevant literature (5,16), the Personal Information Form had a total of 23 questions (7 questions about nurses' socio-demographic characteristics, 10 questions designed to analyze the work conditions at intensive care clinics, and 6 questions about the smartphone use).

The Nomophobia Questionnaire (NMP-Q)

This measure was developed in 2015 by Yıldırım and Correia to evaluate the smartphone dependency in individuals (19). It has four dimensions, that is, (I) not being able to communicate, (II) losing connectedness, (III) not being able to access information, and (IV) giving up convenience. Yıldırım, Sumuer, Adnan et al. performed the validity and reliability study for the NMP-Q in Turkish in 2016 (20). A score below 20 points: no nomophobia, a score of 20-60 points: low-level nomophobia, a score of 60-100 points: medium-level nomophobia, and a score above 100 points: high-level nomophobia. Cronbach's alpha coefficient was found as 0.92, 0.90, 0.74, 0.94, and 0.91 successively for the NMP-Q and its above dimensions. In our study, Cronbach's alpha coefficient was calculated as 0.95, 0.88, 0.86, 0.94, and 0.95 consecutively for the NMP-Q and its above dimensions.

The Caring Behaviors Inventory-24 (CBI-24)

The measure was first developed by Wolf, Giardino, Osborne et al. (21). This measure was later restructured in 2006 (22) and is also known as the short form of the Caring Behaviors Inventory-42. Kurşun and Kanan conducted the validity and reliability study for the short form of the measure, the CBI-24, in Turkish in 2012 (23). The CBI-24 has 24 items and four dimensions (Assurance, Knowledge-Skill, Respectful, and Connectedness). It is stated that, as the score obtained by a nurse from the CBI-24 increases, the nurse has a higher level of care quality perception. Cronbach's alpha coefficient was found as 0.96, 0.95, 0.81, 0.95, and 0.94 successively for the CBI-24 and its above dimensions (23). In the current research, Cronbach's alpha coefficient was calculated as 0.76, 0.74, 0.90, 0.90, and 0.83 consecutively for the NMP-Q and its above dimensions.

Statistical Analysis

The Statistical Package for Social Science for Windows,

Version 22.0, was used in the analysis of the data collected in the context of this study. Skewness (-1.097 – +0.595) and Kurtosis (+1.12--0.685) values were utilized to evaluate whether the research data were normally distributed. If these values range between -1.5 and +1.5, the data are considered to be normally distributed. Besides descriptive statistics (number, percentage, mean, standard deviation, median, minimum, and maximum), Pearson's correlation coefficient and simple linear regression were used in the statistical analysis. Cronbach's alpha coefficient as the measure of internal consistency was utilized to evaluate the reliability of measurement tools that were used in the study. In the research, the statistical significance was identified if the p-value was below 0.05 ($p < 0.05$).

Ethical Endorsement

Before the study was initiated, the ethical endorsement for the research was obtained from the Scientific Research and Publications Ethics Committee of Osmaniye Korkut Ata University of Türkiye (No. 2022/1/11). On the first page of the online survey, an electronic informed consent form was presented to the nurses. Through this first page, nurses were informed that the participation in the study was on a voluntary basis and they were free to quit answering the survey questions any time they wanted to withdraw from the research. During the research, all principles of the Helsinki Declaration were respected.

RESULTS

The Demographic and Smartphone Usage Characteristics of Intensive Care Nurses

Table 1 displayed the breakdown of socio-demographic characteristics of intensive care nurses who were included in the research. Upon the examination of Table 1, it was discerned that the mean age of intensive care nurses was 29.50 ± 5.76 years, and of all participant nurses, 76.8% were female, 57.4% were single, 75% held a bachelor's degree, 56% had an income equaling expenses, 53.5% worked in the nursing profession for 0-5 years, 51.2% worked in surgical intensive care units, 67.6% worked in intensive care units for 0-5 years, 63% worked for 161-191 hours per month, 89.4% worked in shifts, 59.5% voluntarily selected the nursing profession, and lastly, the mean number of beds provided with nursing care by participant nurses was 14.25 ± 4.71 (Table 1).

Next, as per the review of participant nurses' smartphone usage characteristics, it was identified that, of all participant nurses, 94.7% used smartphones for 6 years or longer, 34.2% checked their smartphones 17-33 times per day, 64.1% carried a portable power bank with them, 79.9% checked their smartphones immediately after waking up, 89.8% spent some time with their smartphones before going to bed, and 84.5% did not turn off their smartphones before going to bed (Table 2).

Table 1. Intensive care nurses' socio-demographic characteristics (n=284)

Age	29.50±5.76 years (Min=22, Max=48)	
	n	%
Gender		
Female	218	76.8
Male	66	23.2
Marital status		
Married	121	42.6
Single	163	57.4
Education level		
High school diploma	22	7.7
Associate degree	13	4.6
Bachelor's degree	213	75.0
Master's degree	36	12.7
Perceived income level		
Income below expenses	100	35.2
Income equaling expenses	160	56.3
Income above expenses	24	8.5
Place resided for the longest		
Village	19	6.7
Town	18	6.3
City	247	87.0
Duration of working in the nursing profession		
0-5 years	152	53.5
6-11 years	72	25.4
12 years or above	60	21.1
Current unit of intensive care service		
Internal intensive care clinics	139	48.8
Surgical intensive care clinics	145	51.2
Duration of working in the intensive care unit		
0-5 years	192	67.6
6-11 years	65	22.9
12 years or above	27	9.5
Duration of work per month		
160 hours or below	53	18.7
161-191 hours	179	63.0
192 hours or above	52	18.3
Status of working in shifts in the intensive care unit		
No	30	10.6
Yes	254	89.4
Status of holding an intensive care certificate		
Yes	88	31.0
No	196	69.0
Status of providing patients with nursing care		
Yes	280	98.6
No	4	1.4
Status of selecting the nursing profession voluntarily		
Yes	169	59.5
No	115	40.5
Number of beds in the intensive care unit	14.25±4.71 (Min=4, Max=26)	

Table 2. Intensive care nurses' smartphone usage characteristics (n=284)

Duration using smartphones		
0-1 year	1	0.4
2-3 years	2	0.7
4-5 years	12	4.2
6 years or above	269	94.7
Frequency of checking the smartphone		
1-16 times	48	16.9
17-33 times	97	34.2
34-50 times	75	26.4
51 times or more	64	22.5
Status of carrying a portable power bank near at hand		
Yes	182	64.1
No	102	35.9
Status of checking the smartphone immediately after waking up		
Yes	227	79.9
No	57	20.1
Status of spending some time with a smartphone before going to bed at night		
Yes	255	89.8
No	29	10.2
Status of turning off the smartphone before going to bed at night		
Yes	44	15.5
No	240	84.5

Total Scores of NMP-Q and CBI-24 Scales and Sub-Dimensions

Table 3 exhibited mean scores, minimum scores, and maximum scores obtained by nurses from the NMP-Q, the CBI-24, and their dimensions. In this respect, first, it was found that the mean of nurses' NMP-Q scores was 90.09 ± 28.47 points, and nurses obtained the maximum score from the NMP-Q Not Being Able to Communicate Dimension (29.10 ± 8.40 points) whereas they obtained the minimum score from the NMP-Q Giving Up Convenience

Dimension (18.79 ± 8.85 points). Secondly, it was discerned that the mean of nurses' CBI-24 scores was 124.05 ± 18.49 points, and nurses obtained the maximum score from the CBI-24 Assurance Dimension (40.31 ± 6.89 points) whilst they obtained the minimum score from the CBI-24 Connectedness Dimension (25.78 ± 3.72 points) (Table 3).

Table 3. Mean, minimum, and maximum scores obtained by intensive care nurses from the NMP-Q, the CBI-24, and their dimensions

The NMP-Q and its dimensions	Min	Max	$\bar{X} \pm SD$
Not being able to access information	4.00	43.00	20.52 ± 8.47
Losing connectedness	5.00	35.00	21.66 ± 7.58
Not being able to communicate	6.00	42.00	29.10 ± 8.40
Giving up convenience	5.00	35.00	18.79 ± 8.85
NMP-Q	25.00	140.00	90.09 ± 28.47
The CBI-24 and its dimensions	Min	Max	$\bar{X} \pm SD$
Assurance	21.00	48.00	40.31 ± 6.89
Knowledge-skill	12.00	30.00	26.79 ± 4.08
Respectful	12.00	36.00	31.15 ± 5.06
Connectedness	13.00	30.00	25.78 ± 3.72
CBI-24	58.00	144.00	124.05 ± 18.49

Correlation and Regression Between NMP-Q and CBI-24 Scales

Table 4 showed the analysis of correlations between scores obtained by nurses from the NMP-Q, the CBI-24, and their dimensions. In this regard, firstly, it was identified that there was a statistically significant weak negative correlation between nurses' NMP-Q and CBI-24 scores ($r = -0.178$, $p < 0.01$). Secondly, it was found that there was a statistically significant highly strong positive correlation between nurses' NMP-Q and its Losing Connectedness Dimension scores ($r = 0.917$, $p < 0.01$). Thirdly, it was discerned that there was a statistically significant highly strong positive correlation between nurses' CBI-24 and its Respectful Dimension scores ($r = 0.958$, $p < 0.01$).

Table 4. Analysis of correlations between research variables

Variables	Correlation Matrix									
	Not being able to access information	Losing connectedness	Not being able to communicate	Giving up convenience	Nomophobia (total)	Assurance	Knowledge-skill	Respectful	Connectedness	Caring behaviors (total)
Not being able to access information	1									
Losing connectedness	.650**	1								
Not being able to communicate	.417**	.696**	1							
Giving up convenience	.689**	.811**	.593**	1						
Nomophobia (total)	.808**	.917**	.789**	.907**	1					
Assurance	-.051	-.087	-.113	-.216**	-.139*	1				
Knowledge-skill	-.222**	-.224**	-.104	-.371**	-.272**	.789**	1			
Respectful	-.181**	-.155**	-.079	-.317**	-.217	.838**	.888**	1		
Connectedness	.005	.019	-.023	-.107	-.034	.826**	.760**	.870**	1	
Caring behaviors (total)	-.117*	-.120**	-.091	-.271**	-.178**	.943**	.912**	.958**	.916**	1

* $p < 0.05$, ** $p < 0.01$

Lastly, a simple linear regression analysis was conducted to identify the effect of nurses' NMP-Q scores on their CBI-24 scores. As per the examination of the p-value corresponding to the F-value, it was discerned that the simple linear regression model was statistically significant ($F=9.238$, $p<0.05$). Next, upon the review of

the Beta coefficient, t-value, and p-value for the predictor variable, it was identified that nurses' NMP-Q scores had a statistically significant effect on their CBI-24 scores ($p<0.05$). Nurses' NMP-Q scores accounted for 32% of the variance in CBI-24 scores ($R^2=0.320$) (Table 5).

Table 5. Results of the simple linear regression analysis conducted to identify the effect of nurses' nomophobia behaviors on their caring behaviors

Dependent variable	Independent variable	B	Std. Error	β	t	p	R	R ²	F	Model p
Caring Behaviors	Constant	134.479	3.597		37.387	0.000	.178	.320	9.238	0.003
	Nomophobia	-0.116	0.038	-.178	-3.309	0.003				

DISCUSSION

Along with the increase in internet usage all over the world, the diversity of social media platforms also increases. Next, in tandem with the increase in this diversity, the time spent by human beings on the internet also increases and human beings develop a dependency on smartphones. Smartphones that move to the center of life in this manner are used in professional life as well (24). The development of this dependency in professions, in which the effective management of time is vital, affects the professional life negatively. It is put forward that the use of the smartphone through a variety of virtual platforms and applications for nonprofessional purposes besides its use in situations relating solely to the profession became prevalent (9). The increase in phone dependency in nurses affects the work performance and service quality negatively. Setbacks experienced in the time management by nurses who work at special clinics such as the intensive care unit can pave the way for vital consequences by reducing the care quality and the reliability and efficiency of care practices (11). In the current research, it was found that intensive care nurses were moderately nomophobic. In the study conducted by Hosgor et al. to identify the relationship between the nomophobia level and the perceived workload in nurses, it is stated that a large majority of the nurses had medium-level nomophobia (11). Likewise, in the study performed by Korkmaz and Aslan to assess whether nurses had nomophobia, it is put forward those nurses had medium-level nomophobia (5). On the other hand, in a study that analyzed the relationship between nurses' personality characteristics and nomophobia, it was identified that nurses had high-level nomophobia (25).

As nomophobia is a relatively new concept in the literature, there is a limited number of studies about the effect of nomophobia on human beings. Studies mostly examined its effect on students with high-level smartphone dependency. Upon the review of studies evaluating the effect of nomophobia on nursing students, it was discerned that the study by Okuyan et al. asserted that nursing students were moderately nomophobic (26) whilst the study by Özdemir et al. stated that nursing students were highly nomophobic (27). Besides, in the study performed by Aguilera-Manrique to analyze the relationship between nursing students' nomophobia

levels and their distractibility in clinical practices in association with smartphone use, it was identified that nursing students were moderately nomophobic (28).

In the relevant literature, it is stated that the increase in phone dependency in working individuals was associated with a decrease in work performance (29). In the current study, it was found that there was a statistically significant negative relationship between intensive care nurses' nomophobia levels and caring behaviors, and nomophobia accounted for 32% of the variance in caring behaviors. In the relevant literature, a research study conducted on health workers emphasized that there was a negative relationship between smartphone dependency and work performance (30). Moreover, in a study performed on nurses working in surgery clinics, it was stated that nomophobia reduced the work quality by preventing the patient and health worker from communicating effectively (16). Furthermore, in a study conducted on nurses in Indonesia, it was asserted that nurses with high-level nomophobia had low-level self-efficacy (31). In light of these results, we can state that the development of smartphone dependency in nurses affected nurses' caring behaviors negatively. In a meta-analysis that evaluated internet addiction in health workers, it was put forward that internet addiction affected health workers' caring behaviors (32).

This study had some limitations. The fact that this study had a relatively small sample as the sample was solely comprised of nurses working in a specific unit is the limitation of this research. In this regard, more advanced studies that will have a large sample to compare nurses working in different service units should be performed. On the other hand, the fact that this study was conducted with the participation of intensive care nurses working under challenging conditions during the COVID-19 pandemic is the strength of this research, and additionally, this study is important as it is the first study to evaluate nomophobia in intensive care nurses.

CONCLUSION

In this research, it was found that nurses' nomophobic behaviors affected their caring behaviors negatively. Preventing intensive care nurses from having nomophobia is of importance to the adoption of effective and good-quality caring behaviors by intensive care nurses. To

eliminate the negative effect of nomophobia on caring behaviors, we recommend that the awareness of intensive care nurses about phone dependency and the effects of this dependency be raised. At the same time, it is important to organize training programs on this subject by health institutions and to establish policies that determine the appropriate limits of technology use. In this way, it is thought that nurses will be able to serve their patients better and more sensitively and their working efficiency will increase.

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