Original Article

Nomophobia among Nurses in Northeast of Iran: A Cross-Sectional Study (2022)

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Article Info

Abstract

Background: The role of cell phones becomes more prominent every day; however, excessive use leads to high dependency. Nomophobia is a type of phobia in which the patient experiences severe anxiety and worry while away from a mobile phone. The present study aimed to investigate the prevalence of Nomophobia in nurses of Educational-Medical Hospitals in Gorgan City in 2022.

Materials and Methods: In a cross-sectional, 412 nurses of educational and medical hospitals in Gorgan city, Iran, 2022 were enrolled. A demographic information checklist and a Nomophobia questionnaire were used to collect data. Statistical analysis was performed using SPSS software version 18, U-Mann-Whitney and Kruskal-Wallis tests. P-value values less than 0.05 were considered significant

Results: Most nurses were moderate Nomophobia (55.1%). There was a significant relationship between Nomophobia and age, marital status, number of active social messaging software, duration of mobile phone use, and the number of phone checks per day. Such findings were also observed for subscales, including lack of access to information, loss of comfort and convenience, inability to communicate, and loss of connection with some considered features.

Conclusion: The present study showed moderate levels of Nomophobia and cell phone dependence in nurses of Gorgan Educational-Medical Hospitals in Gorgan City. Young and single people who spend more time on mobile phones, have more social messaging software, and check their cell phones more often are more likely to have Nomophobia.

Keywords: Phobia, Cell phone, Nursing, Mobile Phone Addiction

Introduction

The mobile phone is one of the greatest inventions worldwide that many people in developed and developing countries use because of its features, ease of use, and portability. While mobile phones are attractive for interpersonal communication and interaction and have had significant technological advancements and potential benefits since their introduction in 1983, these are not without flaws and risks [1].

Mobile phone addiction or overuse is one of the behaviours related to the addictive capacity of the Internet. Little research has been done in this area; however, evidence suggests that excessive cell phone use is associated with other behavioral patterns, such as staying up at night [2], engaging in short message exchanges, and emotional dependence on the user's mind. As a result, users believe they can no longer live without a cell phone [3]. These findings support the negative effect of excessive cell phone use and negative

feedback on physical and psychological health [4]. Nomophobia is one of the emerging aspects of the pathology literature of communication phenomena [5], a new psychological disease [6].

Nomophobia, or phobia of missing a phone, means the fear of losing cell phone calls. This phenomenon was first described in a study considering anxiety in mobile phone users. Researchers have introduced Nomophobia as a 21st-century disorder resulting from new technologies [7, 8]. In their definition, Nomophobia is discomfort or anxiety when away from a mobile phone or computer call [9]. Others cited the term Nomophobia as a fear of people being technologically unrelated, moving away from mobile phones, or not being able to connect to Internet sites, the definition of which seems to be more than just cell phones as it also refers to computers [10]. However, the continuation and spread of this psychological abnormality increase depression and isolation in society [11].

The results of studies on nomophobia are contradictory. In the study of VITAL et al. (2023) in Italy and the study of Hostgor et al. (2021) in Turkey, mild nomophobia was more common than moderate nomophobia [12,13]. While in the study of Aslani et al. (2025) in Iran and the study of Ugus et al. (2021) moderate nomophobia was more common than mild and severe types [14,15]. El-Ashry et al. (2024) found that severe nomophobia is prevalent among nursing students in Egypt [16]. In the study of Marletta et al. (2021), no cases of nomophobia were reported in high school students and high school students [17].

Indiscriminate use of mobile devices at work leads to less time spent on tasks and more interruptions. This changes the nature of many jobs, including nursing care [18]. High levels of nomophobia cause nurses to ignore their care obligations unconsciously and this leads to medical errors [13]. These mistakes can prolong the hospitalization of patients, increase the cost of care per patient, and may lead to debilitating consequences or even the death of the patient [17].

The acceptance and widespread use of mobile phones in human societies has happened so rapidly that it is no longer possible to imagine the daily lives of so many people, especially young individuals, without mobile phones [19]. Accordingly, the study of Nomophobia can be one of the concerns related to the growing volume of mobile phone usage, as it has engaged a wide range of people in the community, especially the medical staff. There is limited research in this field in Iran. Evaluation of the current situation of mobile phobia and its frequency among nurses, as a leading group of the medical staff, can be a step in better understanding Nomophobia and providing appropriate measures to prevent people from mental health issues and challenges. Therefore, the present study was designed to investigate the prevalence of Nomophobia in nurses of Gorgan teaching and medical hospitals in 2021.

Materials and Methods

We conducted a cross-sectional study in January 2022 in Golestan province, Gorgan, Iran nurses. The research was carried out in 3 teaching hospitals in Gorgan that employ the highest number of nurses among hospitals affiliated with the Golestan University of Medical Sciences in Gorgan in 2022. The 1,397 nurses who were working at the hospital at the time of the data collection comprised 660 nurses in Hospital 1, 550 nurses in Hospital 2, and 187 nurses in Hospital 3.

Formula 1.

$$n = \frac{(z)^2 \times p(1-p)}{d^2}$$

n= sample size Calculation
z=level of confidence 95% (1.96)
p= expected prevalence of nomophobia 22% (0.22) [20]
d=tolerated margin of error 4% (0.04)

According to the calculation, this study's sample size should be 412 nurses. Of whom 412 nurses were selected for this study using the non-probability quota sampling method,, that is, nurses working in one of the hospitals in the sample, who were directly included in patient care and having a smartphone, were included in the study. A total of 412 nurses of whom 195 nurses from Hospital-1, 162 nurses from Hospital-2, and 55 nurses from Hospital-3 participated in the study voluntarily.

The data of the research were collected in January 2022 with a data collection tool consisting of two parts: Demographic Information Form and Nomophobia Questionnaire.

Demographic information form: This form consisted of four questions (age, gender, marital status, and type of mobile phone) to determine the personal of the nurses participating in the study, and four questions including the time of mobile phone usage per day, the number of active social messaging applications, the volume of internet consumption per week, and the number of mobile phones checked per day, investigating their self reported.

Nomophobia questionnaire: The scale consists of 20 questions about the fear of losing a cell phone. This questionnaire was developed as the first Nomophobia test in 2015 by Yildirim and Correia to help research Nomophobia, identify and describe its dimensions, and develop and promote a questionnaire to measure Nomophobia [10]. It was translated into Persian by Sayyah et al. [21] and whose psychometrics were evaluated. The questionnaire consists of 4 subscales and 20 questions graded using a 7-point Likert scale from 1

"strongly disagree" to 7 "very agree" in severe cases. Questions 10, 11, 12, 13, 14, and 15 related to the inability to communicate subscale, questions 20, 19, 18, 17, 16 for loss of communication, questions 1, 2, 3, and 4 for lack of access to information, and questions 5, 6, 7, 8, 9 are related to loss of comfort and convenience. Total scores are calculated by summing the answers to each question, ranging from 20 to 140. Scores equal to or less than 20 indicate the absence of Nomophobia, scores greater than 20 and less than 60 are mild, scores equal to and greater than 60 and less than 100 are moderate, and scores equal to or greater than 100 are related to severe Nomophobia. Cronbach's alpha coefficient for the Nomophobia and subscales was 0.945, 0.939, 0.874, 0.827, and 0.814, respectively, indicating good reliability. Cronbach alpha measures reliability were 0.95, 0.939, 0.874, 0.827, and 0.814, respectively [10]. The Cronbach alpha measure reliability for the Iranian version was 0.93 [22].

In this study, after obtaining permission from the ethics committee of Golestan University of Medical Sciences, the researcher referred to the desired departments and explained the research objectives to the study participants. Then, the relevant questionnaires were distributed among the nurses.

The data of the research were transferred to the computer and analyzed in IBM SPSS Statistics version 18. Descriptive statistics, including frequency and percentage or mean ± SD, were used to describe the data. Regarding that, the distribution of the Nomophobia score does not follow a normal distribution. Therefore, the Mann–Whitney U test was used to compare the score of Nomophobia and its dimensions in the subgroups of binary variables. The Kruskal-Wallis test was used to compare the mean score of Nomophobia and its dimensions in the subgroups of categorical variables. To compare Nomophobia and subscales among categorical variables, an analysis of variance test with a Bonferroni factor post hoc analysis was used. The data were analyzed at a 95% confidence interval and at $p < 0.05$ statistical significance level.

Results

The study population characteristics have been summarized in Table 1. Most participants were females (65.8%), and 67 % of the nurses were in the age group 18 and 30 years. 97.6% of the population reported having smartphones, and 48.5% used them at least 1 to 4 hours daily. The number of active social messaging software was between 1 and 3 in 68.4% of the population, and others had more than three. The frequency of people using more than 1000 MB of internet traffic during a week was 44.2%, and 58.9% of nurses checked their cell phones more than 12 per day.

Table 1. Study population characteristics

Characteristics	Category	Number	Percent (%)
Age	<30	۲۸۲	۶۷
	31-40 >	۸۳	۷.۱۹
	> 40	۵۶	۳.۱۳
Sex	Male	۱۴۴	۲.۳۴
	Female	۲۷۷	۸.۶۵
Marital status	Single	۲۲۴	۲.۵۳
	Married	۱۹۷	۸.۴۶
Cell phone type	Smart	۴۱۱	۶.۹۷
	Non-smart	۱۰	۴.۲
Smartphone use (hour)	1-4	۲۰۴	۵.۴۸
	5-8	۱۵۴	۶.۳۶
	> 8	۶۳	۱۵
Number of active social messaging software	1-3	۲۸۸	۴.۶۸
	> 3	۱۳۳	۶.۳۱
The amount of internet traffic consumed per week	< 500 MB	۱۹۰	۱.۴۵
	500-1000 MB	۴۵	۱۰/۷
	> 1000 MB	۱۸۶	۲.۴۴
Number of mobile phone checks per day	< 6	۵۲	۴.۱۲
	6-12	۱۲۱	۷.۲۸
	> 12	۲۴۸	۹.۵۸

The mean score that the participants got was calculated as 83.60±23.64 in the Nomophobia total. Most nurses had moderate Nomophobia. The subdimension with the highest mean score of the participants was not being able to communicate (27.77±8.58), and the lowest was the subdimension not being able to access information (17.44±5.27) (Table 2).

Table 2. Mean of nomophobia and dimension among nurses

Dimensions of Nomophobia	Mean±SD	Min-Max
Not being able to communicate	27.77±8.58	6-42
Losing connectedness	17.54±7.77	5-35
Not being able to access information	17.44±5.27	4-28
Giving up convenience	20.83±6.85	5-35
Nomophobia	83.60±23.64	20-137
Nomophobia category	N (%)	
No Nomophobia	3 (0.7)	
Mild	72 (17.1)	
Moderate	232 (55.1)	
Severe	114 (27.1)	

The results showed that a significant difference was observed for Nomophobia (p=0.026), lack of access to information (p=0.001), loss of comfort (p=0.003), and loss of communication (p=0.008) in age groups. However, the age groups did not indicate any association with the inability to communicate (p=0.749) (Table 3).

Considering sex, lack of access to information was significantly higher in men than women (p=0.029), and the inability to communicate was significantly more in women than men (p<0.001) (Table 3). Moreover, marital status was related to Nomophobia (p=0.033), lack of access to information (p=0.021), and loss of comfort and convenience (p=0.002) (Table 3).

the results showed that the mean score of Nomophobia is significantly higher in people who use smartphones between 5-8 hours a day (p=0.003) and more than 8 hours a day (p<0.001) compared to people who use smartphones between 1 and 4 hours a day. However, the mean score between nomophobia between 5-8 hours and more than 8 hours per day of smartphone usage is not significantly different (p=0.05). Also, the mean score of lack of access to information (p=0.001), loss of comfort and convenience (p=0.001), inability to communicate (p=0.003), and lack of connection (p=0.001) is significantly higher in people who use smartphones more than 8 hours a day (Table 3).

The results also showed that people who have more than 3 active social networking applications on their phones have significantly higher mean scores of nomophobia (p=0.045), lack of access to information (p=0.007), and loss of communication (p=0.023) than people who have less than 3 active social networking applications (Table 3).

Table 3. Comparing the value of Nomophobia and its subclasses between demographics and smartphone usage form factors

Characteristics		Nomophobia	Lack of access to information	Loss of comfort and convenience	Inability to communicate	Loss of connection
Age	18-30	85.95±23	18.15±4.95	21.59±6.74	28.06±8.46	18.10±8.71
	31-40 >	80.08±22.93	16.54±4.96	19.93±6.36	27.31±8.37	16.28±7.73
	> 40	77.12±26.35	15.21±6.40	18.32±7.43	27.03±9.50	16.55±7.44
	P-value	**0.026**	**0.001**	**0.003**	0.749	0.08
Sex	Male	80.73±24.15	18.08±5.49	19.95±6.91	25.79±8.19	16.90±7.48
	Female	85.09±23.28	17.11±5.12	21.29±6.78	28.80±8.61	17.87±7.91
	P-value	0.107	**0.029**	0.089	**<0.001**	0.268
Marital status	Single	85.79±23.91	18.04±5.12	21.76±6.91	27.97±8.86	18.18±7.74
	Married	80.90±23.11	16.76±5.36	19.77±6.64	27.54±8.26	16.81±7.76
	P-value	**0.033**	**0.021**	**0.002**	0.525	0.059
Smartphone use (hour)	1-4	78.06±23.41	16.31±5.51	18.99±6.85	26.95±8.43	15.79±7.32
	5-8	86.42±22.90	18.37±4.91	21.90±6.60	27.68±8.73	18.45±7.77
	> 8	94.63±21.32	18.84±4.56	24.17±5.58	30.65±8.19	20.96±7.79
	P-value	**<0.001**	**<0.001**	**<0.001**	**0.003**	**<0.001**
Number of active social messaging software	1-3	81.89±23.96	16.96±5.43	20.41±6.88	27.56±8.74	16.94±7.66
	> 3	87.30±22.59	18.48±4.76	21.74±6.71	28.42±8.23	18.83±7.88
	P-value	**0.045**	**0.007**	0.096	0.562	**0.023**
The amount of internet traffic consumed per week [15]	< 500	84.26±23.75	17.03±5.36	20.92±6.97	28.43±8.59	17.87±7.79
	500-1000	82.02±23.64	17.55±5.61	20.13±6.53	28.48±9.48	15.84±7.97
	> 1000	83.30±23.64	17.84±5.07	20.91±6.82	26.93±8.31	17.61±7.69
	P-value	0.620	0.366	0.742	**0.049**	0.211
Number of mobile phone checks per day	< 6	69.78±21.11	14.71±5.35	17.62±6.92	23.67±7.91	14.13±6.29
	6-12	81.44±24.11	16.82±5.59	19.65±6.96	28.18±8.57	16.78±8.73
	> 12	87.55±22.76	18.32±4.85	22.16±6.42	28.43±8.51	18.62±8.75
	P-value	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**0.001**

The results also show that people who check their phones more than 12 times a day have significantly higher levels of nomophobia (p=0.001), lack of access to information (p=0.001), loss of comfort and

convenience (p=0.001), inability to communicate (p=0.001), and loss of connection (p=0.001) than other people (Table 3).

The internet traffic consumed per week was also related to the inability to communicate but not to other features of Nomophobia. Detailed results are shown in Table 3.

Discussion

The introduction of technology into different societies has not always been free of social harm, which has led to the introduction of a new term in the pathology literature and communication phenomena with the concept of Nomophobia or a cell phone losing phobia. Nomophobia is an example of a new type of phobia disorder that results from different needs and modern lifestyles that new technologies have introduced into the structure of human consciousness. This study, which was conducted to determine the frequency of Nomophobia in nurses of Gorgan teaching hospitals in 2021, showed that 99.28% of the population had different degrees of Nomophobia.

In the present study, mild to moderate levels of Nomophobia were reported. Age group, marital status, number of times people check their phones, number of active social networks on their phones, and duration of smartphone use are associated with the level of nomophobia in devotees.

In the study of VITAL et al. (2023) in Italy and the study of Hostgor et al. (2021) in Türkiye, mild-level nomophobia was more common than moderate-level nomophobia [12,13].

In the study by Aslani et al. (2025) in Iran and the study by Ugus et al. (2021) in Türkiye, moderate to severe level nomophobia was more common than mild and severe type [14,15]. In the study of Marletta et al. (2021), no cases of nomophobia were reported in nurses and nursing students [17]. Various studies estimated the prevalence of Nomophobia in a wide range from 24% to 97% due to different research populations, age groups, and study tools [23-27].

Moreover, one of the leading factors affecting the frequency of Nomophobia was age. As in this study, Nomophobia, lack of access to information, and loss of comfort had the highest frequency and severity in the age group of 18-30 years. There is some evidence in line with our findings. A previous study found a higher score of Nomophobia in first-year students than in final years [28]. Also, another investigation reported a significant relationship between age and Nomophobia [29]. Besides, an increased prevalence of Nomophobia was observed in the younger generation [23]. However, In the study of Ferchichi et al. (2023) and Aslani et al. (2025), no significant relationship between age and nomophobia was reported [14,30]. In the study of Aslani and the study of Ferchichi, nursing students with an age range of 18 to 25 years were studied, while in

our study, nurses with an age range of 18 to 60 years were included in the study. This could be the reason for the contradiction in the results. Although these findings may highlight the influential function of new technologies on young people's lifestyle, quality of life, and mental health, there is a controversy. Therefore, further studies need to confirm and generalize them.

Our findings indicated that although men lacked access to information more than women, women were more unable to communicate than men. However, although the average nomophobia score was higher in women than in men, the effect of gender on nomophobia was not statistically significant. Consistent with our results, studies on young Turkish people and Indonesian nurses revealed no relationship between Nomophobia and gender [28, 31]. On the other hand, other studies showed the main effect of gender on the self-confidence and Nomophobia of students [29, 32]. The study by Aldhahir et al. (2023) has identified female gender as an effective factor in the prevalence and severity of nomophobia [33].

These studies' results are inconsistent with the present study's results. Cultural and social differences could be the reason for this discrepancy, so further investigation into the effect of gender on the level of nomophobia seems necessary.

Considering marital status, we found fewer scores of Nomophobia, lack of access to information, and loss of comfort in married than in single people. In the studies of Çelik İnce et al. (2021), Anggoro et al. (2022), and Aldhahir et al. (2023), marital status did not affect the prevalence and severity of nomophobia [31,32,34]. These results are inconsistent with the results of our study. The discrepancy in the results of these studies with ours may be because the aforementioned studies examined young students in various fields and found that marriage was less common in this group than in employed people. To confirm the influence of marriage on the Nomophobia component, more investigations should be conducted in future studies.

Moreover, people who used smartphones for more than 8 hours and checked them for more than 12 per day had the highest scores in Nomophobia and its sub-dimensions, and the higher the phone use and check, the higher the scores. Moreover, the consumed internet traffic had a slightly significant difference in the inability to communicate. However, it was not an efficient factor for Nomophobia and other subclasses. In line with these results, a study on Turkish students reported a significant relationship between the time of mobile phone use and Nomophobia and the internet usage time related to the inability to communicate and losing online connection, but not other Nomophobia components. Although daily mobile internet usage time significantly influenced all subclasses [29].

In this study, some limitations may have affected the results of the present study. These limitations include the following: The present study only examined the nurses of the educational and therapeutic hospitals of Gorgan City and also did not examine the psychiatric components of nomophobia, such as loneliness, self-satisfaction, self-confidence, personality disorders, sleep disorders, stress, and anxiety.

Conclusion

Based on the present study, Nomophobia prevalence was mild to moderate levels among nurses in teaching and medical hospitals in Gorgan, Iran. Female, young, and single people, individuals who spent more time on mobile phones, had more social messaging software, and checked their cell phones more often were more likely to have Nomophobia. Due to the incidence of moderate/high Nomophobia in nurses, it is necessary to make preventive decisions and plan training programs on the mental health of medical staff. Alternative measures are also recommended for treating mild levels of Nomophobia and drug therapy for moderate to high cases. Therefore, it is recommended that appropriate planning and control measures be taken to prevent negative consequences and adverse effects.

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Conflict of interest

None declared.

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Ethical Considerations

All participants were informed that participation is voluntary and reassured that responses would remain confidential. Informed written consent was also obtained from all participants filling in the questionnaires. Participants may withdraw from the trial at any point without any penalty and will not receive compensation for taking part.In the study, personal information about participants collected during the consent/data collection processes is stored securely.

Code of Ethics

The study was conducted by the Declaration of Helsinki and approved by the Golestan University of Medical Sciences IR.GOUMS ethics committee.REC.1400.38.

Authors' Contributions

Mohammad Mehdi Azizi: Participated in the conception and design of the study. Carried out the literature search. Participated in the acquisition of the data; Amir Maghsoudloonejad: participated in the acquisition of the data. Participated in the final approval of the version to be submitted; Najmeh Shahini: participated in the interpretation of the results and drafting of the manuscript. Participated in the final approval of the version to be submitted; Abdolhalim Rajabi: carried out the statistical analysis; Leila Kashani: Participated in the conception and design of the study. Participated in the interpretation of the results and drafting of the manuscript. Participated in the final approval of the version to be submitted; All the authors read and approved the final manuscript.

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