

An investigation of the relationship between smartphone addiction and job performance of healthcare employees

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Abstract

Purpose: To determine the smartphone addiction and employee performance levels of healthcare personnel working in a university hospital and to investigate their relationship.

Design and Method: This study is descriptive and correlational design. The data collection tool consisted of the Descriptive Information Form, Smartphone Addiction Scale, and Employee Performance Scale.

Findings: The majority of participants were female, aged 30 and younger, working night shifts, and physicians. The majority of those who run out of monthly data bundles said they purchase once-off bundles. There was a negative statistically significant relationship between smartphone addiction and employee performance.

Practice Implications: Healthcare employees' level of smartphone addiction adversely affects employee performance and it is recommended for the managers of the institution to develop internal strategies to prevent those effects.

KEYWORDS

addiction, healthcare employee, performance, smartphone

1 | INTRODUCTION

Many things have changed both in our professional and private lives since the days when the concept of the Internet entered our daily lives. We have been introduced to various products, services, and concepts that we have never known. With the development of technology, smartphones that are increasingly gaining a place in people's lives and facilitating everyday life in many aspects are among them (Liu et al., 2017). They combine the features of phone and computer systems to bring together both communication and online networking on the same device (Lepp et al., 2015). There are various research results and reports showing that smartphone use has become extremely widespread both in the world (Statista, 2017; We Are Social, 2019) and in Turkey (Turkish Statistical Institute [Türkiye İstatistik Kurumu], 2021). The data show that such an increase in smartphone use leads to many problems related to uncontrolled use (Gezgin et al., 2017; Han et al., 2017). One of the leading problems is smartphone addiction (nomophobia) (Hosgor et al., 2017), which is associated with a desire to

constantly check notifications (Oulasvirta et al., 2012), not turning off the phone all day, spending a long time on the phone before bed (Bragazzi & Del Puente, 2014), obsessive use, and increased anxiety level (Matusik & Mickel, 2011). Nomophobia, which is now a matter of debate over whether it is a technology addiction or a syndrome (Tavolacci et al., 2015), is defined as a fear of being deprived of a mobile phone and unable to communicate (Yildirim & Correia, 2015).

Nomophobia has adverse physical, mental, and psychological effects on people, groups, and societies (Randler et al., 2016; Tao et al., 2017). There are several studies indicating that people with nomophobia experience the fear and anxiety of going offline when they are away from their smartphones, their batteries are low, or they do not have chargers (Adnan & Gezgin, 2016; Jena, 2015; Pavithra et al., 2015). Constantly being on the phone leads to having difficulty concentrating on work, loss of time, lack of motivation, and even work accidents (Demirci et al., 2014; Tamura et al., 2017; Zarghami et al., 2015).

It is known that healthcare personnel use the Internet both for their professional needs and to spend time on social media (Eroğlu &

Kutlu, 2020). This situation is considered to adversely affect performance, efficiency, quality of service, and patient safety. Therefore, determining the nomophobia levels of healthcare employees can provide important organizational information on revealing existing workload perceptions (Hoşgör et al., 2020). Some researchers suggest that spending long hours on the phone and addiction behaviors adversely affect not only individuals but also the organization, while reducing organizational efficiency and job performance (Hung et al., 2011; Köse et al., 2012; Örucü & Yıldız, 2014).

Consequently, studies examining nomophobia in both national and international literature usually aim to determine the prevalence of nomophobia among young people and children, as well as its influencing factors (Gökçeşlan et al., 2016; Kırık et al., 2016). The data on the consequences of nomophobia in healthcare institutions are quite inadequate. For these reasons, the current study will contribute to the literature. In addition, conducting this study in the healthcare sector is important both for providing information on organizational outcomes and for covering a sample of employees. Accordingly, the study aims to (1) determine the nomophobia levels of healthcare personnel, (2) compare their levels according to socio-demographic factors and smartphone usage behaviors, and (3) reveal the relationship between employees and job performance.

2 | METHOD

2.1 | Study design

The research design is descriptive, cross-sectional, and correlational.

2.2 | Sample and participants

The universe of the research consists of full-time healthcare personnel in a university hospital in Turkey. During the research, a total of 367 people were working in the hospital, including 182 physicians, 118 nurses, and 67 healthcare technicians. Approximately 63 people were not reached due to maternity leave, sick leave, or annual leave. The surveys were handed to 300 people using convenience sampling, and data were collected from 262 people who agreed to participate in the study. The response rate was 87.3% and 71.4% of the universe was reached.

2.3 | Data collection and instruments

The data were collected using the Descriptive Information Form, Smartphone Addiction Scale, and Employee Performance Scale.

2.3.1 | Descriptive Information Form

The form consists of 10 questions about the personal (age, gender, marital status, educational status, occupation) and smartphone usage

(smartphone usage time, data bundle, running out of data, and purchasing once-off bundles) characteristics of the employees.

2.3.2 | The Smartphone Addiction Scale (SAS)

The scale was developed by Kwon et al. (2013), was adapted to Turkish by Demirci et al. (2014). The scale consists of a total of 33 items and seven subscales (Daily-Life Disturbance and Tolerance, Deprivation, Positive Anticipation, Cyberspace-Oriented Relationship, Overuse, Social Networks Addiction, and Physical Symptoms). The expressions utilize a five-point scale response format ranging from "0" (*never*) to "5" (*always*). Higher scores indicate higher risks of smartphone addiction. The internal consistency coefficient of the scale was reported to be 0.96 (Demirci et al., 2014). In this study, the Cronbach's alpha coefficient was found 0.94.

2.3.3 | Employee performance scale

The scale was first used by Kirkman and Rosen (1999) and then by Sigler and Pearson (2000), and its Turkish validity and reliability were performed by Çöl (2008). The scale consists of four subscales. The expressions utilize a five-point scale response format ranging from "1" (*strongly disagree*) to "5" (*strongly agree*). The reliability coefficient of the scale used in Turkey was found 0.82, while Cronbach's alpha was 0.92.

2.4 | Data collection and instruments

The data were analyzed using the IBM SPSS Statistics 21.0 (licensed by Istanbul University) package program. In data analysis, descriptive (number, percentage, mean, and standard deviation) and relationship-seeking (Pearson's product-moment correlation coefficient) analyses and internal consistency analysis (Cronbach's alpha) were used. The level of significance was set at $p < 0.05$.

2.5 | Ethical considerations

Before the research, ethical approval was obtained from the Clinical Research Ethics Committee of the university (Date and number: 13.12.2017 and 20-143). Written permission was obtained from the director of the institution where the research was conducted. Permission was obtained via e-mail from the authors who adapted scales to Turkish. The participants were informed of the purpose of the study and informed consents of those who volunteered to participate were obtained.

3 | RESULTS

Distributions of the introductory characteristics of the nurses who participated in the study were given in Table 1.

TABLE 1 Distribution of personal and smartphone usage characteristics of participants (N = 262)

Variables		N	%
Age (Avg: 30.69 ± 7.25; LV: 20, HV: 60) (years)	30>	153	58.4
	30<	109	41.6
Marital status	Married	132	50.4
	Single	130	49.6
Gender	Female	154	58.8
	Male	108	41.2
Educational background	High School/Associate Degree	63	24.1
	Bachelor's Degree	65	24.8
	Postgraduate	134	51.1
Profession	Physician	126	48.1
	Nurse	86	32.8
	Technician	50	19.1
Shift pattern	Day	98	37.4
	Night	164	62.6
At what time do you use your phone the most?	Morning	8	3.1
	Midday	40	15.3
	Afternoon	107	40.8
	Night	107	40.8
How often do you change your phone?	Once in 2 years	46	17.5
	Every 3 years	68	26.0
	Every 4 years	32	12.2
	When it breaks down	108	41.2
	When the new model comes out	8	3.1
Do you run out of monthly data bundles?	Yes	52	19.8
	No	102	38.9
	Rarely	98	37.5
	Often	10	3.8
Do you purchase once-off data bundles?	Yes	72	27.5
	No	110	42.0
	Rarely	70	26.7
	Often	10	3.8

Abbreviations: Avg, average value; HV, highest value; LV, lowest value.

Most participants were female (58.8%), aged 30 and younger (58.4%), holding a postgraduate diploma (51.1%), working night shifts (62.6%), and physicians (48.1%). The majority of participants change their phone when it breaks down (41.2%), use it mostly in the afternoon and at night (40.8%), and the average daily usage time is 4.33 ± 1.96 (2–12 h). In addition, participants use an average data

bundle of 6.49 ± 3.76 (2–18) GB, which occasionally runs out (61.1%). The majority of those who run out of bundle (27.5%) stated that they purchase once-off bundles (Table 1).

Table 2 includes average scores obtained from the overall Smartphone Addiction Scale and its subscales, and Employee Performance Scale, in addition to the internal consistency of the measurements, and the relationship between employees and job performance and smartphone addiction.

When the information in Table 2 is examined, it is seen that the internal consistency is 0.92 for the Employee Performance Scale and 0.94 for the overall Smartphone Addiction Scale, while it ranges from 0.62 to 0.90 for its subscales. The "Overuse" subscale was found to have the strongest effect among healthcare personnel (2.81 ± 0.93). "Cyberspace-oriented relationship" subscale was found to have the weakest effect (1.83 ± 0.86). There is a weak negative statistically significant relationship between smartphone addiction and employee performance ($r: -0.494; p < 0.05$). In addition, subscales of smartphone addiction and employee performance had the strongest relationship with "deprivation" ($r: -0.483; p < 0.05$), while they had the weakest relationship with "positive anticipation" subscale ($r: -0.207; p < 0.05$) (Table 2).

4 | DISCUSSION

The concepts of smartphone addiction or nomophobia have been frequently studied in recent years, especially with adolescents and university students. However, smartphones are widely used by every segment of society and are considered one of the nondrug addictions of the 21st century (Choliz, 2010). Therefore, studies conducted with different age groups or different sectors are valuable. In this study, regarding smartphone addiction, healthcare personnel obtained the highest average score from "overuse" subscale, while the lowest average score belonged to "cyberspace-oriented relationship." The higher scores obtained from "overuse" subscale may be associated with the fact that healthcare personnel frequently use their smartphones to communicate with each other. Participants scored close to the middle value for the overall scale. In the literature, smartphone addiction was similarly found to be at a moderate level in studies conducted with adults (Hosgor et al., 2017; Okuyan et al., 2019; Uguz & Eskin Bacaksiz, 2021).

As a result of the study, healthcare personnel evaluated employee performance at a higher level. They work with high performance in adverse working conditions, where even the most basic resources required to properly fulfill their roles are inadequate (Sharma & Dhar, 2016). In addition to these adverse conditions, the lack of human resources in institutions and the high perception of performance in a work environment where the workload is increasing can be interpreted as a positive factor. As a matter of fact, in some studies that evaluate the employee performance of healthcare personnel, it is stated that their average level of performance is above the middle value or even higher (Eşkin Bacaksız et al., 2018; Saygılı et al., 2016; Şantaş et al., 2017, 2018).

TABLE 2 The relationship between measurements, internal consistency, and employee performance of healthcare personnel and smartphone addiction and its subscales

	M	SD	A	r (1)	r (2)	r (3)	r (4)	r (5)	r (6)	r (7)	r (8)	r (9)
(1) Performance	3.84	0.89	0.92									
(2) Overall addiction	2.44	0.75	0.94	-0.494**	1							
(3) Daily-life disturbance and tolerance	2.49	0.91	0.87	-0.420**	0.826*	1						
(4) Deprivation	2.18	0.97	0.90	-0.483**	0.856*	0.553*	1					
(5) Positive Anticipation	2.73	0.97	0.79	-0.207**	0.754*	0.436*	0.658*	1				
(6) Cyberspace-oriented relationship	1.83	0.86	0.85	-0.414**	0.776*	0.522*	0.732*	0.554*	1			
(7) Overuse	2.81	0.93	0.68	-0.336**	0.801*	0.587*	0.609*	0.571*	0.559*	1		
(8) Social networks addiction	2.50	1.23	0.73	-0.336**	0.672*	0.538*	0.485*	0.359*	0.579*	0.565*	1	
(9) Physical symptoms	2.61	0.87	0.62	-0.361**	0.684*	0.667*	0.421*	0.413*	0.375*	0.559*	0.416*	1

Abbreviations: M: Mean; A: Cronbach's alpha internal consistency coefficient; r: Pearson's correlation coefficient; SD, standard deviation.

* $p < 0.01$; ** $p < 0.05$.

As a result of this study carried out with healthcare personnel, there was a negative relationship between overall smartphone addiction and its subscales and employee performance. Although these relationships are weak, no study was found in the literature that examined these relationships. Some studies report that smartphone addiction adversely affects employee performance and productivity due to its time-consuming effect, and therefore, it is considered another form of "cyberloafing" (Köse et al., 2012). A study also highlights a decline in the success of people who overuse their smartphones (Hosgor et al., 2017). In the literature, there are studies that examine academic achievement levels and smartphone addiction among high school and university students. It is demonstrated by the findings of previous studies that smartphone addiction prevents variables, such as academic achievement and course success (Gupta et al., 2016; Matoza-Báez & Carballo-Ramírez, 2016). Accordingly, it can be concluded that individuals' performance will improve when smartphone addiction is reduced, and in other respect, their level of performance will decrease with increased smartphone addiction. When we observe these relationships from a different point of view, it can be said that high-performance employees have lower levels of smartphone usage. However, the study by Jena (2015) also found no significant relationship between smartphone addiction and academic performance.

It was determined that the performance of healthcare employees was mostly associated with "deprivation" subscale. Individuals who experience smartphone deprivation exhibit behaviors, such as constantly checking for messages or calls, feeling anxiety and tension when they are in an area with no cellular coverage or limited coverage, not turning off their phone 24/7, and bringing their phone into their bed (Bragazzi & Del Puente, 2014). A study found that 53% of participants felt agitated and stressed when they lost their smartphone, run out of battery, or are out of cellular network coverage (Bahi & Delulis, 2015). In this study, the majority of participants stated that they run out of monthly data bundles and purchase once-off packages. Individuals who can easily connect to the Internet via

their smartphones can benefit from various resources, such as downloading various applications, making updates, texting, checking their e-mails, listening to music online, watching movies, using social networks, playing games, paying their bills, shopping online, and even ordering food. However, individuals who always desire these advantages to be easily reached experience stress (technostress) in their absence and exhibit feelings, such as worry, anxiety, fear, anger, or restlessness. In some studies, it was reported that these deprivation symptoms also adversely affect performance (Ayyagari et al., 2011; Yener, 2018).

The lives of people who are constantly or intermittently engaged with their smartphones in the canteen, garden, cafeteria, hospital, home, bus, subway, minibus, or even in class or during patient examination seem to have been influenced by these smart and attractive devices. It is also reported that smartphone addiction causes accidents at home, workplace, traffic, and so forth, due to its distracting features (Ghazizadeh & Boyle, 2009; Nasar et al., 2008; Vladislavjevic et al., 2009). It is considered that this situation may also endanger patient safety and the safety of healthcare employees themselves. In addition to discontentment that will be caused by the reflection of the possible adverse effects on individuals' performance on organizational performance, it stands out as the issues that managers should consider regarding work accidents that may be caused by cognitive and attentional capacity limitations. Because smartphone addiction can adversely affect organizational performance, the quality of patient care, and patient safety along with individual performance, executive-level employees in healthcare institutions are required to focus more on that issue.

5 | CONCLUSION

According to the results of the study, smartphone addiction of healthcare personnel was at moderate levels, and a negative relationship was found between their addiction and performance. This

inverse relationship between the concepts indicates that employees' performance will decrease when their phone addiction increases; while lower levels of addiction refer to higher levels of job performance. Therefore, it can be concluded that managers planning initiatives to determine and reduce smartphone addiction levels of healthcare personnel will have a positive effect on employee performance.

Smartphones, which provide communication and Internet features as computers, tablets, and phones, have started to affect individuals independently of time and space. Therefore, managers in healthcare institutions should create a safe environment for both employees and patients, identify distractions and performance-reducing factors among employees, and take action to take precautions. For this purpose, the frequency and reasons why healthcare employees use smartphones (interviews, social media, newspapers, medical news websites, games, etc.) should be examined. It also seems that smartphone addiction affects organizational outcomes. Consequently, studies are required to examine the relationship between organizational outcomes and smartphone addiction.

6 | IMPLICATIONS FOR PSYCHIATRIC NURSING PRACTICE

According to these results, necessary measures should be taken, especially among young people, to prevent the onset and progression of such addiction at a young age. In addition, studies on how it affects organizational outcomes should be focused on by examining the factors that increase addiction to this digital lifestyle. Smartphones, which have become an indispensable part of today's world, are used by healthcare employees for long periods of time similar to other sectors. Future studies that will be conducted in this regard should focus on the effect of smartphone usage time of healthcare employees during shift hours on patient care and safety, employee performance, and communication-related problems. It is important that managers organize awareness training on these new concepts, such as Internet addiction, smartphone addiction, social media addiction, and time management which are affected by these factors.

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CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.

DATA AVAILABILITY STATEMENT

Authors elect to not share data.

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