

The Paradox of Freedom, Fear and Dependence: Are Digital Leisure Participation Purposes a Predictor of Fear of Missing Out and Nomophobia?

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Abstract

Technological developments in recent years have enabled individuals to participate in digital leisure activities for different purposes. This situation can have negative consequences when the duration and frequency cannot be controlled in terms of time management. The aim of this study is to test the effects of digital leisure participation purposes on fear of missing out and nomophobia. In line with the model created, it was aimed to test the effects of digital leisure participation purposes on fear of missing out and nomophobia; and the effect of fear of missing out on nomophobia. The relational screening model, which is one of the quantitative research methods, was used in the study. 363 females (%69.1) and 162 males (%30.9) were included in the study, where university students constituted the sample group. Pearson Correlation test was applied in order to test the relationship between the concepts. CFA and SEM were used to test the research model. When the findings obtained in the study were examined, positive relationships were determined between digital leisure participation purposes, fear of missing out and nomophobia. Digital leisure participation purposes are predictors of fear of missing out and nomophobia. In addition, it was concluded that the fear of missing out directly affects nomophobia. The results obtained are discussed in the discussion section together with other studies in the literature.

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Keywords: Leisure, Digital Leisure, Fear of Missing Out, Nomophobia.

Özgürlük, Korku ve Bağımlılık Paradoksu: Dijital Serbest Zaman Katılım Amaçları, Gelişmeleri Kaçırma Korkusu ve Nomofobinin Yordayıcısı Mıdır?

Özet

Son yıllarda yaşanan teknolojik gelişmeler, bireylerin farklı amaçlar doğrultusunda dijital serbest zaman etkinliklerine katılımına olanak sağlamaktadır. Bu durumun zaman yönetimi açısından süre ve sıklığı kontrol edilemediğinde olumsuz sonuçları olabilmektedir. Bu çalışmanın amacı dijital serbest zaman katılım amaçlarının, gelişmeleri kaçırma korkusu ve nomofobi üzerine etkisinin test edilmesidir. Oluşturulan model doğrultusunda dijital serbest zaman katılım amaçlarının gelişmeleri kaçırma korkusu ve nomofobi üzerindeki etkisiyle; gelişmeleri kaçırma korkusunun nomofobi üzerindeki etkisinin de test edilmesi amaçlanmıştır. Çalışmada nicel araştırma yöntemlerinden ilişkisel tarama modelinden yararlanılmıştır. Üniversite öğrencilerinin örneklem grubunu oluşturduğu çalışmaya 363 kadın (%69.1) ve 162 erkek (%30.9) çalışmaya dahil edilmiştir. Kavramlar arasındaki ilişkiyi test etme amacıyla Pearson Korelasyon testi uygulanmıştır. Araştırma modelinin test edilmesine ilişkin olarak DFA ve YEM'den yararlanılmıştır. Çalışmada elde edilen bulgular incelendiğinde dijital serbest zaman katılım amaçları, gelişmeleri kaçırma korkusu ve nomofobi arasında pozitif yönlü ilişkiler tespit edilmiştir. Dijital serbest zaman katılım amaçları gelişmeleri kaçırma korkusu ve nomofobinin yordayıcısıdır. Ek olarak gelişmeleri kaçırma korkusunun da nomofobiye doğrudan etkilediği sonucuna ulaşılmıştır. Elde edilen sonuçlar tartışma bölümünde literatürdeki diğer çalışmalarla birlikte ele alınmaktadır.

Anahtar Kelimeler: Serbest Zaman, Dijital Serbest Zaman, Gelişmeleri Kaçırma Korkusu, Nomofobi.

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Introduction

The developments in information and communication technologies in recent decades have caused radical changes in the daily lives of individuals. While the developments provide various conveniences in human life, they have also affected some areas in daily life. One of the areas most affected by the developments is the leisure experiences that individuals meet their psychological and sociological needs. While technological developments cause the balance between work and leisure to come to the point of being erased, individuals have the opportunity to live their leisure experiences independent of time and space through the virtual world. This situation brings about the intensity of the change in leisure experiences from a physical structure to a virtual structure and therefore the digitalization of activities in terms of form. Recently, the transformation of individuals' leisure experiences from a traditional structure to a digital structure is considered as the concept of "digital leisure" (Er and Cengiz, 2022; Er and Cengiz, 2023).

Digital leisure, conceptualized by Er and Cengiz (2022), can be expressed as “the type of leisure in which individuals participate in digital environments with their free will for different purposes such as gaming, entertainment, socialization and communication without any spatial limitation through the use of digital technologies or, in other words, individuals evaluate their leisure experiences with the use of digital technologies”. There are similar studies in the literature supporting this definition. Sintas et al. (2015) define digital leisure as “any freely chosen activity carried out with digital technologies in leisure”. Er and Cengiz (2022; 2023) categorized the purposes of digital leisure participation as gaming, entertainment, socialization and communication. The transformation from traditional to digital in leisure experiences brings with it the necessity of categorizing and examining different purposes in participation in these activities. In participating in digital leisure activities, individuals participate in digital applications that mediate social life experiences such as gaming (Eklund, 2012; Boudreau and Consalvo, 2014), entertainment (Boyle et al., 2012; Stollfuß, 2020), socialization (De Francisco et al., 2016), communication (Meier et al., 2021; Sharaievska, 2017) and learning (Grimley, 2012) without any limitations (Carnicelli et al., 2017).

Digital leisure activities provide individuals with some contributions such as opportunities for social interaction (Rojas de Francisco et al., 2016). In addition, there are also studies that reveal the relationship between digital leisure participation in the workplace and employee well-being and productivity and the positive outcomes (Gellmers and Yan, 2023). In addition to the positive results mentioned, there is evidence that if the time spent on digital leisure activities increases, it can negatively affect general health and well-being and reduce the quality of life. The reflections of the deteriorating physical and mental health of individuals can result in psychological disorders such as

Fear of Missing Out and Nomophobia (Ramos-Soler et al., 2021; Öz and Erdoğan, 2023; Akçakese and Demirel, 2024; Argan et al., 2024; de la Rosa et al., 2024).

Fear of Missing Out, one of the disorders associated with technological developments, freedom of leisure and participation in digital leisure in the 21st century, has historical roots as an element of human behavior (Hodkinson, 2019). When its conceptual basis is examined, the definition of FoMO is included in the Cambridge Dictionary (2025) as "an anxious feeling that an individual may miss exciting events that other people will attend, especially because of what they see on social media". Similarly, the Oxford Dictionary (2025) defines the concept as "anxiety that an exciting or interesting event may occur somewhere else, caused by posts seen on a social media site, fear of missing out". While FoMO is defined as the anxiety that other individuals may have rewarding experiences in environments where the individual is not present, it is stated that it occurs when the individual is constantly interested in what others are doing (Przybylski et al., 2013). Especially in social network users born after the 1990s, FoMO negatively affects interpersonal relationships and behaviors. Individuals belonging to Generation Y and Generation Z in these generations frequently and unconsciously check notifications on mobile devices (Wang et al., 2021). Examining the theoretical framework of this type of anxiety with its causes and consequences, Tanhan et al. (2022) draw attention to the fact that FoMO causes significant negativity, especially in the educational, social, economic and psychological life areas of young people and young adults. In another theoretical approach, FoMO can be considered as a motivational force based on basic human needs such as establishing relationships, autonomy and competence within the scope of Self-Determination Theory. It is an emotional and cognitive experience based on the perceived inconsistency between individuals' current and potential experiences and what they experience in their social environment. An individual's needs for competence, autonomy, and relatedness can be direct determinants of feelings of loneliness or FOMO (Lenny et al., 2019). For this reason, FoMO is addressed in two dimensions as emotional components and cognitive components. While the emotional component expresses the emotional experience experienced by individuals, it is mostly negative and is driven by negative but valuable emotions such as anxiety, fear, regret and jealousy. The cognitive component is examined in two dimensions as social comparison and counterfactual thoughts. Social comparison describes the perceived inconsistency between individuals' experiences and what their close and extended social circles experience; counterfactual thoughts describe the perceived inconsistency between individuals' current and potential experiences (Neumann, 2020).

The main reasons underlying FoMO are associated with the intensive use of social media in Tarhan's (2021) study. The fact that social media has become an important part of individuals' lives, its spread and the development of social networks cause individuals to connect to these networks as

if they were a pleasure-giving substance and to feel bad when they feel a lack of it or cannot connect in virtual environments. Tanhan et al. (2022) argue that FoMO is mostly due to the individual's inability to meet their needs for satisfaction. In addition, they argue that FoMO is an old type of anxiety and that with the spread of social media, individuals perceive situations such as belonging to society and being aware of society as vital. Another reason for FoMO is that individuals always want to have more expensive and popular items or a more magnificent life with competitive feelings. The effort to meet this demand also negatively affects the individual psychologically and economically. Considering the global capital order and the freedom areas of individuals regarding leisure, society is quite prone to this anxiety. Because the individual has enough time to think, consume and experience different emotions.

The symptoms of FoMO are listed by Tekayak and Akpınar (2017) as follows: Feelings of tension/anxiety when social media platforms are not accessible, constant monitoring of who shares on social media platforms and to what extent they interact with each other, trying to learn all the posts made during the period when they cannot access social media platforms by going back, feeling less tense when they see the previously seen message after scanning backwards when they access social media platforms, and being nomophobic. In addition, the authors argue that FoMO can also cause Nomophobia. There are studies in the literature proving the relationship between FoMO and Nomophobia (Gezgin et al., 2018; Hoşgör et al., 2021; Braña Sánchez and Moral Jiménez, 2023).

The concept of Nomophobia, which is thought to be related to FoMO, is defined as the individual's discomfort or anxiety caused by not being able to use a mobile or smartphone, computer or any virtual communication device (King et al., 2013). In other words, nomophobia is defined as the fear of not being able to use a smartphone or the services it offers. The fear of not being able to communicate and access information, losing the connection provided by smartphones and giving up the convenience provided by smartphones reflects the content of nomophobia (Gonçalves et al., 2020).

Rodriguez Elizalde (2022), who addresses the main symptoms of nomophobia, lists these symptoms as follows: Individuals who put their work, business, leisure and interpersonal relationships to the background due to excessive focus on their smartphones; prefer to use them even in places where use is prohibited and dangerous; are anxious and tense due to fear of losing their phones and always keep them in an accessible area; always carry a spare charger with them; constantly check notifications and calls; keep their mobile phone with them 24 hours a day; have little physical and social interaction and prefer to communicate via digital devices instead; and experience physical symptoms such as agitation, nervousness, distress, disorientation and often tachycardia in line with these symptoms are described as “nomophobic”.

Studies conducted on university student samples reveal that individuals with high levels of Nomophobia experience negative outcomes due to increased psychological, emotional, social and physical side effects due to excessive smartphone use (Notara et al., 2021). In addition, while Nomophobia is seen to cause low academic achievement in students (Wahnuyi, 2022) and problematic internet use, it is emphasized that nomophobia can be combated as students develop problem-solving skills (Karaoglan Yilmaz et al., 2023). Nomophobia also affects individuals' work and workplace performance (Tams et al., 2018; Wang and Suh, 2018; Hessari et al., 2024). There is evidence that Nomophobia negatively affects individuals' personality, self-esteem, anxiety, stress and academic performance, as well as physical and mental health. Therefore, based on the literature, it is possible to say that Nomophobia is a health problem that causes psychological, physical and behavioral problems that negatively affect students, especially during university years (Mir and Akhtar, 2018; Moreno-Guerrero et al., 2020; Rodríguez-García et al., 2020).

According to the We Are Social 2025 report, one of the most comprehensive reports on the use of digital technologies worldwide, approximately 5.56 billion people between the ages of 16 and 64 have internet access. As of 2025, the time individuals spend on daily internet use worldwide is determined to be an average of 6 hours and 38 minutes per day. When the last 10 years are taken into consideration, it is seen that the number of internet users in terms of the world population has almost doubled between 2015-2025, and it is possible to say that the time spent on digital platforms is increasingly covering a large part of daily life. Especially individuals between the ages of 16-24 and 25-34 participate in digital leisure activities, online or offline, for many purposes such as gaming, entertainment, socializing, communication, education, information search, shopping and content consumption (We Are Social, 2025). In the literature, it is seen that FoMO and Nomophobia levels are linked to excessive use without a balance in terms of participation duration and frequency. While it is necessary to examine whether individuals spend a significant part of their daily lives on digital leisure activities, regardless of their work, education and leisure, it affects psychological disorders such as FoMO and Nomophobia, and this situation reflects the reason for the current study and its subjective aspect. Determining the daily life quality of individuals, time management and physical and psychological problems they may encounter also proves the necessity of this study.

In line with this direction, the aim of the study is to test the effect of digital leisure participation purposes on fear of missing out (FoMo) and nomophobia. The hypotheses and research model related to the study are as follows:

Hypothesis₁: There is a significant relationship between university students' digital leisure participation purposes, fear of missing out, and nomophobia level.

Hypothesis₂: University students' digital leisure participation purposes have an impact on the level of fear of missing out and nomophobia.

Hypothesis₃: University students' fear of missing out has an effect on their nomophobia level.

Materials and Method

Study Design

The relational screening model, one of the quantitative research methods, was used for the research model. The screening design provides a quantitative description of the trends, attitudes and thoughts in the universe, and tests the relationships between variables by examining a sample of the universe. The screening design also helps researchers find answers to three questions: a) descriptive questions b) questions about the relationships between variables and c) questions about the predictive relationships that occur between variables over time (Cresswell and Cresswell, 2021).

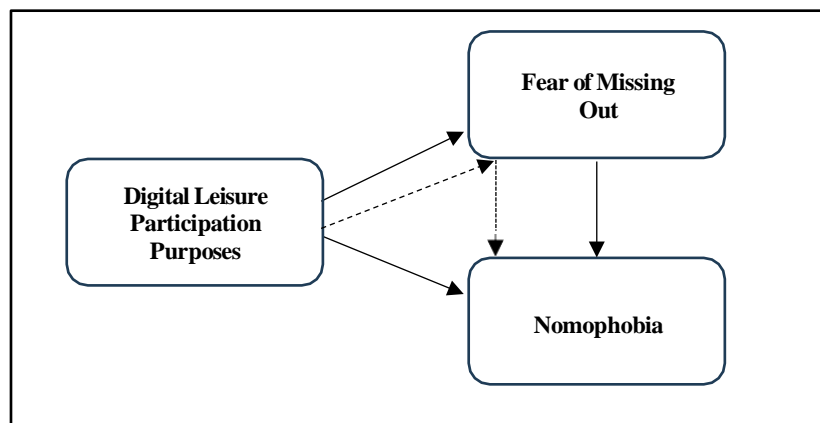


Figure 1. Research Model

Study Group

The sample group of the study consists of 363 females (69.1%) and 162 males (30.9%) with an average age of 21.88 ± 3.067 . It is seen that 64.8% of the participants participate in physical leisure activities and 35.8% do not. In terms of daily social media control, it is seen that 86.5% of the participants check regularly and 13.5% do not check. When the distribution of the study group is examined in terms of daily digital leisure participation duration, it is seen that 19.4% participate for 1 hour or less, 48.6% for 2-3 hours, 26.5% for 4-5 hours, and 5.5% for 6 hours or more. When the preference distributions of the research group are examined in terms of weekly participation frequency, it is seen that 31.4% participate for 1-2 days, 23.2% for 3-4 days, and 30.9% participate

for 5 days or more weekly. However, 5.3% of the participants stated that they only participated on weekdays and 9.1% only on weekends.

Table 1

Demographic Information of Study Group

		\bar{X}	S.s.
Age (18-29)		21.88	3.067
		N	%
Gender	Female	363	69.1
	Male	162	30.9
Participation in Physical Leisure Activity	Yes	340	64.8
	No	185	35.2
Daily Social Media Check	Yes	454	86.5
	No	71	13.5
Daily Digital Leisure Participation Time	1 hour and below	102	19.4
	2-3 hours	255	48.6
	4-5 hours	139	26.5
	6 hours and above	29	5.5
Weekly Digital Leisure Participation Frequency	1-2 days	165	31.4
	3-4 days	122	23.2
	5 days and above	162	30.9
	Weekdays only	28	5.3
	Weekend only	48	9.1

Data Collection Tools

In the study, the demographic information form prepared by the researcher, the Digital Leisure Participation Purposes Scale (DLPPS) developed by Er and Cengiz (2023), the Fear of Missing Out Scale adapted to Turkish culture by Eskiler and Örgen (2022), and the Nomophobia Scale developed by Yıldırım et al. (2016) were used as data collection tools.

Demographic Information Form

The demographic information form prepared by the researchers was used to collect data on the participants' age, gender, physical leisure activity participation, daily social media check, daily digital leisure participation time, and weekly digital leisure participation frequency.

Table 2

Sub-Dimension Means and Cronbach Alpha Reliability Coefficients Relating to Scales

Sub-Dimension		α	\bar{X}
DLPPS	Game	.80	4.282
	Entertainment	.89	4.391
	Socialization	.86	4.242
	Communication	.85	4.490
FOMO	Personal	.89	3.334
	Social	.92	2.954
Nomophobia	Not Being Able to Access Information	.89	3.753
	Giving Up Convenience	.86	3.758

Not Being Able to Communicate	.93	4.110
Losing Connectedness	.91	3.285

Digital Leisure Participation Purposes Scale (DLPPS)

Digital Leisure Participation Purposes Scale (DLPPS) was developed by Er and Cengiz (2022) to consider the leisure activities that individuals participate in using digital technologies as "digital leisure" activities and to determine the purposes of participation in these activities and to contribute a valid and reliable measurement tool to the literature. The sub-dimensions of the scale, which consists of a total of 24 items, represent digital leisure participation purposes as game ($\alpha=.80$), entertainment ($\alpha=.89$), socialization ($\alpha=.86$) and communication ($\alpha=.85$). The scale, which has a 7-point Likert-type structure, has options between 1- Strongly Disagree and 7- Strongly Agree.

Fear of Missing Out Scale

The Fear of Missing Out Scale was developed by Zhang et al. (2020) and the validity and reliability of the Turkish form of the concept of fear of missing out in the context of leisure activities was established by Eskiler and Örgen (2022). The scale, consisting of a total of 9 items, consists of 2 sub-dimensions: personal ($\alpha=.89$) and social ($\alpha=.92$). The scale, which has a 7-point Likert-type structure, has options between 1-Strongly Disagree and 7-Strongly Agree.

Nomophobia Scale

The Nomophobia Scale was developed by Yıldırım et al. (2016) in a study conducted to examine nomophobia, or the fear of being away from a mobile phone, among young adults in Turkey. The scale, consisting of 20 items and 4 sub-dimensions, has a 7-point Likert-type structure ranging from 1-Strongly Disagree to 7-Strongly Agree. The reliability coefficients in the current study regarding the sub-dimensions of the scale are $\alpha=.89$ for not being able to access information; $\alpha=.86$ for giving up convenience; $\alpha=.93$ for not being able to communicate; and $\alpha=.91$ for losing connectedness. These results show that the data obtained and the data collection tools used in the study have a highly reliable structure (George & Mallery, 2019).

Data Collection

The necessary ethics committee permission for the collection of data was obtained from the Istanbul Aydın University Social and Human Sciences Ethics Committee with the decision dated 21.12.2023. The forms related to the measurement tools created by the researcher were sent to the university student research group online and face-to-face. Detailed information about the study was given to the research group in the specified forms.

Analysis of Data

In the analysis of the data, statistical methods were used to answer the hypotheses of the research. In this direction, SPSS 25 and Jamovi package programs were used in the analysis of the data. In the statistical presentation of the obtained data, arithmetic mean, standard deviation and frequency values were presented. In order to examine the normality distribution of the data set, Shapiro-Wilk (Field, 2009) and Skewness and Kurtosis tests (Tabachnick and Fidell, 2013) were used and it was determined that the data showed a normal distribution. In order to examine the differences in the participation purposes, fear of missing out and nomophobia levels of university students participating in digital leisure activities in terms of gender, physical leisure participation and daily social media check variables, Independent Samples T-Test was applied, and in order to compare the daily participation time of digital leisure and weekly participation frequency of digital leisure variables, Analysis of Variance-ANOVA was applied. The Pearson Correlation Test was used to examine the relationship between digital leisure participation purposes, fear of missing out, and nomophobia. Confirmatory Factor Analysis and Structural Equation Modeling were used to test the direct effect of digital leisure participation purposes on fear of missing out and nomophobia, and the direct effect of fear of missing out on nomophobia. The Structural Equation Model also reveals the results regarding the general structure of the research model.

Findings

When Table 3 is examined, the Pearson Correlation Test results for the relationship between the DLPPS, FoMOS and Nomophobia Scale are seen. When the relationship between the Digital Leisure Participation Purposes Scale (DLPPS) and the Fear of Missing Out Scale (FoMOS) is examined; a positive, moderate relationship was found between the FoMOS “personal” sub-dimension and the DLPPS game ($r=.344$; $p=.000$), entertainment ($r=.379$; $p=.000$), socialization ($r=.389$; $p=.000$) and communication ($r=.389$; $p=.000$) sub-dimensions. A positive, low-level relationship was found between the FoMOS “social” sub-dimension and the DLPPS game ($r=.248$; $p=.000$), entertainment ($r=.238$; $p=.000$), socialization ($r=.286$; $p=.000$) and communication ($r=.245$; $p=.000$) sub-dimensions.

Table 3

Pearson Correlation Test Results for the Relationship Between Digital Leisure Participation Purposes, Fear of Missing Out and Nomophobia

		Digital Leisure Participation Purposes				Fear of Missing Out		Nomophobia			
		1	2	3	4	5	6	7	8	9	10
Digital Leisure Participation Purposes	1-Game	r	1	.711**	.452**	.510**	.344**	.248**	.368**	.336**	.243**
		p		.000	.000	.000	.000	.000	.000	.000	.000
	2- Entertainment	r		1	.695**	.702**	.379**	.238**	.378**	.355**	.312**
		p			.000	.000	.000	.000	.000	.000	.000
	3- Socialization	r			1	.782**	.389**	.286**	.306**	.375**	.328**
		p				.000	.000	.000	.000	.000	.000
	4- Communication	r				1	.389**	.245**	.379**	.401**	.350**
		p					.000	.000	.000	.000	.000
Fear of Missing Out	5-Personal	r					1	.690**	.525**	.550**	.456**
		p						.000	.000	.000	.000
	6-Social	r						1	.428**	.475**	.363**
		p							.000	.000	.000
Nomophobia	7- Not Being Able to Access Information	r							1	.751**	.647**
		p								.000	.000
	8- Giving Up Convenience	r								1	.743**
		p									.000
	9-Not Being Able to Communicate	r									1
		p									
	10- Losing Connectedness	r									
		p									

**p<0.01

When the relationship between the Digital Leisure Participation Purposes Scale (DLPPS) and the Nomophobia Scale was examined; a positive and moderate relationship was found between the “not being able to access information” sub-dimension of the Nomophobia Scale and the game (r=.368; p=.000), entertainment (r=.378; p=.000), socialization (r=.306; p=.000) and communication (r=.379; p=.000) sub-dimensions. A positive and moderate relationship was found between the “giving up convenience” sub-dimension of the Nomophobia Scale and the game (r=.336; p=.000), entertainment (r=.355; p=.000), socialization (r=.375; p=.000) and communication (r=.401; p=.000) sub-dimensions. A low level positive correlation was found between the “not being able to communicate” sub-dimension of the Nomophobia Scale and the game (r=.243; p=.000) sub-dimension; a moderate level positive correlation was found between the entertainment (r=.312; p=.000), socialization (r=.328; p=.000) and communication (r=.350; p=.000) sub-dimensions. A low level positive correlation was found between the “losing connectedness” sub-dimension of the Nomophobia Scale and the game (r=.248; p=.000) and communication (r=.274; p=.000) sub-dimensions; a moderate

level positive correlation was found between the entertainment ($r=.301$; $p=.000$) and socialization ($r=.339$; $p=.000$) sub-dimensions.

When the results of the relationship between the Fear of Missing Out Scale (FoMOS) and the Nomophobia Scale were examined, a low level positive relationship was found between the “personal” sub-dimension of the FoMOS and the Nomophobia Scale sub-dimensions of not being able to access information ($r=.525$; $p=.000$), giving up convenience ($r=.550$; $p=.000$), not being able to communicate ($r=.456$; $p=.000$) and losing connectedness ($r=.528$; $p=.000$). A positive and moderate relationship was found between the “social” sub-dimension of the FoMOS and the sub-dimensions of not being able to access information ($r=.428$; $p=.000$), giving up convenience ($r=.475$; $p=.000$), not being able to communicate ($r=.363$; $p=.000$), and losing connectedness ($r=.519$; $p=.000$).

Confirmatory Factor Analysis was performed using the maximum likelihood estimation method to verify the model created within the scope of the research. Confirmatory Factor Analysis refers to an analysis process aimed at creating a latent variable (factor) based on observed variables through a previously created model and is used to verify a structure (Yaşlıoğlu, 2017). For this purpose, Confirmatory Factor Analysis was performed using the Jamovi statistical package program. In addition, structural equation modeling was used in order to test the relationship of the structure to be measured. Structural Equation Modeling refers to the sum of statistical techniques that allow the examination of a series of relationships between one or more continuous or discrete independent variables and one or more continuous or discrete dependent variables. Both independent and dependent variables can be factors or measured variables. It is stated that Structural Equation Modeling is also called causal modeling, causal analysis, simultaneous equation modeling, analysis of covariance structures, path analysis or Confirmatory Factor Analysis (Ullman and Bentler, 2013).

Table 4

Regression Weights, Internal Consistency, Composite Reliability and Average Variance Exracted

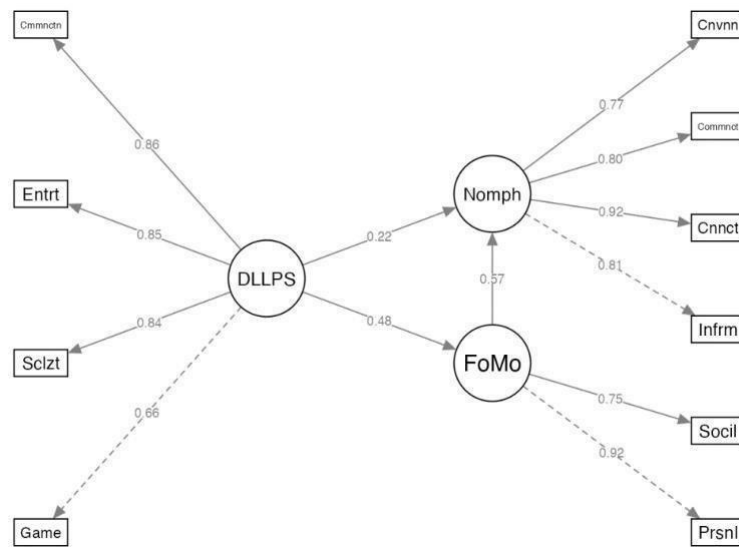
Factors/Items		Estimate	SE	Z	p	Stand. Estimate	α	CR	AVE
Digital Leisure Participation Purposes Scale (DLLPS)							0.876		0.636
Game	DLPPS-1	1.141	0.0847	13.47	<.001	0.573	0.787	.801	0.507
	DLPPS-2	1.497	0.0721	20.76	<.001	0.797			
	DLPPS-3	1.482	0.0703	21.07	<.001	0.803			
	DLPPS-4	1.233	0.0681	18.11	<.001	0.723			
	DLPPS-5	0.750	0.0821	9.14	<.001	0.408			
Entertainment	DLPPS-6	1.205	0.0642	18.77	<.001	0.727	0.889	.785	0.554
	DLPPS-7	1.237	0.0718	17.24	<.001	0.682			
	DLPPS-8	1.139	0.0688	16.57	<.001	0.662			
	DLPPS-9	1.132	0.0640	17.70	<.001	0.695			
	DLPPS-10	1.214	0.0665	18.24	<.001	0.711			
	DLPPS-11	1.226	0.0672	18.26	<.001	0.713			
	DLPPS-12	1.259	0.0684	18.42	<.001	0.717			
	DLPPS-13	1.283	0.0640	20.04	<.001	0.761			
Socialization	DLPPS-14	1.292	0.0707	18.27	<.001	0.715	<u>0.859</u>	<u>.859</u>	<u>0.607</u>

	DLPPS-15	1.352	0.0663	20.38	<.001	0.772			
	DLPPS-16	1.309	0.0718	18.24	<.001	0.714			
	DLPPS-17	1.319	0.0679	19.42	<.001	0.748			
	DLPPS-18	1.336	0.0676	19.77	<.001	0.756			
Communication	DLPPS-19	1.332	0.0681	19.56	<.001	0.751			
	DLPPS-20	1.387	0.0653	21.23	<.001	0.795			
	DLPPS-21	1.373	0.0657	20.88	<.001	0.786	0.851	.846	0.553
	DLPPS-22	1.228	0.0679	18.07	<.001	0.709			
	DLPPS-23	0.975	0.0722	13.51	<.001	0.566			
	DLPPS-24	0.962	0.0719	13.38	<.001	0.562			
Fear of Missing Out (FoMO)							0.815		0.688
Personal	FoMO-1	1.324	0.0703	18.83	<.001	0.731			
	FoMO-2	1.590	0.0720	22.09	<.001	0.816			
	FoMO-3	1.502	0.0725	20.71	<.001	0.781	0.892	.892	0.686
	FoMO-4	1.545	0.0683	22.61	<.001	0.828			
	FoMO-5	1.532	0.0723	21.20	<.001	0.794			
Social	FoMO-6	1.563	0.0693	22.55	<.001	0.822			
	FoMO-7	1.679	0.0664	25.27	<.001	0.883			
	FoMO-8	1.684	0.0684	24.63	<.001	0.870	0.918	.918	0.807
	FoMO-9	1.677	0.0691	24.26	<.001	0.861			
Nomophobia							0.894		0.683
Not Being Able to Access Information	Nomo-1	1.616	0.0726	22.25	<.001	0.819			
	Nomo-2	1.649	0.0727	22.70	<.001	0.831			
	Nomo-3	1.618	0.0741	21.83	<.001	0.809	0.893	.892	0.737
	Nomo-4	1.666	0.0737	22.60	<.001	0.829			
Losing Connectedness	Nomo-5	1.616	0.0822	19.65	<.001	0.751			
	Nomo-6	1.381	0.0814	16.96	<.001	0.674			
	Nomo-7	1.548	0.0796	19.44	<.001	0.746	0.863	.863	0.626
	Nomo-8	1.539	0.0812	18.96	<.001	0.734			
	Nomo-9	1.710	0.0757	22.60	<.001	0.825			
Not Being Able to Communicate	Nomo-10	1.672	0.0748	22.36	<.001	0.814			
	Nomo-11	1.686	0.0733	23.02	<.001	0.830			
	Nomo-12	1.776	0.0732	24.27	<.001	0.858			
	Nomo-13	1.722	0.0714	24.12	<.001	0.855	0.924	.924	0.755
	Nomo-14	1.789	0.0738	24.23	<.001	0.857			
	Nomo-15	1.617	0.0751	21.53	<.001	0.794			
Giving Up Convenience	Nomo-16	1.650	0.0742	22.24	<.001	0.816			
	Nomo-17	1.764	0.0738	23.89	<.001	0.855			
	Nomo-18	1.632	0.0743	21.97	<.001	0.810	0.906	.906	0.727
	Nomo-19	1.533	0.0733	20.92	<.001	0.784			
	Nomo-20	1.629	0.0763	21.37	<.001	0.795			

$\chi^2/sd= 2.309$; RMSEA= .050; SRMR= .046; CFI=.912; TLI= .905

p<0.01*

As shown in Table 4, in the first stage, Confirmatory Factor Analysis was performed for the measurement of the model, including 53 items and 10 factors (4 factors of DLPPS, 2 factors of FoMOS, 4 factors of Nomophobia Scale). When the results were examined, although the goodness of fit values of the model were satisfactory, Confirmatory Factor Analysis was performed again with the covariance associations made. As a result of the Confirmatory Factor Analysis performed after the suggested covariance matchings, it was determined that the fit index values of the model were close to perfect ($\chi^2/sd= 2.309$; RMSEA= .050; SRMR= .046; CFI=.912; TLI= .905). When Table 9 was examined, it was seen that the standardized regression weights of the 53 items were between .57 and .88 and were statistically significant.



($p < .05$).

Figure 2. Model Results

$\chi^2/sd = 2.337$, RMSEA=.050, SRMR=.030, CFI=.989, TLI=.982, GFI=.994, AGFI=.986

In examining the reliability values of the measured model, Cronbach Alpha coefficient (α) and composite reliability value (CR) were used. Reference values suggest that Cronbach Alpha coefficient should be .70 and above (Seçer, 2017), and in this study it was seen to be between .78 and .93. While composite reliability (CR) value above .70 is shown as reference value (Fornell and Larcker, 1981), it was found to be .78 and .90 in this study. These results show that the model has a highly reliable structure. In evaluating the validity in the measurement of the model, the average variance extracted (AVE) value was used. While Bagozzi and Yi (1988) stated that the reference value for average variance extracted (AVE) should be 0.5 and above, Hair et al. (2010) stated that this value should be lower than the composite reliability (CR) value. In the current study, it is seen that the average variance values extracted are between .50 and .80 and are lower than the composite reliability values.

Tablo 5

Impact Results on the Research Model

Predictor→Dependent	Estimate	SE	β	z	p
DLLPS → FoMo	0.879	0.1003	0.481	8.77	< .001
FoMo → Nomophoia	0.544	0.0541	0.565	10.05	< .001
DLLPS → Nomophoia	0.395	0.0844	0.225	4.68	< .001

$p < 0.001^*$

When the direct effect results between the variables related to the research model are examined in Table 5, it is determined that the effect of digital leisure participation purposes on the fear of missing out is positive and at a moderate level ($\beta=.481$, $p<.01$), and its effect on nomophobia is also positive and at a low level ($\beta=.225$, $p<.01$). However, the effect of the fear of missing out on nomophobia is positive and at a moderate level ($\beta=.565$, $p<.01$).

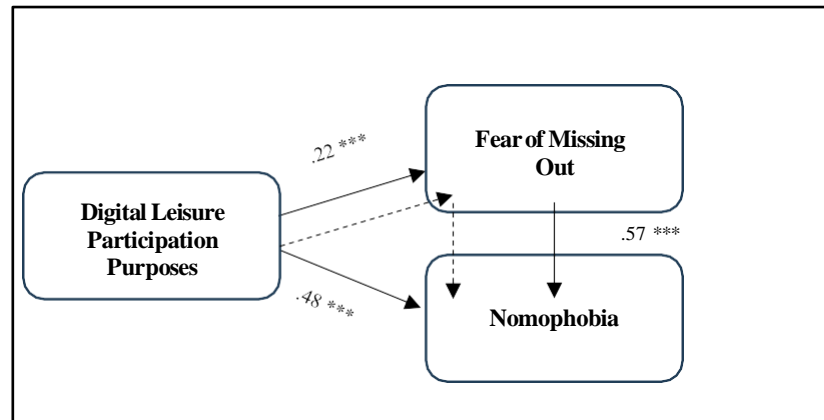


Figure 3. Research Model Results

When the findings regarding the results of the model in the research are examined, it is seen that the results of Confirmatory Factor Analysis and Structural Equation Modeling have good fit values. In the model, the direct positive effect of digital leisure participation purposes on fear of missing out and nomophobia and the direct positive effect of fear of missing out on nomophobia were tested. When the results regarding the research model are examined in Figure 2, it is seen that the fit index values are at an acceptable level ($\chi^2/sd=2.337$, $RMSEA=.050$, $SRMR=.030$, $CFI=.989$, $TLI=.982$, $GFI=.994$, $AGFI=.986$). The results of the model created in the study are generally shown in Figure 3.

Discussion

This study was conducted to examine the effects of digital leisure participation purposes on fear of missing out and nomophobia. Digital leisure participation purposes are participation purposes that express positive outcomes such as gaming, entertainment, communication, and socialization. However, in recent years, it has been observed that excessive use of digital technologies for these purposes causes negative psychological states such as fear of missing out (Wolniewicz et al., 2018; Elhai et al., 2020; Fiovaranti et al., 2021; Argan et al., 2024) and nomophobia (Moreno-Guerrero et al., 2020; Rodríguez-García et al., 2020; Notara et al., 2021; Rodríguez Elizalde, 2022). This situation revealed the necessity of the current study, and the results obtained from the study will be discussed in this section together with the literature.

When the results of Hypothesis 1 were examined, a significant relationship was found between university students' digital leisure participation purposes, fear of missing out, and nomophobia levels. A positive moderate relationship was found between digital leisure participation purposes of gaming, entertainment, communication, and socialization and fear of missing out on personal developments, and a positive low level relationship was found between social fear of missing out.

Li et al. (2021a) examined some parameters related to digital game participation and concluded that participation for digital games is positively correlated with fear of missing out. Similarly, Li et al. (2021b) drew attention to the correlation between the concepts in their study examining the disorders in digital game playing behavior of university students. Sever and Özdemir (2022) concluded that using digital platforms for entertainment purposes is associated with fear of missing out. When the relationship between the communication and socialization dimensions of digital leisure participation purposes and fear of missing out is examined, the idea that individuals who prefer socialization and communication via digital platforms cannot meet these needs in healthy ways emerges. In this direction, the fact that individuals experience fear of missing out reveals the conceptual relationship (Beyens et al., 2016; Deniz, 2021). When examined conceptually, it can also be said that the underlying reasons for the concept of fear of missing out are related to the excess duration and frequency of participation in digital leisure activities for communication and socialization purposes.

A positive low and medium level relationship was found between the digital leisure participation purposes of gaming, entertainment, communication and socialization and the dimensions of nomophobia not being able to access information, sacrificing comfort, not being able to communicate and not losing online connection.

Özsavran et al. (2023) conducted a study on university students playing digital games and concluded that 40.2% of the participants had mild nomophobia, 36.6% had moderate nomophobia, and 19% had extreme nomophobia. It is known that there are studies in the literature that examine digital game participation at the addiction level and show a positive correlation with nomophobia (Ayar and Bektaş, 2021; Öz and Erdoğan, 2023). Wen et al. (2023) conducted a study on smartphone use, fear of missing out, and nomophobia and concluded that smartphone use for entertainment purposes is associated with fear of missing out and nomophobia. When examined in terms of the communication dimension of digital leisure participation purposes, it can be said that the concept of nomophobia includes the state of being deprived of digital communication and this situation confirms the relationship between participation for communication purposes and nomophobia (Rodríguez-García et al., 2020). Karabatak et al. (2018) In the study examining the nomophobia levels of

prospective teachers and their perceptions of socializing in the online environment, it was observed that a low-level positive relationship was found between nomophobia and socializing.

A positive moderate relationship was found between the fear of missing out on personal and social developments and nomophobia dimensions of not being able to access information, sacrificing comfort, not being able to communicate, and not losing online connection. Gezgin et al. (2018) revealed that there was a positive and moderate relationship between nomophobia and the fear of missing out in their study results where they examined the relationship between the fear of missing out and nomophobia. Hoşgör and Hoşgör (2019) concluded that there was a moderately significant relationship between the fear of missing out and nomophobia in their study. Similarly, it is seen that there is a positive relationship between the fear of missing out and nomophobia in other studies in the literature (Yıldız et al., 2020; Çatıker et al., 2022; Bacaksız et al., 2022; Sánchez and Jimenez, 2023). In this direction, the results of the current study are parallel to the literature.

The results obtained in line with Hypothesis 2 revealed that university students' digital leisure participation purposes have an effect on the level of fear of missing out and nomophobia. There are studies in the literature on the effects of digital leisure participation purposes such as gaming, entertainment, socialization, and communication on the fear of missing out on personal and social developments. When the studies that can support the idea that participation in digital leisure for gaming purposes is an important predictor of fear of missing out are examined; Li et al. (2020) concluded that participation in digital leisure for gaming purposes directly affects fear of missing out in their study conducted with university students. When examined in terms of participation for entertainment purposes, it is seen that fear of missing out is predicted by exciting, entertaining, interesting, and rewarding experiences in social media or internet-based applications, as in its conceptual structure, and directly affects fear of missing out (Przybylski et al., 2013). When this approach is taken into consideration, it is similar to the results of the current study.

In terms of participation in digital leisure for communication and socialization purposes, it is observed that especially individuals in Generation Y and Z frequently and unconsciously follow digital platforms via mobile devices for these purposes, and this affects the fear of missing out (Wang et al., 2021). Self-Determination Theory can also be shown as a basis in terms of the effect of communication and socialization on the fear of missing out. In this direction, individuals base their socialization and communication needs on basic human needs such as establishing relationships, autonomy and competence. While individuals participate in digital leisure activities for socialization and communication purposes as a motivational force in line with these needs, they have the emotional and cognitive components of the fear of missing out as a type of anxiety. Especially when the underlying reasons for the fear of missing out are examined, it is possible to emphasize that it emerges

as a result of intensive use in the pursuit of entertainment, socialization, communication and satisfaction (Tarhan, 2021; Tanhan, 2022). This situation is parallel to the results obtained in the current study, showing that participation in digital leisure for gaming, entertainment, socialization and communication purposes is an important predictor of the fear of missing out.

It has been concluded that digital leisure participation purposes have a direct effect on nomophobia. When examined in terms of participation for gaming purposes, studies addressing digital games at the level of addiction have revealed their direct effect on nomophobia (Ayar and Bektaş, 2021). It is possible to say that participation for entertainment purposes also has effects on nomophobia (Wen et al., 2023). When examined in terms of participation for socialization purposes, it is possible to say that individuals exhibit nomophobic behaviors by putting their leisure and bilateral activities to the background, and therefore socialization is an effective predictor of the level of nomophobia (Rodriguez Elizalde, 2022). When the effect of participation for communication purposes on nomophobia is examined, it is possible to say that the fear of not being able to communicate and access information, losing the connection provided by smartphones and giving up the convenience provided by smartphones directly affects the conceptual content of nomophobia (Gonçalves et al., 2020).

Digital leisure participation purposes have a direct effect on nomophobia. When examined in terms of participation for gaming purposes, studies addressing digital games at the level of addiction have revealed their direct effect on nomophobia (Ayar and Bektaş, 2021). There are also studies supporting that participation for entertainment purposes has effects on nomophobia (Wen et al., 2023). When examined in terms of participation for socialization purposes, it is possible to say that individuals exhibit nomophobic behaviors by putting their leisure and bilateral activities into the background, and therefore socialization is an effective predictor of the level of nomophobia (Rodriguez Elizalde, 2022). When the effect of participation for communication purposes on nomophobia is examined, it is possible to say that the fear of not being able to communicate and access information, losing the connection provided by smartphones and giving up the convenience provided by smartphones directly affects the conceptual content of nomophobia (Gonçalves et al., 2020).

The results obtained in line with Hypothesis 3 show that university students' fear of missing out on personal and social developments has an effect on the level of nomophobia. When looking at the studies examining the effect of fear of missing out on nomophobia, Ergin and Özer (2023) examined the relationship between the time spent on the smartphone, gender, fear of missing out, and nomophobia and concluded that fear of missing out has an effect on nomophobia. Hoşgör and Hoşgör (2019) examined the effect of fear of missing out on nomophobia and revealed that fear of missing

out explains 30% of nomophobia and directly affects it in their study. Bacaksız et al. (2022) concluded that fear of missing out is a predictor of nomophobia in their study on nursing students. Okur et al. (2021) revealed that fear of missing out is a significant positive predictor of nomophobia and predicts it at a level of 27% in their study on social media use. These results in the literature are similar to the results of the current study.

Conclusion

This study concluded that digital leisure participation purposes are related to fear of missing out and nomophobia. Digital leisure participation purposes are an effective predictor of fear of missing out and nomophobia. Today, it is seen that especially young adults participate in digital platforms for positive purposes in their leisure. This study has revealed that digital leisure participation without proper time management in terms of duration and frequency can lead to negative psychological consequences. There are some limitations to the study. Digital leisure participation purposes should be examined in terms of different sample groups, duration and frequency of participation or different activities. In addition, management of participation duration and frequency regarding the control of fear of missing out and nomophobia levels can be useful in terms of quality and efficient use of leisure.

Ethics Committee Approval Information

Ethics Committee: Istanbul Aydın University Social and Human Sciences Ethics Committee

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Author Contributions Statement

Both authors contributed equally to all stages of the research.

Conflict of Interest Statement

The authors declare no conflict of interest related to this research.

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