BEHAVIORAL ANTECEDENTS OF NOMOPHOBIA: INSIGHTS FROM A STUDY ON SMARTPHONE USERS IN TURKEY[1] [2]

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ABSTRACT |

The aim of this study is to determine individuals' levels of nomophobia and to examine the relationship between nomophobia and demographic variables. The research targets a general population, encompassing participants from different age groups, genders, educational backgrounds, and socioeconomic statuses. Data were collected through surveys administered to participants from Istanbul. The collected data were analyzed using the SMART PLS 3.0 program. The findings revealed that among the sampled smartphone users, social usage had no positive impact on utilitarian motivation and hedonic motivation, while social motivation positively influenced social usage. It was inferred that utilitarian motivation and social motivation positively affected functional usage, whereas hedonic motivation did not. Functional usage was associated with lower levels of nomophobia, while social usage did not have a significant impact on nomophobia. The analysis also revealed that female participants exhibited higher levels of nomophobia compared to males, that nomophobia was more prevalent among younger individuals, and that nomophobia levels increased with daily smartphone usage.

Keywords: *Nomophobia, smartphones, types of motivation, social use, functional use*
JEL Code: *C40, I10, O33*

Scope: *Management information systems*
Type: *Research*

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[2] Compliance with the ethical rules of the relevant study has been declared.

NOMOFOBİNİN DAVRANIŞSAL ÖNCÜLLERİ: TÜRKİYE'DEKİ AKILLI TELEFON KULLANICILARI ÜZERİNE BİR ÇALIŞMADAN BULGULAR

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ÖZ | Bu çalışmanın amacı, bireylerin nomofobi düzeylerini belirlemek ve nomofobi ile demografik değişkenler arasındaki ilişkiyi incelemektir. Araştırma, farklı yaş grupları, cinsiyetler, eğitim düzeyleri ve sosyoekonomik statülerden katılımcıları kapsayan genel bir popülasyonu hedeflemektedir. Veriler, İstanbul ilinden katılımcılara uygulanan anketler aracılığıyla toplanmıştır. Toplanan veriler SMART PLS 3.0 programı kullanılarak analiz edilmiştir. Bulgular, örneklemdeki akıllı telefon kullanıcıları arasında sosyal kullanımın faydacıl motivasyon ve hazsal motivasyon üzerinde olumlu bir etkisi olmadığını, ancak sosyal motivasyonun sosyal kullanımı olumlu yönde etkilediğini ortaya koymuştur. Faydacıl motivasyon ve sosyal motivasyonun işlevsel kullanımı olumlu etkilediği, ancak hazsal motivasyonun etkisinin olmadığı sonucuna varılmıştır. İşlevsel kullanımın daha düşük bir nomofobi düzeyi ile ilişkili olduğu, sosyal kullanımın ise nomofobi üzerinde anlamlı bir etkisinin olmadığı görülmüştür. Kadınların erkeklere göre daha yüksek nomofobi düzeyine sahip oldukları, nomofobinin genç bireyler arasında daha yaygın olduğu ve günlük akıllı telefon kullanım süresi arttıkça nomofobi düzeyinin de arttığı belirlenmiştir.

Anahtar Kelimeler: *Nomofobi, akıllı telefonlar, motivasyon türleri, sosyal kullanım, fonksiyonel kullanım*
JEL Kodları: *C40, I10, O33*

Alan: *Yönetim bilişim sistemleri*
Türü: *Araştırma*

1. INTRODUCTION

The rapid advancements in digital technologies since the early 21st century have dramatically transformed various aspects of daily life. Among these technological innovations, smartphones stand out as one of the most significant, influencing communication, work, education, and entertainment. While these devices have greatly enhanced convenience and connectivity, they have also given rise to new challenges, including technology addiction and excessive usage. One particularly concerning issue is smartphone addiction, which has been increasingly recognized as a threat to individuals' emotional and psychological well-being in today's fast-paced world (Elhai, Levine, Dvorak & Hall, 2017; Panova & Carbonell, 2018).

In recent years, the term "Nomophobia"—short for "No Mobile Phone Phobia"—has emerged in psychology and social sciences literature to describe the anxiety, fear, and stress experienced when individuals are unable to access or use their smartphones. This condition stems from a dependency on digital technologies and reflects a complex interplay of psychological and social factors. Individuals' increasing reliance on smartphones for tasks that extend beyond communication, such as accessing information, managing schedules, and socializing, has led to a deep-seated psychological attachment to these devices, often tied to one's identity and sense of security (Yildirim & Correia, 2015; King, Valença & Nardi, 2010).

Several theoretical frameworks provide insights into the mechanisms underlying nomophobia. Psychological perspectives, such as attachment theory and cognitive-behavioral frameworks, offer explanations for the emotional and cognitive processes that drive individuals' attachment to smartphones (D'Arcy, Herath & Shoss, 2014; Beck, 1976). Additionally, social identity theory and social comparison theory elucidate how smartphone usage influences self-perception and social interactions (Tajfel & Turner, 1986; Festinger, 1954).

Understanding and addressing nomophobia require interdisciplinary approaches that integrate psychological, sociological, and technological perspectives. By analyzing the underlying mechanisms and correlates of nomophobia, researchers can develop targeted interventions to foster healthier smartphone usage habits and mitigate the adverse effects of technology dependency on mental health (Tams, Legoux & Léger, 2018).

In this regard, research on nomophobia holds critical importance in understanding the complexity of this phenomenon and developing effective strategies to safeguard individuals' emotional and psychological health. In this article, data collected using structural equation modeling were analyzed to better understand the origins and impacts of the nomophobia phenomenon. Specifically,

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the relationships between individuals' motivational factors and smartphone usage, as well as their effects on nomophobia, were examined, and hypotheses were tested.

The findings of this study will provide a significant contribution to gaining a more comprehensive understanding of the nomophobia phenomenon and supporting individuals in establishing healthier relationships with digital technologies. Additionally, by offering a framework for future research, this study may facilitate a broader perspective on addressing the nomophobia phenomenon.

2. CONCEPTUAL FRAMEWORK

The primary difference between internet and smartphone addiction and substance addictions such as alcohol or drugs is behavioral and does not involve dependence on a substance. Behavioral addiction can be defined as a disorder characterized by (1) pleasure-seeking and relief from feelings of pain and stress, (2) inability to control or limit behavior (Shaffer, 1996). In behavioral addictions, individuals perceive the use of smartphones and social media as a reward for themselves (Whang, Lee & Chang, 2003). Digital addictions often result from habitual behaviors used to escape reality (Huisman, Garretsen, and Eijnden 2000). When internet or smartphone usage becomes addictive, it can have negative effects on various aspects of life, including financial, physical, psychological, and social aspects (Young, 1999). The increasing prevalence of addiction types such as smartphone or mobile internet addiction may be attributed to the abundance of applications and the flexibility they offer in terms of both time and space (Nielsen & Fjuk, 2010). The wide variety of available applications encourages intense smartphone usage and the need to be online (Okazaki & Hirose, 2009).

Studies have shown that many people are strongly attached to their smartphones (Rush, 2011). Easy addiction to smartphones occurs due to users' desire to be reachable, leading to immediate stress or anxiety when not accessible (Carbonell, Oberst & Beranuy, 2013). The feeling that one cannot access their smartphone, communicate with friends, or stay updated can cause distress and stress in users (Lee, Chang, Lin & Cheng, 2014; Sayrs, 2013). Since smartphones are highly visible in daily life, they have become a critical tool for impression management. For example, being unreachable can lead to stress symptoms because such unreachability may lead to negative impressions when someone expects instant communication.

Most people regulate their behavior based on anticipation; individuals motivate and control their behavior to achieve desired outcomes, a process also

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known as self-regulation (Bandura, 1997). The failure of self-regulation is controlled by emotions and automatic behaviors, guided by impulses (Metcalfe and Mischel, 1999). It can decrease a person's self-efficacy, self-esteem, and lead to stress (Kaysi, Aydemir & Yavuz, 2021). To alleviate such negative effects and regulate themselves, individuals may use media to escape, feel better, or gain a sense of belonging (LaRose and Eastin, 2004). Consciously using the smartphone to escape self-regulation failure and relieve negative emotions can be a starting point. Habits form when actions do not result in desired outcomes and behavior is not adapted. As behavior is no longer consciously observed, it can be defined as addiction. The introduction of smartphones and smartphone applications into our lives creates addictions in individuals.

Nomophobia is a type of phobia characterized by anxiety or distress when one is not with their cell phone or unable to use it for reasons such as no signal or low battery (Argumosa-Villar et al., 2017). Nomophobia is also suggested to exhibit symptoms similar to psychological imbalances, anxiety disorders, or mood disorders. Therefore, it can be defined as an irrational phobia involving anxiety and fear. The irrationality lies in the degree of discomfort users feel at the thought of being separated from their smartphones. Individuals with nomophobia exhibit physical symptoms such as stress, uncontrollable anger, excessive sweating, panic attacks, and so on (Pavithra, Madhukumar & Mahadeva, 2015).

3. RELATED STUDIES

Nomophobia, the fear of being without access to a mobile phone or computer connection, has emerged as a significant concern in the digital age. The pioneering study on nomophobia was conducted in the United Kingdom in 2008, shedding light on this phenomenon and prompting subsequent research endeavors (Yildirim & Correia, 2015). This definition extends beyond the fear of being without a mobile phone to include the apprehension of being technologically disconnected or unable to access the internet, thereby encompassing computers as well.

With the proliferation of smartphones, scholarly attention shifted towards investigating mobile addiction, synonymous with nomophobia (Yilmaz, Yel & Griffiths, 2018). Bianchi and Phillips (2005) laid the groundwork for understanding mobile phone addiction by asserting its classification as a form of technology addiction. They explored the relationship between mobile phone addiction and self-esteem, as well as extraversion personality traits. Subsequent studies have corroborated a heightened propensity for mobile phone addiction, particularly among young individuals.

Reid and Reid (2007) highlighted those interactions facilitated by the internet and internet-based applications trailed behind addictive mobile phone use. Lee et al. (2014) underscored the conceptualization of technology addiction as a behavioral disorder, emphasizing its alignment with compulsive behaviors. Using Young's (1999) internet addiction scale, Kwon et al. (2013) delineated six factors contributing to mobile addiction, including tolerance, withdrawal, daily-life disturbances, virtual relationships, excessive use, and positive expectations.

Yen et al. (2009) posited that excessive cell phone use could signify a manifestation of technology addiction. Merlo et al. (2013) developed a scale based on DSM criteria to identify symptoms of problematic cell phone use. Fidan (2016) observed variables affecting mobile addiction through a study based on DSM diagnostic criteria, categorizing them under withdrawal, lack of control, and tolerance factors.

Kazem et al. (2021) developed and validated the Interactive Electronic Nomophobia Test (IENT) to assess nomophobia in children and adolescents. They utilized Structural Equation Modeling (SEM) to examine the construct validity of the IENT, revealing nuanced insights into nomophobia characteristics across gender and grades. Fuady et al. (2023) conducted validity and reliability tests on the Nomophobia Instrument using the Rasch model. Their analysis identified four dimensions of nomophobia: loss of connectedness, giving up convenience, inability to communicate, and inability to access information, demonstrating the feasibility of measuring the nomophobia construct using SEM.

Valenti (2023) explored the psychometric multidimensionality of the Nomophobia Questionnaire (NMP-Q) using bifactor exploratory structural equation modeling. This advanced modeling approach aimed to unveil the underlying dimensions of nomophobia, shedding light on its complex nature. Arpaci et al. (2017) delved into individual differences in the relationship between attachment styles and nomophobia among college students. Through a structural equation model, they elucidated the mediating role of mindfulness in this relationship, providing insights into the psychological mechanisms underlying nomophobia.

Gentina et al. (2023) conducted a cross-national study on nomophobia among young people from different countries, emphasizing the role of materialism. By employing SEM, they revealed how materialism influences nomophobia differently across national identities, showcasing the importance of considering cultural factors in understanding nomophobia.

Some studies have explored clinical implications and psychological associations related to nomophobia. For instance, King et al. (2010) investigated the relationship between nomophobia and panic disorder with agoraphobia,

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emphasizing the significance of addressing mobile phone dependence in specific clinical populations. Their utilization of SEM identified a tailored approach for managing nomophobia in individuals with panic disorder.

Lin et al. (2023) employed SEM to analyze the impact of social media use on psychological well-being through the mediator of nomophobia. The findings revealed a complex interplay where social media use influenced psychological well-being both positively and negatively through nomophobia and perceived social support. Arslan et al. (2019) examined the fear of missing out (FoMO) and nomophobia among teachers using validated scales. This study shed light on the prevalence of nomophobia among educators and its potential impact on their well-being and professional lives.

Torpil et al. (2022) investigated the relationship between nomophobia and sleep quality in university students, revealing its negative influence on students' psychosocial well-being, including stress, depression, and insomnia. Farchakh et al. (2021) conducted a study in Lebanon to validate a nomophobia scale and explore its association with psychological aspects. Their findings underscored the importance of demographic factors in nomophobia research, with age influencing the likelihood of experiencing nomophobia. Tolan (2022) explored the relationship between nomophobia and mental health issues among university students. The study revealed significant associations between nomophobia, depression, anxiety, and stress levels, highlighting the psychological implications of excessive phone use.

4. METHOD

4.1. Research Purpose and Importance

There are various reasons why smartphones have become integral to people's daily lives, including staying connected with their surroundings, communicating with family and friends through calls or messages, desiring constant communication regardless of time or location, browsing the internet, playing games, and fulfilling the need for listening to music. However, there is a limited number of studies that examine these reasons based on their social, hedonic, and utilitarian motivational dimensions. This study aims to investigate the effects of utilitarian, social, and hedonic motivations on both smartphone usage and nomophobia. Specifically, it explores the relationships between utilitarian, hedonic, and social motivations and smartphone addiction, as well as the impact of these motivations on nomophobia.

4.2. Ethical Permissions for the Research

This study was reviewed and approved by the Ethics Committee of Social and Human Sciences at Atatürk University. The approval process, conducted

during session number 15 with decision number 211 on 06.08.2024, ensured that the research adhered to the ethical standards in terms of its objectives, methodology, and potential impacts. Following this rigorous evaluation, the committee granted permission for the study to proceed, acknowledging that it met all ethical requirements without any concerns regarding risks or violations.

4.3. Methodology

The research data were collected through a questionnaire consisting of two sections. The first section included a "Demographic Information Form" developed by the researcher, which contained five multiple-choice questions covering gender, age group, income level, and education level. The second section introduced a scale focusing on participants' perceptions of nomophobia and smartphone use. This scale comprised 45 items, utilizing a 5-point Likert scale format (ranging from 1-Strongly Disagree to 5-Strongly Agree).

The measurement instruments used in the research model include a total of 45 items. The Nomophobia Scale, validated through structural and validity analysis by Yildirim and Correia (2015), consists of 20 items. Additionally, the motivation scale, re-tested for reliability by Kim et al. (2013) to assess motivation levels, comprises 25 items.

Participants for this study were residents of Istanbul, and data were gathered through an online survey form distributed via Google Forms. The sampling method employed both convenience and snowball sampling techniques. Convenience sampling involved selecting participants who were easily accessible and considered representative of the population, while snowball sampling was utilized by reaching new participants through referrals from those already participating in the study (Tuna, 2016).

To inform participants, short explanatory notes regarding the types of motivation related to mobile phone usage, social usage, and functional usage factors were included in the survey. To minimize missing or invalid responses, all questions were made mandatory. Before conducting the structural model test, the measurement model's appropriateness in terms of reliability, validity, and convergent validity was confirmed. Structural Equation Modeling (SEM) analysis was performed using Smart PLS 3.0 software for this study.

4.4. Research Model and Hypotheses

In the realm of academic research, formulating hypotheses is a critical step that guides the direction of inquiry and helps to define the scope of the study. However, to ensure that these hypotheses are grounded in established knowledge and relevant theoretical frameworks, it is essential to provide a strong rationale

supported by existing literature. Justifying hypotheses with empirical evidence and theoretical perspectives not only strengthens the credibility of the research but also aligns the study within the broader academic discourse. By referencing previous studies and established theories, researchers can demonstrate how their hypotheses build upon or challenge existing knowledge, thus contributing to the advancement of the field. This approach also aids in identifying potential gaps in the literature, offering opportunities for new insights and deeper understanding of the phenomena under investigation. In this context, the hypotheses formulated in this study, along with their supporting literature, are thoroughly discussed below.

H_1: Social motivation has a positive effect on social usage.

Social motivation has a positive effect on social usage. Individuals with strong social motivation use smartphones to maintain and enhance social connections through activities like messaging, social media interaction, and video calls. Research supports that social motivation is a significant predictor of social media use and online communication (Kim, 2014; Yang & Lin, 2019).

H_2: Utilitarian motivation has a positive effect on social usage.

While primarily practical, utilitarian motivation can also drive social usage when social interactions serve a practical purpose, such as networking or professional communication (Chu & Choi, 2011; Shin & Shin, 2016).

H_3: Hedonic motivation has a positive effect on social usage.

Hedonic motivation often drives users to engage in social activities that are enjoyable, such as sharing photos, participating in online communities, or gaming with friends. Research indicates that hedonic motivations are strong predictors of social media and entertainment use (Van Deursen, Hegner & Kommers, 2015; Turel, Serenko & Bontis, 2010).

H_4: Social motivation has a positive effect on functional usage.

Beyond social interactions, social motivation can extend to functional uses, such as coordinating activities and managing group tasks. This is supported by studies showing that social contexts drive functional smartphone use (Baumer, Ames, and Burrell, 2010; Quan-Haase and Young, 2010).

H_5: Utilitarian motivation has a positive effect on functional usage.

Utilitarian motivation is closely associated with functional smartphone use, such as for productivity tools, information retrieval, and task management. Studies confirm that users with high utilitarian motivation are more likely to engage in functional usage (Kim, Mirusmonov, and Lee, 2010; Liang, Li, and Turban, 2014).

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H₆: *Hedonic motivation has a positive effect on functional usage.*

Hedonic motivation may also influence functional usage when tasks are perceived as enjoyable or when the interface is designed to be engaging. Studies suggest that hedonic elements in apps can increase their functional usage (Park & Lee, 2012; Ghani & Deshpande, 1994).

H₇: *Social motivation has a positive effect on nomophobia.*

The literature suggests that heavy social media users are more prone to nomophobia due to their reliance on constant connectivity (Elhai et al., 2017; Oberst, Wegmann, Stodt, Brand & Chamarro, 2017).

H₈: *Utilitarian motivation has a positive effect on nomophobia.*

Given that utilitarian motivation leads to frequent functional usage, disruptions in access to the device can cause significant anxiety, contributing to nomophobia (Cheever, Rosen, Carrier & Chavez, 2014; Clayton, Leshner & Almond, 2015).

H₉: *Hedonic motivation has a positive effect on nomophobia.*

As individuals seek entertainment and pleasure through their smartphones, they may develop a strong attachment to these devices, which can exacerbate nomophobia (King, Valença, Silva, Sancassiani, Machado & Nardi, 2013; Leung, 2014).

H₁₀: *Functional usage has a positive effect on nomophobia.*

Frequent functional usage, such as reliance on smartphones for daily tasks, can lead to increased dependency, thereby contributing to nomophobia. Studies show that individuals who frequently use smartphones for functional purposes are more likely to experience anxiety when unable to access their devices (Samaha & Hawi, 2016; Park, 2019).

H₁₁: *Social usage has a positive effect on nomophobia.*

Social usage can lead to increased reliance on smartphones for maintaining social connections, which can contribute to nomophobia (Gezgin, Cakir & Yildirim, 2018; Horwood & Anglim, 2019).

The model built based on the hypotheses is shown in Figure 1.
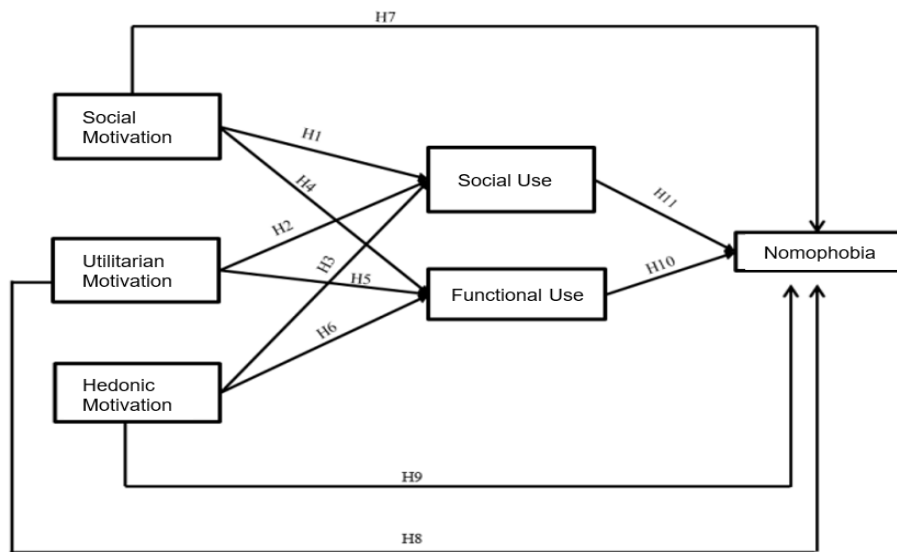
Figure 1: Research Model

5. DATA ANALYSIS

The structural equation model (SEM) is utilized to measure latent variables and their corresponding indicators. The results of the model are calculated using statistical methods and estimations. Data is employed to test the model and confirm or refute hypotheses. For the statistics of the tests to be valid, the data must be of high quality. In this study, the two-stage approach proposed by Anderson and Gerbing (1988) for SEM analysis is adopted. According to this approach, the research model consists of both a measurement model and a structural model. The measurement model expresses variables along with their indicators. Indicators measure and define subfactors, even if they are not primary factors.

5.1. Validity and Reliability Analysis

The results of the internal consistency analysis, calculated based on the Cronbach's Alpha reliability coefficient of the scales used in the study, are presented in Table 1.

Table 1: Factor Analysis Results

Dimensions	Cronbach's Alpha	Rho A	CR	AVE
Nomophobia	0,935	0,936	0,945	0,658
Utilitarian Motivation	0,934	0,935	0,946	0,686
Social Motivation	0,927	0,928	0,939	0,632
Hedonic Motivation	0,920	0,923	0,934	0,612
Social Use	0,855	0,859	0,902	0,698
Functional Use	0,865	0,869	0,899	0,597

Based on the findings, all scales utilized in the model exhibit Cronbach's Alpha values exceeding 0.70, indicating satisfactory internal consistency. Hence, there are no apparent issues regarding the reliability of the measurement model. It is also recommended in studies employing structural equation models to calculate the composite reliability coefficient to assess the overall reliability of the scale. According to Hair et al. (2011), values ranging between 0.60 and 0.70 are deemed acceptable for the composite reliability coefficient, whereas values surpassing 0.70 are considered excellent. Thus, the composite reliability values for all scales employed in the study substantially exceed 0.70, affirming the reliability of the measurement model.

Validity stands as a pivotal criterion for any scale. A scale demonstrating both convergent and discriminant validity is deemed structurally valid. Therefore, prior to testing the study hypotheses, the measurement model underwent confirmatory factor analysis to scrutinize its convergent and discriminant validities. Additionally, for the convergent validity values to be deemed acceptable, the Average Variance Extracted (AVE) values should exceed 0.50.

Table 2: Square Root of Average Variance Extracted (AVE) Values for Factors

	Nomophobia	Utilitarian Motivation	Social Motivation	Hedonic Motivation	Social Use	Functional Use
Nomophobia	**0,351**					
Utilitarian Motivation	0,535	**0,697**				
Social Motivation	0,525	0,762	**0,880**			
Hedonic Motivation	0,545	0,858	0,895	**0,888**		
Social Use	0,643	0,860	0,901	0,928	**0,936**	
Functional Use	0,762	0,865	0,906	0,943	0,951	**0,975**

In Table 2, the bold values represent the square root of the Average Variance Extracted (AVE) for each respective variable, while the remaining values constitute the correlation matrix between factors. Upon examining Table 3, it is observed that, except for nomophobia, the variables included in the model demonstrate sufficient discriminant validity according to the Fornell–Larcker criterion.

The coefficient of determination, R^2, ranges between 0 and 1, with higher values indicating better results (Ringle, Wende and Becker, 2015). Other values to consider during path analysis are the Standardized Root Mean Square Residual (SRMR) and Normed Fit Index (NFI). An SRMR value below 0.08 is desirable, while the NFI value should exceed 0.700. As seen in Table 3, the SRMR value is 0.078, the Chi-square value is 3903.330, and the NFI value is 0.766, indicating that our measurement model is appropriate and reliable (See Table 4).

Table 3: R^2, SRMR, and NFI Values

	R^2 Value	Average R-squared Value
Nomophobia	0,468	0,466
Social Use	0,595	0,592
Functional Use	0,649	0,646

Table 4: SRMR, Chi-Square, and NFI Values for Standard and Structural Models

	Standard Model	Structural Model
SRMR	0,075	0,078
Chi-square	3873,509	3903,330
NFI	0,768	0,766

5.2. Demographic Findings of the Participants

Among the participants in the sample group, 82 individuals (20.7%) are aged between 18 and 20 years, 230 individuals (58.1%) are aged between 21 and 30 years, 60 individuals (15.2%) are aged between 31 and 40 years, 18 individuals (4.5%) are aged between 41 and 50 years, and 6 individuals (1.5%) are 51 years or older. The sample consists of 144 males (36.3%) and 252 females (63.7%). In terms of educational background, 100 participants (25.3%) hold an associate degree, 254 participants (64.1%) hold an undergraduate degree, and 42 participants (10.6%) are either pursuing or have completed graduate-level education. Nearly half of the participants (44.4%) report an income in the range of 0-10,000 TL, a figure that likely reflects a combination of family contributions and scholarships, considering that a significant proportion of the participants are students.

Table 5: Demographic Findings of the Participants

Variable	Characteristics	Frequency	Percent (%)
Age	18-20	82	20.7
	21-30	230	58.1
	31-40	60	15.2
	41-50	18	4.5
	+51	6	1.5
Gender	Male	144	36.3
	Female	252	63.7
Education	Associate	100	25.3
	Undergraduate	254	64.1
	Graduate	42	10.6

Variable	Characteristics	Frequency	Percent (%)
	0-10,000	176	44.4
Income (TL)	10,001-20,000	47	12.0
	20,001-30,000	58	14.6
	30,001-40,000	42	10.6
	+40,000	73	18.4

5.3. Hypoteshis Testing

This section presents the hypothesis testing results, examining the relationships among the key variables of the study across four distinct dimensions. First, the impacts of utilitarian, social, and hedonic motivations on social usage are analyzed to understand the drivers of engagement in social activities. Next, the influences of these motivations on functional usage are explored, highlighting the role of practicality, collaboration, and enjoyment in task-oriented behaviors. The third dimension focuses on the effects of these motivations on nomophobia, uncovering how different motivational factors contribute to mobile dependency. Finally, the relationship between social and functional usage and nomophobia is investigated to assess the differential impacts of these usage types on the fear of being without a mobile device. Using structural equation modeling (SEM), the analysis evaluates the strength, direction, and significance of these relationships, offering comprehensive insights into the validity of the proposed hypotheses.

5.3.1. The Impact of Utilitarian, Social and Hedonic Motivation on Social Usage

Social motivation has the strongest influence on social usage, with a path coefficient of 0.626 (T=8.329, P<0.001). This finding highlights that individuals are primarily driven to engage in social usage due to their intrinsic need for connection, interaction, and maintaining relationships. Such motivations align with the social nature of human behavior, where the desire for communication plays a key role. In contrast, utilitarian motivation, represented by a path coefficient of 0.119 (T=1.702, P=0.089), has a weaker and statistically insignificant effect. This indicates that practical benefits like efficiency or convenience are less relevant in purely social contexts. Similarly, hedonic motivation, with a path coefficient of 0.056 (T=0.832, P=0.405), demonstrates a negligible impact, suggesting that entertainment or pleasure-seeking behaviors are not major drivers of social interactions.

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In contrast, utilitarian motivation, represented by a path coefficient of 0.119 (T=1.702, P=0.089), has a weaker and statistically insignificant effect. This indicates that practical benefits like efficiency or convenience are less relevant in purely social contexts, where the primary purpose is relational rather than task-oriented.

Hedonic motivation, with a path coefficient of 0.056 (T=0.832, P=0.405), demonstrates a negligible impact, suggesting that entertainment or pleasure-seeking behaviors are not major drivers of social interactions. This may be because social usage, by nature, often involves purposeful communication rather than entertainment. Users may prioritize meaningful connections and goal-directed interactions over leisure-driven activities in social platforms. Moreover, hedonic motivation could be more relevant in contexts such as media consumption or gaming rather than in social usage, where relational engagement dominates (See Table 6).

Table 6: The Impact of Utilitarian, Social and Hedonic Motivation on Social Usage

	Path Coefficient	T Value	P Value
Utilitarian Motivation	0,119	1,702	0,089
Social Motivation	0,626	8,329	0,000
Hedonic Motivation	0,056	0,832	0,405

5.3.2. The Impact of Utilitarian, Social and Hedonic Motivation on Functional Usage

Utilitarian motivation emerges as the most significant factor influencing functional usage, with a path coefficient of 0.498 (T=8.946, P<0.001). This reflects the critical role of practicality and task efficiency in activities where achieving functional outcomes is prioritized. Functional usage often involves activities such as productivity tasks, professional work, or process optimization, where individuals rely on tools and platforms that facilitate efficiency and effectiveness.

Social motivation also plays a notable role in functional usage, with a path coefficient of 0.394 (T=6.316, P<0.001). This suggests that collaborative dynamics and group interactions contribute to the adoption of functional tools and platforms. For instance, individuals might be motivated to use functional tools that enhance teamwork, enable communication, or facilitate collective

productivity, demonstrating the influence of social factors even in task-oriented contexts.

However, hedonic motivation, with a path coefficient of -0.043 (T=0.855, P=0.393), has no significant impact. This result implies that functional tasks are less aligned with enjoyment or entertainment, which are central to hedonic motivations. Hedonic motivation may be more relevant in recreational or leisure activities, such as media consumption or gaming, where enjoyment and pleasure are primary drivers. In contrast, functional usage focuses on utility and efficiency, leaving little room for hedonic considerations (See Table 7).

Table 7: The Impact of Utilitarian, Social and Hedonic Motivation on Functional Usage

	Path Coefficient	**T Value**	**P Value**
Utilitarian Motivation	0,498	8,946	0,000
Social Motivation	0,394	6,316	0,000
Hedonic Motivation	-0,043	0,855	0,393

5.3.3. The Impact of Utilitarian, Social, and Hedonic Motivation on Nomophobia

When examining nomophobia, utilitarian motivation stands out as the strongest predictor, with a path coefficient of 0.412 (T=5.262, P<0.001). This finding suggests that individuals who rely heavily on mobile devices for practical and task-oriented purposes are more likely to experience dependency, leading to fear of being without their devices. The significant impact of utilitarian motivation highlights the central role of mobile devices in supporting everyday functional needs, where their absence may disrupt critical activities, intensifying feelings of discomfort or anxiety.

Social motivation also significantly contributes to nomophobia, with a path coefficient of 0.269 (T=3.397, P=0.001). This reflects the fear of losing social connections or missing important interactions when separated from one's device. The desire to remain socially connected and engaged aligns with the intrinsic human need for communication and social belonging. The strong influence of social motivation indicates that mobile devices are not just tools for interaction but vital enablers of continuous social presence and relationship management.

Hedonic motivation, with a path coefficient of 0.161 (T=2.780, P=0.006),

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has a positive but more moderate effect. This suggests that entertainment-oriented usage contributes to dependency, albeit to a lesser extent compared to utilitarian and social motivations. The relatively lower impact of hedonic motivation may be because entertainment-based usage is often situational and less critical to daily functioning. Individuals may engage in hedonic usage primarily for leisure or short-term gratification, which might not foster the same level of dependency as practical or social use.

Overall, these findings underscore the dominant role of utilitarian motivation in predicting nomophobia, as it fulfills critical task-oriented needs. Social motivation, while secondary, also plays a significant role due to its alignment with the fundamental need for social connection. Hedonic motivation, although impactful, has a more situational and limited influence (See Table 8).

Table 8: The Impact of Utilitarian, Social, and Hedonic Motivation on Nomophobia

	Path Coefficient	**T Value**	**P Value**
Utilitarian Motivation	0,412	5,262	0,000
Social Motivation	0,269	3,397	0,001
Hedonic Motivation	0,161	2,780	0,006

5.3.4. The Impact of Social and Functional Use on Nomophobia

The relationship between usage dimensions and nomophobia reveals that functional usage has a robust and significant impact, with a path coefficient of 0.680 (T=15.762, P<0.001). This strong relationship reflects the critical reliance on mobile devices for productivity, task completion, and essential daily functions. Functional usage meets individuals' practical needs, making mobile devices indispensable in their daily routines. The absence of such functionalities can lead to significant disruption, reinforcing dependency and contributing to nomophobia. Functional usage emerges as a key driver of dependency, highlighting its central role in the development of nomophobia.

In contrast, social usage shows a minimal and statistically insignificant effect, with a path coefficient of 0.030 (T=0.698, P=0.486). While social interactions via mobile devices are important, they appear to contribute less to dependency compared to functional usage. This may be because social interactions are often perceived as replaceable through alternative communication methods or platforms, such as in-person interactions or other

devices. Additionally, social usage may not induce the same level of urgency or indispensability, as it is less tied to task-oriented or critical functions. The limited impact of social usage suggests that while valued, it does not play a significant role in driving nomophobia (See Table 9).

Table 9: The Impact of Social and Functional Use on Nomophobia

	Path Coefficient	**T Value**	**P Value**
Social Use	0,030	0,698	0,486
Functional Use	0,680	15,762	0,000

6. DISCUSSION AND CONCLUSION

In this study, the effects of functional and social usage on nomophobia among smartphone users in Turkey were investigated. Nomophobia has become a significant psychological issue in the modern digital age. As smartphones become an integral part of daily life, the level of dependency on these devices increases. The study revealed that young people and heavy users are particularly prone to nomophobia.

The increasing importance of smartphones in daily life causes users to experience emotional stress when they are unable to use these devices or are deprived of them as a means of communication. The findings of the study indicate that functional usage increases nomophobia levels, whereas social usage does not have a significant impact on nomophobia. Functional usage is seen as an essential tool for individuals to carry out their daily tasks and duties, thus the anxiety of being deprived of these devices increases. However, the reason why social usage does not have a significant impact on nomophobia might be that the participants' motivations for social usage are not strong enough to lead to nomophobia. In other words, it is believed that individuals' dependency on smartphones for maintaining social connections is lower compared to functional usage.

The study's results indicate that social, utilitarian, and hedonic motivations all contribute to nomophobia. Individuals with high social motivation use their smartphones to maintain social connections and engage in social interactions. When separated from their smartphones, these individuals may feel socially isolated, leading to anxiety. Those with high utilitarian motivation rely on their smartphones to complete daily tasks, gather information, and carry out work-related activities. Separation from their smartphones may result in feelings of being unable to perform tasks or missing important information, which causes anxiety. Individuals with high hedonic motivation use their smartphones for

entertainment, gaming, and self-gratification. When separated from their smartphones, these individuals may experience distress, leading to anxiety.

Utilitarian usage has an impact on increasing nomophobia. In other words, individuals who use their smartphones to complete daily tasks, gather information, and carry out their work tend to experience more anxiety and stress without these devices. However, social usage does not have a significant impact on nomophobia. This does not mean that individuals who use their smartphones for maintaining social connections do not experience anxiety without these devices. However, the results of the study indicate that social usage contributes less to nomophobia compared to utilitarian usage.

The finding that functional usage increases nomophobia suggests that smartphones are increasingly performing many important tasks in daily life, such as work, education, communication, and access to information, and individuals may have difficulty performing their daily tasks and duties without these devices. This situation increases the anxiety and stress of being deprived of their smartphones, leading to nomophobia. This finding is consistent with previous research by King et al. (2010), Lopez-Fernandez et al. (2014), and Yen et al. (2009). For example, King et al. (2010) examined the relationship between smartphone addiction and panic disorder and agoraphobia and reached similar conclusions.

However, the finding that social usage does not have a significant impact on nomophobia differs from previous research by Reid and Reid (2007), Lenhart and Madden (2007), and Pempek et al. (2009). For example, Reid and Reid (2007) found a relationship between social anxiety and loneliness and mobile phone usage. The reason for this difference might be that the participants in our study did not have strong enough motivations for social usage to lead to nomophobia. This suggests that individuals' dependency on smartphones for maintaining social connections is lower compared to functional usage.

Our study's findings align with Bianchi and Phillips (2005)'s assertion that smartphone addiction can be considered a form of technology addiction. Additionally, they are consistent with Lee et al. (2014)'s perspective that technology addiction should be understood as a behavioral disorder. Kwon et al. (2013)'s identification of six factors contributing to mobile addiction (tolerance, withdrawal, daily life disturbances, virtual relationships, excessive use, and positive expectations) can help explain the impact of functional usage on nomophobia in our study.

Fidan (2016)'s categorization of variables affecting mobile addiction based on DSM diagnostic criteria under factors such as withdrawal, lack of control, and tolerance shows parallels with the findings of our study. The results

of this study are also consistent with the findings of Arpaci et al. (2017), which highlight the complex nature of nomophobia and the importance of individual differences. Arpaci et al. (2017) examined the mediating role of awareness in the relationship between attachment styles and nomophobia, emphasizing the importance of individual differences.

The results indicate the necessity of various intervention strategies to combat nomophobia. In particular, digital detox and smartphone usage limitation strategies can help reduce individuals' levels of nomophobia (Argumosa-Villar et al., 2017; De-Sola et al., 2017; Merlo et al., 2013). Additionally, educational programs can be implemented to raise awareness about the negative effects of smartphone usage and to develop healthy digital habits (Al-Barashdi et al., 2014; Choi et al., 2009; Gibb et al., 2013). These programs can help individuals balance their smartphone usage, practice digital detox, and develop healthy social media usage strategies.

This study provides valuable insights into the complex phenomenon of nomophobia, particularly in the context of Turkish smartphone users. The findings highlight the significant role that functional usage plays in exacerbating nomophobia. As smartphones become increasingly essential for daily tasks, work, and communication, it is not surprising that individuals experience heightened anxiety and stress when deprived of these devices. This reinforces the notion that smartphones have become indispensable tools in modern life, and their absence can lead to substantial psychological distress.

Interestingly, the study reveals that while social usage does not significantly contribute to nomophobia, it should not be dismissed as irrelevant. The lack of a significant relationship may be due to the participants' lower motivation for social interaction via smartphones compared to their functional reliance. However, this does not imply that social connections are unimportant; rather, it suggests that functional dependencies may overshadow social ones in the context of nomophobia. Future research could further explore the nuanced differences between these types of usage and their psychological impacts.

The consistency of our findings with previous studies underscores the robustness of the relationship between functional usage and nomophobia. However, the divergence from earlier research regarding social usage and nomophobia suggests that cultural and contextual factors may play a critical role. It is possible that the social dynamics in Turkey differ from those in other contexts, leading to varying levels of dependency on smartphones for social purposes.

From a practical standpoint, these findings emphasize the urgent need for intervention strategies aimed at reducing smartphone dependency, particularly in

relation to functional usage. Digital detox programs, smartphone usage limitations, and educational initiatives targeting healthy digital habits are essential tools in combating nomophobia. As society continues to integrate digital technologies into every facet of life, it is crucial to develop and implement strategies that promote a balanced and healthy relationship with these devices. Moreover, the role of educational institutions and families in fostering awareness about the risks of excessive smartphone use cannot be overstated. By educating the younger generation about the potential dangers of nomophobia and encouraging healthier digital habits, we can mitigate the long-term psychological impacts of this modern dependency.

In conclusion, this study not only contributes to the growing body of literature on nomophobia but also provides actionable insights for both individuals and policymakers. The findings suggest that addressing the functional dependencies on smartphones is key to reducing nomophobia, while also recognizing the complex interplay of social factors. Moving forward, interdisciplinary approaches that consider cultural, psychological, and technological perspectives will be essential in developing effective interventions and promoting digital well-being in an increasingly connected world.

The limitations of this study include the reliance on self-reported data, which may introduce biases, and the cross-sectional design, which limits the ability to determine causal relationships. Additionally, the sample being confined to Istanbul restricts the generalizability of the findings to other regions or cultural contexts. Future research should employ longitudinal methods to explore the dynamics of these relationships over time and include more diverse geographic samples to enhance the generalizability of the results. Moreover, examining additional factors such as individual psychological traits and the specific contexts of smartphone usage could provide a deeper understanding of nomophobia. Given the rapidly evolving nature of digital technologies, there is also a need for research frameworks that are continually updated to reflect these changes.

7. CONFLICT OF INTEREST STATEMENT
There is no conflict of interest between the authors.

8. FINANCIAL SUPPORT
No funding or support was used in this study.

9. AUTHOR CONTRIBUTIONS
UO: The idea
UO: Design

DC: Collection and / or processing of resources;
UO-DC: Empirical Analysis and / or interpretation
DC: Literature search
DC-UO: Writer.

10. ETHICS COMMITTEE STATEMENT AND INTELLECTUAL PROPERTY COPYRIGHTS

Ethics committee principles were complied with in the study and necessary permissions were obtained in accordance with the intellectual property and copyright principles.

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