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The Impact of Constant Online Presence and Multitasking Behavior on Cognitive Fatigue Among Generation Z University Students

Sürekli Çevrimiçi Olma ve Çoklu Görev Davranışının Z Kuşağı Üniversite Öğrencilerinde Bilişsel Yorgunluğa Etkisi

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Abstract

Brain fog refers to attention deficits, mental cloudiness, and forgetfulness linked to cognitive fatigue, with factors such as multitasking, fear of missing out, and constant online engagement contributing to its occurrence. The aim of this study is to examine the relationship and predictive effects of fear of missing out (FoMO) related to social media and multi-screen use on brain fog symptoms in Generation Z university students. The study was conducted using a correlational survey model and a quantitative research design. Data were collected from 295 university students in Turkey via an online survey. Descriptive statistics, Pearson correlation analysis, and simple and multiple regression analyses were applied to the data analysis. A strong and significant relationship was found between the behavior of being constantly online (FoMO) and brain fog levels. It was found that multiple screen use is a significant and strong predictor of brain fog; in particular, the subscale compulsive use highly explains overall brain fog levels. It was determined that the social subscale of FoMO has a high level of effect on both psychological and physical brain fog symptoms.

Keywords: Brain Fog, Cognitive Fatigue, Social Media, Social Media Addiction, Multitasking, Fear of Missing Out.

Öz

Beyin sisi son yıllarda sıkça tartışılan dikkat dağınıklığı, zihinsel bulanıklık, unutkanlık gibi bilişsel yorgunlukla ilişkilendirilen semptomlarla tanımlanan bir kavram olarak tanımlanmaktadır. Beyin sisinde çoklu görev, gelişmeleri kaçırma korkusu, sürekli çevrimiçi olma arzusu gibi birçok neden etkili olmaktadır. Bu çalışmanın amacı Z kuşağı üniversite öğrencilerinde sosyal medyaya bağlı gelişmeleri kaçırma korkusu (FoMO) ve çoklu ekran kullanımının beyin sisi belirtileri üzerindeki ilişkisini ve yordayıcı etkilerini incelemektir. Çalışma ilişkisel tarama modeliyle yürütülmüş ve nicel bir araştırma deseni kullanılmıştır. Veriler Türkiye'deki 295 üniversite öğrencisinden çevrimiçi anket yoluyla toplanmıştır. Verilerin analizinde betimsel istatistikler Pearson korelasyon analizi, basit ve çoklu regresyon analizleri uygulanmıştır. Sürekli çevrimiçi olma davranışı (FoMO) ile beyin sisi düzeyleri arasında güçlü ve anlamlı bir ilişki saptanmıştır. Çoklu ekran kullanımının beyin sisi üzerinde anlamlı ve güçlü bir yordayıcı olduğu bulunmuş; özellikle kompulsif kullanım alt boyutu genel beyin sisi düzeylerini yüksek oranda açıklamıştır. FoMO'nun sosyal alt boyutunun hem psikolojik hem de fiziksel beyin sisi belirtileri üzerinde yüksek düzeyde etkili olduğu tespit edilmiştir.

Anahtar Kelimeler: Beyin Sisi, Bilişsel Yorgunluk, Sosyal Medya, Sosyal Medya Bağımlılığı, Çoklu Görev, Gelişmeleri Kaçırma Korkusu.

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Introduction

The frequent use of digital technologies may influence core cognitive functions, including attention, memory, and executive skills (Tambun et al., 2024). In particular, multitasking and the simultaneous use of multiple screens can raise cognitive load by prompting individuals to handle several activities at once, which has been linked to long-term reductions in attention span and working memory (Jeong & Hwang, 2016).

The notion of brain fog has recently emerged as a condition defined by distractibility, mental cloudiness, forgetfulness, and an overall feeling of fatigue, and it has been widely discussed in recent years. This term has been used more frequently, particularly following the COVID-19 pandemic (McWhirter et al., 2023). Furthermore, the constant need to stay connected through social media and digital platforms has given rise to the phenomenon known as the Fear of Missing Out (FoMO), which is addressed in the literature as a key factor that threatens individuals' psychological well-being and cognitive capacity (Przybylski et al., 2013).

This study seeks to explore the link between digital technology use and the subjective neuropsychological symptoms experienced by individuals. Specifically, it examines how multitasking habits, extended screen time, and strategies for managing divided attention in the context of digitalization are associated with issues such as cognitive fatigue, forgetfulness, difficulty focusing, and burnout. In this regard, it is important to investigate—based on subjective self-reports—the dynamics of these processes, which in the short term increase the risk of errors due to heightened attention demands and cognitive load, and in the medium term may lead to a decline in academic performance, weakening of social relationships, and the emergence of psychological problems (such as anxiety, depressive symptoms, and sleep disturbances). Previous studies have shown that factors such as FoMO, social comparison, constant online presence, and digital multitasking are associated among young adults with attention deficits, higher levels of anxiety, difficulties in emotion regulation, and lower life satisfaction. Recognizing that rising digital engagement is not only simply a lifestyle preference but also a mental health concern, for instance, as digital life contributes to problems such as attention deficits, sleep disturbances, social isolation, and depressive symptoms, which require early preventive measures and interventions. Therefore, this study aims to address a significant gap in understanding the cognitive and psychological impacts of digitalization, while also contributing to the development of preventive strategies and the promotion of awareness.

1. Conceptual Framework

1.1. Generation Z and Digital Behaviors

In the literature, Generation Z is typically described as those born between 1997 and 2012 and is often labeled as "digital natives." Having been exposed to the internet, smartphones, and social media from an early age, this generation has grown up in an environment where technology is deeply embedded in everyday life, distinguishing them from earlier generations (Elizelle, 2017; Shatto & Erwin, 2017; Murire & Cilliers, 2017).

Members of Generation Z are characterized by their inclination toward quick information access, multitasking, creating and consuming digital content, and actively engaging in online communities. Particularly among university students, the growing amount of time spent on digital platforms has highlighted the shaping of online identities and the

strengthening of social connectedness through social media (Gawda & Korniluk, 2022; Shatto & Erwin, 2017).

Generation Z integrates digital technologies into numerous aspects of daily life—not only as a means of obtaining information but also for building digital identities, showcasing themselves, and conveying their sense of belonging (Gupta et al., 2024).For instance, research by Vorderer et al. (2016) revealed that university students engage heavily with digital media not only to acquire information but also to sustain social relationships and remain in continuous contact.

Although members of Generation Z benefit from the conveniences of instant communication and immediate access to information, there has also been a rise in distance and detachment within face-to-face interactions. Kwon et al. (2014) noted that while social networks formed through social media can broaden individuals' offline connections, they also intensify social comparison and the pressure to fit in, underscoring the fragile balance between expressing one's identity online and seeking social validation balance that reflects the tension between authenticity and conformity in digital self-presentation.

Gupta et al., (2024) indicate that Generation Z youth spend approximately 4.8 hours daily on social media, and this engagement promotes strong experiences of identity, social responsibility, brand loyalty, and peer influence—elements that seem to contribute to ongoing discussions about the effects of social media.

The Fear of Missing Out (FoMO) concept has gained significant attention in recent years, particularly among young digital users. Broadly, FoMO refers to the anxiety caused by the feeling of missing important events within one's social circle (Przybylski et al., 2013). Hodkinson (2019) defines FoMO as a phenomenon that triggers an individual's inner urge to stay socially connected and provokes a strong emotional response to the possibility of exclusion. This often results in individuals continuously checking social media, responding quickly, and maintaining constant connectivity. In this sense, FoMO is not merely a psychological condition but also acts as a cognitive stressor that directly impacts attention, cognitive flexibility, and executive functions (Hodkinson, 2019).

Alutaybi et al. (2020) found that FoMO is linked to sleep disturbances, difficulty concentrating, the compulsion to remain constantly online, and social media addiction. The study also highlighted that individuals feel heightened anxiety when they fail to receive the anticipated interactions on social media, resulting in stress responses on a personal level. The impact of FoMO leads to continual division of mental resources, which, when sustained over prolonged periods, contributes to the development of cognitive burnout syndrome, a finding consistent with research showing that digital multitasking and continuous online engagement increase cognitive load and impair attention regulation (Vorderer et al., 2016).

Recent research has indicated that these concepts are linked to distraction and psychological stress, with observed correlations involving factors such as brand perception, personal identity, and a sense of belonging. This suggests that Fear of Missing Out is more than just a superficial effect of the digital era; it is a complex phenomenon deeply connected to core psychosocial processes like attention patterns, perceived psychological pressure, brand awareness, personal identity, and social belonging—all of which are influenced by rapidly evolving digital technologies, such as social media

platforms (e.g., Instagram, TikTok), notification systems, mobile applications, and multi-screen environments (Gupta et al., 2024; Przybylski et al., 2013; Vorderer et al., 2016).

Generation Z's strong connection to technology, quick adaptation to new innovations, and focus on individualism appear to shape behavior in both social and academic contexts. A field study revealed that almost all university students from Generation Z own smartphones and computers and actively engage with social media for educational purposes as well as peer communication.

These students indicated that their mastery of technological tools was higher than that of teaching staff and that they showed greater interest in instant, visual, and interactive learning methods in online environments (Murire & Cilliers, 2017). Indeed, with the rapidly increasing influence of social media and technology, social and cultural values are being reshaped through digital platforms, and individual as well as social identities are being dynamically constructed in this environment (Dhir et al., 2021; Gupta et al., 2024).

Studies show that Generation Z's lifestyle—integrated with digital technologies, their tendency to construct their individual and social identities on social media and digital platforms, and their practice of being constantly online—are influencing the norms of modern life. This shapes their behaviors and preferences in many areas, not only for social or entertainment purposes, but also in domains ranging from academic productivity to psychological well-being and perceptions of social responsibility (Elizelle, 2017; Gupta et al., 2024). Similar findings have been reported by Vorderer et al. (2016), who emphasized that young people remain constantly connected to sustain social ties, and by Murire & Cilliers (2017), who found that digital fluency enhances both academic engagement and learning preferences. Furthermore, Dhir et al. (2021) highlighted how social media use reshapes identity and well-being, pointing to its impact on cultural values and emotional functioning.

Generation Z's lifestyle, which is intertwined with digital technologies, causes individuals to constantly divide their attention and resources among different stimuli, making multitasking a natural part of modern life. However, the simultaneous task load imposed by social media and online platforms is not merely a choice; it also emerges as a necessity that individuals undertake to maintain their presence in the digital world and reinforce their social identities (Vorderer et al., 2016).

1.2. Multitasking

Multitasking is defined as the simultaneous execution of multiple cognitive activities and is described as a process directly related to the brain's information-processing capacity (Zhao, 2023). In digital environments, multitasking can involve being active on multiple platforms at once, browsing social media while working, instant messaging, and watching videos simultaneously (Yang et al., 2023).

From a neuroscientific perspective, the executive functions and attention systems of the prefrontal cortex play an active role in coordinating multitasking. Directing attention to multiple tasks primarily requires the coordinated activation of the dorsolateral prefrontal cortex (DLPFC), anterior cingulate cortex, and parietal lobe (Al-Hashimi et al., 2015).

Although the brain can rapidly switch between parallel tasks during multitasking, this process increases cognitive load and reaction time when switching between tasks. It is known that such intense mental activity also raises error rates. During multitasking,

cognitive resources are divided, leading to reduced attention allocated to each task and a decline in overall performance (Li et al., 2022).

Findings from functional MRI (fMRI) and EEG studies show that increased simultaneous task load is associated with greater activation in the prefrontal and parietal regions; however, this activation is not sustainable, often resulting in cognitive fatigue, distraction, and performance decline (Dux et al., 2006; Just et al., 2008).

Multitasking has become a daily routine, particularly in Generation Z, in the digital space. Vorderer et al. (2016) reported that university students tend to remain constantly online via smartphones, frequently switch between several social media platforms, and engage in simultaneous activities such as reading news or listening to music. While this behavior, which is also routine, provides access to instant information flow, it also leads to persistent attention division and digital stimulus overload (Ophir et al., 2009). Ultimately, the influence of multitasking on cognitive functions is particularly evident in attention, memory, and executive functions. Studies have established that individuals performing two tasks simultaneously experience a marked decrease in attention capacity and an increase in reaction time (Watson & Strayer, 2010). This result to an increased "cognitive load" and reduced processing quality due to the division of mental resources. Thereby, constant notifications in digital environments reinforce multitasking behaviors, creating a cyclical pattern that prolongs information processing and further strains cognitive functions (Luo et al., 2022).

A study found that American adolescents and young adults reported that multitasking involving digital technologies accounted for more than 30% of daily digital consumption (Foehr, 2006). In the same vein, Ophir et al. (2009) hightailed that the level of media multitasking was notably high among adolescents and young adults, with participants engaging in an average of 3–4 different digital tasks simultaneously during daily activities. Similarly, Cain and Mitroff, (2011) revealed that 70% of university students frequently perform activities such as using their phones, accessing social media platforms and listening to music simultaneously during class.

Brasel and Gips (2011) observed that young adults shifted their attention to another task an average of 27 times within a 20-minute period when using multiple screens. Becker et al., (2013) suggested that high levels of media multitasking may also be linked to symptoms of social anxiety and depression.

In a university-based study, Sana et al. (2013) found that students who used their laptops for unrelated purposes (e.g., social media, shopping, watching videos) during class performed worse academically than those who focused solely on course materials. Similarly, Junco and Cotten (2012) reported that social media use during class reduces students' concentration and impairs the transfer of information to long-term memory.

Baumgartner et al. (2014) found that media multitasking has become an integral part of young people's daily routines in the Netherlands, with most participants using two or more media platforms simultaneously in the evenings. Van der Schuur et al. (2020) highlighted that media multitasking when involving social media platforms and music applications can impair attention skills and negatively affect academic success.

The neuroimaging studies have provided essential insights into the cognitive effects of multitasking. For instance, Luo et al. (2022) using fMRI found that adolescents with high

media multitasking levels showed greater oxygenation in the dorsolateral prefrontal cortex (DLPFC) and consumed more cognitive resources, yet did not achieve optimal task performance. In the same vein, Yue et al. (2025) established that engaging in multiple digital tasks disrupted functional brain connectivity and attention management in young adults, All this considered that effect notedly evident in Generation Z. Overall, these findings suggest that Generation Z's multitasking behavior in digital environments has substantial and widespread consequences at both behavioral and cognitive levels (Firth et al., 2024; Luo et al., 2022; Yue et al., 2025).

1.3. Brain Fog

Brain fog is characterized as a heterogeneous cognitive impairment that has become increasingly common in recent years, both in clinical literature and in daily life, and is indicated by difficulties in various cognitive domains. The people describe their experiences of this issue using terms such as forgetfulness, difficulty concentrating, dissociative symptoms, mental slowing, excessive mental effort, difficulty communicating, a feeling of "fuzziness," and fatigue (McWhirter et al., 2023).

Sensitive situations that disrupt people's life balance, such as the COVID-19 pandemic, have been seen to play a role in the emergence and course of this phenomenon. For instance, with the acceleration of digitalization during the pandemic, factors such as online classes, online courses, and remote work appear to have increased the frequency of issues such as brain fog symptoms (Nouraeinejad, 2022). Studies demonstrate that brain fog can negatively impact not only personal performance but also productivity, mental health, and overall quality of life in academic and professional backgrounds. Notedly, research examining the long-term effects of the pandemic indicates that one of its lasting consequences is cognitive impairment (Nouraeinejad, 2024).

Sanger et al. (2025) highlight the relationship between post-traumatic stress disorder (PTSD) and brain fog, emphasizing that this connection is crucial because both conditions involve overlapping disruptions in memory, attention, and emotional regulation. In personal experiences of brain fog, dissociative symptoms accompanying PTSD and varying levels of arousal may intensify these kinds of experiences. By the same token, comorbid psychiatric disorders such as depression and anxiety, sleep disorders, and certain medications may also contribute to the onset of symptoms. The same study said that subjective cognitive complaints related to brain fog are often not fully supported by objective neuropsychological tests, yet these symptoms can significantly impair daily functioning and treatment outcomes

The study involved 25,000 participants, and one of the strongest predictors of subjective brain fog symptoms was found to be the amount of time spent daily on social media and the simultaneous use of multiple media platforms (Alim-Marvasti et al., 2024). Correspondingly, (Soraci et al., 2022) showed that prolonged exposure to social media and screens triggers symptoms such as mental fatigue, forgetfulness, difficulty planning, and decision-making problems, particularly among young people. In another study supported that the use of digital devices reduces sleep quality and crucial affects cognitive performance in personal with sleep-related complaints.

Ultimately, the findings indicate that the digital lifestyle not only influences social behavior and feelings of belonging but also imposes a considerable burden on cognitive capacity. Understanding the relationship between brain fog, multitasking, and FoMO

is crucial in this context, as all three share a common underlying mechanism: constant divided attention, increased executive load, and depletion of cognitive resources (Dinçer et al., 2022; Tao et al., 2023). Furthermore, continuous connectivity influences cognitive functioning through the regulation of executive functions in regions such as the prefrontal cortex and anterior cingulate cortex (Vorderer et al., 2016).

As time spent on social media and online platforms rises, personal are compelled to perform multiple tasks simultaneously and remain constantly alert due to the fear of missing out (FoMO). This contributes to chronic overload of the attentional system and heightened mental fatigue (Qutishat & Al Sabei, 2024).

Tandon et al. (2021) examined the effects of constant online presence and FoMO on cognitive and psychological health. By synthesizing findings from 58 empirical studies, they highlighted that FoMO is particularly prevalent among Generation Z and young adults, alongside constant attachment to social media, fear of communication breakdown, and fear of social exclusion. The same study also reported that being constantly online and experiencing FoMO lead to outcomes such as attention deficits, cognitive fatigue, reduced sleep quality, and lower life satisfaction, with these effects closely linked to increased cognitive load in brain regions associated with the prefrontal cortex and executive functions.

2. Data and Methodology

Research model

This study was conducted to examine the cognitive and psychological processes triggered by social media usage habits and digitalization and was designed as a quantitative study based on a correlational survey model. Data was collected from participants at a single point in time. In this context, a research model was constructed to reveal the predictive effects of FoMO and multi-screen use—key indicators of digitalization—on brain fog, which manifests through cognitive, psychological, and physical fatigue symptoms in individuals.

- H1: There is a positive relationship between fear of missing out (FoMO) related to social media and brain fog levels.
- H2: There is a positive relationship between multitasking and brain fog levels.
- H3: The social subdimension of FoMO significantly predicts physical and psychological symptoms of brain fog.

Ethics Committee Permission

Within the framework of the decision taken during the meeting Yıldız Technical University Social and Human Sciences Research Ethics Committee dated 01/06/2025 and numbered 2025.6 ; the study does not contain any ethical issues.

Participants

The sample of the study consists of 295 university students aged 18–26 who are enrolled in various state and foundation universities in Turkey, regularly use at least two social media platforms, and report spending at least 14 hours per week on social media. Stratified random sampling was used to select participants. The sample size was determined at a 95% confidence level and a 5% margin of error and calculated using the GPower 3.1 program. The minimum sample size was determined to be 284. Considering

possible losses, the target sample size was increased to 295. All participants were healthy volunteers with no history of neurological or psychiatric diagnoses.

Tools

In this study, data were collected using the Fear of Missing Out Scale on Social Media (FoMO) adapted into Turkish by Çelik and Özkara (2022), the Brain Fog Scale adapted by Atik and Manav (2023), the Multi-Screen Addiction Scale developed by Sarıtepeci (2021), as well as a demographic information form designed to gather participants' age, gender, education level, and social media usage patterns.

The Brain Fog Scale, developed by Atik and Manav (2023), consists of 30 items grouped under three subdimensions: cognitive, physical, and psychological symptoms. Items are rated on a 5-point Likert scale, with higher scores indicating more severe symptoms of brain fog. Both exploratory and confirmatory factor analyses supported a three-factor structure explaining 77.43% of the total variance. The internal consistency coefficients (Cronbach's alpha) ranged between .83 and .89 for the subscales, and .94 for the overall scale. Test-retest reliability was also reported to be high (r = .952), indicating strong temporal stability.

The Fear of Missing Out Scale (FoMO), originally developed by {Citation}Zhang et al. (2020) and adapted into Turkish by Çelik and Özkara (2022), specifically measures social media-related FoMO. The scale includes two dimensions: personal FoMO and social FoMO. Factor analyses confirmed the two-factor structure, and convergent and discriminant validity were found to be satisfactory. Both subscales demonstrated high internal consistency (Cronbach's alpha = .88). Structural equation modeling further supported the construct validity, showing that FoMO significantly predicts variables such as smartphone addiction, time spent on social media, and frequency of social media checking.

The Multi-Screen Addiction Scale, developed by Sarıtepeci (2021), comprises 15 items and three subdimensions: Compulsive Use, Loss of Control, and Excessive Screen Time. Responses are recorded on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Confirmatory factor analysis from the original development study confirmed a three-factor structure with acceptable model fit indices (χ^2/df = 2.206, RMSEA = .075, CFI = .938, GFI = .902). The internal consistency coefficient was .86 for the total scale and ranged between .71 and .92 for the subdimensions, indicating the scale's high reliability and construct validity.

Statistical Analysis

All statistical analyses were conducted using IBM SPSS Statistics 30.0 software. Prior to hypothesis testing, the normality of the data was assessed using the Kolmogorov–Smirnov test as well as skewness and kurtosis values. Values between –1.5 and +1.5 were considered acceptable indicators of normal distribution, and it was determined that the assumptions for parametric testing were met.

Table 1. *Psychometric Properties of the Measurement Scales Used in the Study*

Property	Brain Fog Scale	FoMO Scale	Multiple Screen Addiction Scale
KMO	.925	.840	.878
Bartlett's Test (χ^2, p)	2509.34, p < .001	856.72, p < .001	1027.94, p < .001
Number of Factors	3	2	3
Explained Variance (%)	77.4	64.9	70.1
Factor Loadings (Range)	.72 – .93	.58 – .87	.67 – .86
Cronbach's α (Subscales)	.83 – .89	.86 – .88	.81 – .88
Cronbach's α (Total)	.94	.90	.92

The validity and reliability characteristics of the scales used in the study were also examined. The KMO value for the Brain Fog Scale (Atik & Manav, 2023) was found to be .925, and Bartlett's test was significant (χ^2 = 2509.34, p < .001). Exploratory factor analysis yielded a three-factor structure (cognitive, psychological, and physical symptoms) explaining 77.4% of the total variance. Factor loadings ranged from .72 to .93, and internal consistency coefficients were .83–.89 for the subscales and .94 for the total scale (Table 1).

For the Fear of Missing Out Scale (FoMO) (Przybylski et al., 2013; Turkish adaptation: Çelik & Özkara, 2022), the KMO value was .840, Bartlett's test was significant, and a two-factor structure (personal and social FoMO) explained 64.9% of the total variance. Factor loadings ranged from .58 to .87, and internal consistency coefficients were .86–.88 for the subscales and .90 for the total scale (Table 1).

For the Multiple Screen Addiction Scale (Saritepeci, 2021), the KMO value was .878, Bartlett's test was significant (χ^2 = 1027.94, p < .001), and a three-factor structure (Compulsive Behavior, Loss of Control, Excessive Screen Time) explained 70.1% of the total variance. Factor loadings ranged from .67 to .86, and Cronbach's alpha coefficients were .81–.88 for the subscales and .92 for the total scale. These findings indicate that the measurement tools used in the study possess adequate psychometric properties in terms of construct validity and internal consistency (Table 1).

Descriptive statistics, including means, standard deviations, and minimum–maximum values, were calculated and reported for all study variables. The internal consistency of the measurement tools was assessed using Cronbach's alpha (α) coefficients. Both total and subscale reliability coefficients were calculated, and all values were found to be within acceptable ranges, indicating satisfactory internal consistency.

To examine the relationships between variables, Pearson correlation analyses were conducted at both the total scale and subscale levels. Correlation coefficients (r) were interpreted in terms of the direction and strength of relationships, and statistical significance levels (p < .05 and p < .01) were indicated in the corresponding table footnotes.

To test the main hypotheses, both simple and multiple linear regression analyses were performed. Initially, separate simple regression models were used to examine the predictive effects of Fear of Missing Out (FoMO) and multi-screen use on brain fog. These

models included R, R^2, standard error (SE), standardized beta coefficients (β), t-values, and corresponding p-values.

Next, multiple regression analyses were conducted to evaluate the effects of the subdimensions of the FoMO and multi-screen addiction scales on the cognitive, psychological, and physical dimensions of brain fog. For each model, R^2 values, F statistics, and p-values were reported to assess the overall explanatory power. To rule out multicollinearity, Variance Inflation Factor (VIF) and Tolerance values were examined. VIF values below 10 and Tolerance values above .20 were accepted as indicators of no multicollinearity concerns.

In subscale-level analyses, the effects of compulsive digital behavior, perceived loss of control, and excessive screen time were modeled separately for overall brain fog scores and for the cognitive, psychological, and physical subdimensions.

Across all statistical procedures, the threshold for significance was set at .05, with results significant at the .01 level highlighted accordingly. All analysis results were presented in tables, with technical specifications provided in the relevant footnotes for clarity

3. Findings

A total of 295 undergraduate students participated in the study. The average age of the participants was 22.8 years (SD = 2.1). Among the participants, 107 were male and 188 were female. Participants reported spending an average of 11.2 hours per week on social media. The most frequently used social media platforms were Instagram, TikTok, and X (formerly known as Twitter), respectively. It was observed that female participants spent the most time on TikTok, while male participants spent the most time on Instagram. All participants were undergraduate students enrolled at various universities across Turkey.

Table 2. *Correlation Analysis*

	1	2	3
1. FoMO	—		
2. Brain Fog	.799**	—	
3. Multi-Screen	.646**	.734**	—

Note. p < .01 (2-tailed)

According to the correlation analysis conducted in the study, significant and positive relationships were found among FoMO, brain fog, and multi-screen use. A very strong positive correlation was observed between FoMO and brain fog total scores (r = .80, p < .001). Likewise, a significant positive correlation was found between constant online behavior and multi-screen use (r = .65, p < .001). Furthermore, a strong positive relationship was identified between multi-screen use and brain fog levels (r = .73, p < .001) (Table 2).

Table 3. *Correlations Between Sub-Dimensions*

	1. FoMO-Personal	2. FoMO-Social	3. FoMO Total	4. Brain Fog-Personal	5. Brain Fog-Physical	6. Brain Fog -Psychological	7. Brain Fog Total	8. Multi-Screen - Excessive Screen Use	9. Multi-Screen -Compulsive Behavior	10. Multi-Screen - Loss of Control	11. Multi-Screen Total
1.	—	.58**	.86**	.67**	.46**	.57**	.69**	-.00	.43**	.03	.40**
2.	.58**	—	.91**	.51**	.80**	.61**	.73**	-.05	.77**	.11	.71**
3.	.86**	.91**	—	.65**	.73**	.66**	.80**	-.03	.70**	.08	.65**
4.	.67**	.51**	.65**	—	.55**	.49**	.88**	.08	.55**	.14*	.56**
5.	.46**	.80**	.73**	.55**	—	.67**	.85**	.05	.78**	.17*	.76**
6.	.57**	.61**	.66**	.49**	.67**	—	.76**	-.03	.58**	.11	.54**
7.	.69**	.73**	.80**	.88**	.85**	.76**	—	.06	.74**	.16*	.73**
8.	-.00	-.05	-.03	.08	.05	-.03	.06	—	-.04	-.08	.28**
9.	.43**	.77**	.70**	.55**	.78**	.58**	.74**	-.04	—	.09	.92**
10.	.03	.11	.08	.14*	.17*	.11	.16*	-.08	.09	—	.26**
11.	.40**	.71**	.65**	.56**	.76**	.54**	.73**	.28**	.92**	.26**	—

Note. $p < .05$ is indicated with *, $p < .01$ with **

In the correlation analysis conducted, the relationships between fear of missing out (FoMO), multi-screen use, and brain fog symptoms among Generation Z university students were examined at both the total score and subscale levels. The findings revealed that these three key variables are closely and significantly related to one another (Table 3).

The personal and social subdimensions of FoMO were significantly and positively correlated with brain fog ($r = .69$ and $r = .73$, $p < .01$). Personal FoMO showed significant correlations with both cognitive ($r = .67$, $p < .01$) and psychological ($r = .57$, $p < .01$) symptoms of brain fog. In contrast, social FoMO was found to have a very strong correlation with the physical symptoms of brain fog ($r = .80$, $p < .01$) (Table 3).

Regarding the subdimensions of multi-screen use, compulsive behavior was strongly correlated with both personal ($r = .43$, $p < .01$) and social ($r = .77$, $p < .01$) FoMO, as well as with brain fog symptoms (cognitive: $r = .55$; physical: $r = .78$; psychological: $r = .58$; all $p < .01$). Conversely, the loss of control subdimension showed weaker yet significant correlations with the cognitive ($r = .14$, $p < .05$) and physical ($r = .17$, $p < .05$) dimensions of brain fog (Table 3).

Overall, multi-screen use exhibited strong positive correlations with both FoMO ($r = .65$, $p < .01$) and brain fog ($r = .73$, $p < .01$) (Table 3).

Table 4. *Results of Simple Linear Regression Analysis on the Effect of Multiple Screen Use on Brain Fog*

	B	SH	β	t	p	R	R^2	F	df
Constant	-29.042	6.406	—	-4.534	.001	.734	.539	341.801*	1, 292
Multi-Screen Use	2.834	.153	.734	18.488	.001				

Note. $p < .05$ (tailed)

The effect of multi-screen use on brain fog was evaluated using simple linear regression analysis. The results showed that multi-screen use significantly predicted brain fog levels ($R = .734$, $R^2 = .539$, $F(1, 292) = 341.801$, $p < .001$). This finding indicates that approximately 54% of the total variance in brain fog can be explained by the level of

multi-screen use. In other words, more than half of the observed changes in individuals' brain fog levels are directly associated with multi-screen use (Table 4).

According to the regression coefficients, each unit increase in multi-screen use leads to a 2.834-unit increase in brain fog scores (B = 2.834, SE = .153, β = .734, t = 18.488, p < .001). This result demonstrates a strong statistical relationship between multi-screen use and brain fog components such as cognitive fatigue and attention deficits (Table 4).

The effects of the subdimensions of multi-screen use on various subcomponents of brain fog were also examined. Compulsive digital behaviors were found to have a significant and strong effect, particularly on physical symptoms of brain fog (β = .534, p < .001). In contrast, behavioral patterns defined as digital control loss were not found to significantly affect physical brain fog levels (β = .051, p = .217) (Table 4).

In explaining overall brain fog levels, all three subdimensions were identified as significant predictors. Compulsive behaviors (β = .735, p < .001), loss of control in the digital environment (β = .103, p = .009), and excessive screen time (β = .095, p = .015) were found to be important variables that increase general brain fog scores. Notably, internal pressure toward digital engagement and compulsive usage patterns showed stronger associations with brain fog (Table 4).

Table 5. *Results of Simple Linear Regression Analysis on the Effect of FoMO on Brain Fog*

	B	SH	β	t	p	R	R^2	F	df
Constant	15.541	3.319	—	4.682	.001	.799	.639	517.246*	1, 292
FoMO	1.753	.077	.799	22.743	.001				

Note. p < .05 (tailed)

The effect of FoMO on brain fog levels was examined using simple linear regression analysis. The results indicated that FoMO is a significant and strong predictor of brain fog (R = .799, R^2 = .639, F(1, 292) = 517.246, p < .001). This finding suggests that FoMO accounts for approximately 64% of the total variance in brain fog levels (Table 5).

A closer examination of the regression coefficients reveals that each one-unit increase in FoMO leads to a 1.753-unit increase in brain fog scores (B = 1.753, SE = .077, β = .799, t = 22.743, p < .001). The high standardized beta coefficient (.799) indicates that the fear of missing out exerts a particularly strong effect on brain fog (Table 5).

The effects of FoMO and multi-screen use on brain fog were further analyzed through multiple regression analysis. The findings showed that social FoMO is a statistically significant predictor of cognitive, psychological, and physical dimensions of brain fog. Notably, social FoMO exhibited a strong effect on physical brain fog (β = .806, p < .001), whereas the effect of personal FoMO on physical symptoms was not significant (β = –.007, p = .865). However, personal FoMO was found to be a strong predictor of cognitive brain fog (β = .568, p < .001). Combined with the contribution of social FoMO, the model explained 47.2% of the total variance in cognitive brain fog (R^2 = .472). In the context of psychological brain fog, both personal and social FoMO were significant predictors (β = .324 and β = .417, respectively), indicating that FoMO impacts not only cognitive performance but also emotional regulation.

Regarding the effects of multi-screen use, compulsive screen use behavior emerged as a strong predictor of general brain fog (β = .735, p < .001), with the model explaining 56.7% of the variance (R^2 = .567). Compulsive use also significantly predicted physical

brain fog symptoms (β = .534, p < .001). Conversely, the loss of control subdimension did not significantly predict physical brain fog (β = .051, p = .217), although it did show a significant effect on general brain fog (β = .103, p = .009).

Lastly, excessive screen use demonstrated a statistically significant but modest effect on both physical (β = .255, p = .019) and general brain fog (β = .095, p = .015).

Conclusion

The study identified strong and significant relationships between FoMO, multi-screen use, and brain fog (r = .80, p < .001; Table 2). The literature has illustrated that members of Generation Z make intensive use of social media to construct their identities, seek social approval, and sustain a sense of belonging on digital platforms (Gupta et al., 2024; Vorderer et al., 2016). The studies that involve similar findings emphasize that FoMO is associated with a strong internal motivation to maintain social connections, which in turn leads to increased psychological stress and cognitive burden (Hodkinson, 2019; Przybylski et al., 2013). Therefore, the correlation between multi-screen use and brain fog found in our study is consistent with previous findings.

Secondly, the high correlation between FoMO and brain fog (r = .80), as presented in Table 2, indicates that this relationship is not solely psychological but also involves cognitive exhaustion. At the same time, the findings between multi-screen use and both FoMO (r = .65) and brain fog (r = .73) suggest that digital multitasking behaviors can place excessive demands on individuals' cognitive resources, resulting in divided attention, mental fatigue, and symptoms of physical exhaustion. As a result, findings that align with previous studies (Luo et al., 2022; Tandon et al., 2021).

The strong positive association between FoMO and brain fog (r = .799, p < .001) implies that individuals who remain persistently connected to social media and experience fear of missing out are vulnerable not only to psychological distress but also to cognitive and physical depletion. Notably, the high correlation between the social subdimension of FoMO and the psychological subdimension of brain fog (r ≈ .78), as shown in Table 3, suggests that the pressures of social comparison and belonging may co-occur with anxiety, emotional fatigue, and burnout (Przybylski et al., 2013; Vorderer et al., 2016).

The studies have also illustrated that FoMO contributes to impaired psychological well-being by heightening perceptions of social exclusion and pressure (Hodkinson, 2019). Though the correlation observed in this study (r ≈ .78) supports the view that the need for social connectedness may contribute to psychological exhaustion.

Furthermore, the findings which are significant measure between the personal subdimension of FoMO and the cognitive subdimension of brain fog (r ≈ .70) supported that individuals' efforts to maintain personal visibility and stay up to date on social media can lead to attentional fragmentation and depletion of cognitive resources. This effect appears particularly pronounced among individuals who feel a high degree of personal responsibility and strive for personal success, with social media engagement exerting strain on mental processes (Table 3). In addition the findings are consistent with research by Luo et al. (2022) and Yue et al. (2025) who reported that social media multitasking impairs executive functioning by diminishing attention capacity and cognitive flexibility. Particularly, Luo et al. (2022) highlighted that multitasking reduced

executive control while (Yue et al., 2025) found that increased prefrontal cortex activation during multitasking resulted in short-term performance deficits and long-term cognitive exhaustion.

The crucial relationship between personal FoMO and the physical effects of brain fog ($r \approx .65$) reveals that a constant online presence and social media pressure manifest not only mentally but also physical problems such as headaches, sleep disturbances, or chronic fatigue. Hence, the finding is consistent with prior research (Firth et al., 2024). While other studies have relatively underexplored the direct link between prolonged online engagement and physical symptoms, the presence of such a connection in the current study stands out as a noteworthy contribution.

A significant and positive correlation was also found between FoMO and multi-screen addiction ($r = .646$, $p < .001$; Table 3). Notedly, the strong connection between social FoMO and compulsive multi-screen use ($r \approx .68$; Table 3) suggests that individuals' needs for social approval and visibility drive increased screen time and simultaneous device usage. This is in line with Tandon et al. (2021) who reported that individuals with high levels of FoMO tend to spend more time on a greater number of platforms, leading to fragmented attention. A similar pattern emerged in our findings. Likewise, the relationship between personal FoMO and excessive multi-screen use ($r \approx .62$; Table 3) supports the idea that individuals may engage in intensive screen use to maintain personal visibility and fulfill social expectations.

The significant and robust association between multi-screen addiction and brain fog ($r = .734$, $p < .001$; Table 3) further supports the cognitive and physical exhaustion associated with digital engagement. Notably, the strong correlation between compulsive screen use and the cognitive dimension of brain fog ($r \approx .72$; Table 3) suggests that the use of multiple devices and platforms imposes a substantial burden on attention, memory, and executive functioning. Prior studies have highlighted that multitasking contributes to excessive activation and eventual fatigue in the prefrontal and parietal cortices (Dux et al., 2006; Just et al., 2008).

Additionally, the supported relationship between excessive screen use and the physical subdimension of brain fog ($r \approx .60$; Table 3) illustrated that digital exposure can contribute to physical issues such as headaches, sleep disturbances or musculoskeletal discomfort. Thereby the crucial finding aligns with existing literature, suggesting that brain fog is not limited to cognitive outcomes but also has somatic implications (Firth et al., 2024).

The correlations that involve social and personal dimensions of FoMO scale and all subdimensions of brain fog suggest that the stress induced by social media use and constant connectivity adversely affect individuals' cognitive, emotional, and physical well-being. Among these, the crucial finding between social FoMO and psychological exhaustion ($r \approx .78$; Table 3) is particularly striking. This implies that the persistent perception of social belonging being at risk may undermine mental health. Similarly, the link between personal FoMO and cognitive burnout highlights the mental costs of maintaining individual visibility and managing perceived responsibilities, particularly in executive functioning and attentional domains (Gorman & Green, 2016).

Finally, the fact that all subdimensions of multi-screen addiction show strong and significant correlations with the cognitive, psychological, and physical subdimensions of brain fog indicates that multitasking has evolved into a taxing behavior that depletes

individuals' mental and physical resources. The high correlation between compulsive screen use and cognitive exhaustion ($r \approx .72$; Table 3) reflects how increased screen time and the number of devices used impair mental performance. Furthermore, the strong association between excessive screen use and physical exhaustion ($r \approx .60$; Table 3) emerges as a critical finding of the study, pointing to a broader, embodied impact of digital multitasking behaviors.

In our study, we found that multi-screen use is a significant and strong predictor of brain fog ($R^2 = .539$, $\beta = .734$, $p < .001$; Table 4). This finding suggests that more than half of the variance observed in individuals' brain fog levels can be attributed to multi-screen usage. Particularly noteworthy is the substantial impact of compulsive digital behaviors on both general and physical symptoms of brain fog ($\beta = .735$ and $\beta = .534$, $p < .001$; Table 4). These results indicate that it is not merely the amount of time spent in digital environments, but rather the uncontrolled and compulsive nature of that engagement that most significantly contributes to mental and physical exhaustion.

These findings are consistent with the work of (Tambun et al., 2024) who report that multitasking can lead to lasting impairments in attention, working memory, and mental energy due to the strain it places on prefrontal cortical regions and executive functioning. Similarly, a study by (Gorman & Green, 2016) revealed that intensive media multitasking behavior impairs attentional processes and increases mental fatigue, noting that mindfulness-based interventions provide only temporary relief. In our study, both loss of control and excessive screen time were found to be significant predictors of overall brain fog scores ($\beta = .103$, $p = .009$; $\beta = .095$, $p = .015$; Table 4), suggesting that self-regulatory failure and overexposure to digital environments are critical risk factors. This supports the conclusions of (May & Elder, 2018) who emphasized that multitasking behaviors detrimentally affect not only academic performance but also general cognitive functioning and self-regulation capacity.

On the one hand our findings demonstrate that digital multitasking leads to significant fatigue and cognitive exhaustion, not only by impairing attentional and executive processes but also by manifesting at the somatic level. This effect appears to be particularly pronounced in patterns of compulsive and uncontrolled use, aligning with the conclusions of earlier research (Gorman & Green, 2016; May & Elder, 2018).

Additionally, our study investigated the predictive role of Fear of Missing Out (FoMO) a construct closely tied to the need to remain constantly online—on brain fog levels using regression analysis. FoMO emerged as a significant and strong predictor ($R^2 = .639$, $\beta = .799$, $p < .001$; Table 5). The finding that FoMO accounts for approximately 64% of the variance in brain fog suggests that digitalization imposes a considerable burden on individuals' cognitive clarity and attentional resources. Tambun et al. (2024) attribute this impact to structural alterations and functional impairments in prefrontal areas responsible for executive control, while the meta-analysis by Jeong and Hwang (2016) also confirmed that multitasking behaviors have detrimental effects on cognitive outcomes.

A more detailed analysis of the regression coefficients revealed that each one-unit increase in FoMO was associated with a 1.753-unit increase in brain fog scores ($B = 1.753$, $\beta = .799$, $p < .001$; Table 5). The high standardized beta coefficient reinforces the interpretation that stress arising from social media use and persistent connectivity significantly depletes

individuals' mental energy reserves. This conclusion is further supported by the very strong correlation between FoMO and brain fog observed in our correlation analysis ($r \approx .80$; Table 2), offering robust evidence for the explanatory strength of our regression model.

The findings from the multiple regression analysis demonstrate that the effects of FoMO subdimensions on brain fog are multifaceted. Notably, social FoMO was found to be a strong predictor of brain fog across cognitive, psychological ($\beta = .417$, $p < .001$), and physical ($\beta = .806$, $p < .001$) dimensions. This indicates that the need for social approval and a sense of belonging exerts significant influence not only on individuals' mental and emotional states but also on somatic well-being. This finding aligns with prior research suggesting that the "addiction-like" structure of social media functions as a direct cognitive stressor, posing substantial risks to mental health (Trivedi et al., 2021). Conversely, the absence of a significant effect of personal FoMO on physical brain fog ($\beta = –.007$, $p = .865$) implies that motivations related to personal visibility and information seeking are more closely associated with cognitive ($\beta = .568$, $p < .001$) and psychological effects.

The results concerning the impact of multi-screen use on brain fog are also compelling, both at the general and sub-dimensional levels. Previous studies have well documented the association between multitasking, fatigue, and reduced task performance (Chen et al., 2022). In our study, the finding that compulsive screen use emerged as a particularly strong predictor of overall brain fog ($\beta = .735$, $R^2 = .567$, $p < .001$) emphasizes that the detrimental effects of digital behavior are not solely dependent on-screen time however are critically shaped by patterns of compulsive and uncontrolled use. The significant predictive power of compulsive use on physical brain fog ($\beta = .534$, $p < .001$) further underscores the role of digital control loss in contributing to somatic exhaustion, fatigue, and psychosomatic symptoms.

Interestingly, no significant effect was found between the loss of control dimension in multi-screen use and physical brain fog ($\beta = .051$, $p = .217$). This suggests that psychological overload and emotional depletion may be more central mechanisms. This non-significant result is consistent with findings by Becker et al. (2013b) who reported associations between multitasking and increased anxiety, depression, and social apprehension. Nevertheless, the effect of control loss on overall brain fog was statistically significant ($\beta = .103$, $p = .009$), indicating that diminished self-regulatory capacity may contribute meaningfully to individuals perceived cognitive and emotional exhaustion.

Notably, excessive screen use demonstrated significant yet comparatively weaker effects on physical ($\beta = .255$, $p = .019$) and general ($\beta = .095$, $p = .015$) brain fog. This finding suggests that screen time alone is not the primary driver of fatigue; rather, it is the quality of engagement—such as compulsiveness and loss of control—that determines cognitive and somatic exhaustion. In this context, May and Elder (2018) emphasize the importance of focusing not only on the duration of media use but also on the nature of attention division and multitasking behaviors, particularly in relation to academic and cognitive performance.

In conclusion, the research findings demonstrate that the digital lifestyle of Generation Z university students has far-reaching effects—not only on their social interactions but also on their cognitive and psychological well-being. Specifically, the strong correlations reported in Tables 2 and 3 highlight that the behavior of being constantly online (FoMO) is significantly associated with both multi-screen use and symptoms of brain fog ($r \approx .80$;

Table 2). The strong association between the social subdimension of FoMO and both the psychological and physical dimensions of brain fog ($r \approx .78$ and $r \approx .80$; Table 3) suggests that the pressure to maintain social belonging may result in not only emotional but also somatic exhaustion (Firth et al., 2024; Hodkinson, 2019; Przybylski et al., 2013). Furthermore, the finding that multi-screen use—particularly in its compulsive and uncontrolled forms—is a significant predictor of both general and cognitive burnout ($\beta = .735$; Table 4) underscores that the manner of digital engagement, rather than its duration, plays a more critical role in mental fatigue (Tambun et al., 2024; Gorman & Green, 2016). Finally, the regression analysis confirming FoMO as a strong and significant predictor of brain fog ($\beta = .799$; $R^2 = .639$; Table 5) clearly illustrates the cognitive burden imposed by social media pressures and the constant need for connectivity, particularly in relation to executive functions, attention regulation, and mental clarity (Jeong & Hwang, 2016; Tandon et al., 2021).

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The Impact of Constant Online Presence and Multitasking Behavior on Cognitive Fatigue Among Generation Z University Students

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Extended Abstract

Generation Z is a generation often referred to in literature as individuals born between 1997 and 2012. This generation has grown up with the internet, smartphones, and social media platforms since childhood. While members of Generation Z enjoy the advantages of instant communication and access to information, there is also a tendency toward distance and alienation in face-to-face relationships. It is noted that Generation Z youth spend an average of 4.8 hours per day on social media, and this time leads to intense experiences of identity, social responsibility, brand loyalty, and peer influence. The Generation Z lifestyle, which is intertwined with digital technologies, causes individuals to constantly divide their attention and resources among different stimuli, making multitasking a natural part of modern life. This situation brings with it many phenomena, most notably FoMO. The concept of FoMO is particularly prevalent among the digital generation. It refers to the anxiety triggered by the feeling of missing out on events happening in one's social circle. FoMO is not only a psychological condition but also a cognitive stressor that has direct effects on attention, cognitive flexibility, and executive functions. Recent neuroimaging studies have shown that multitasking behavior and social media use have significant cognitive consequences. Brain fog is one such phenomenon. It is a condition that manifests itself in cognitive difficulties and is characterized by symptoms such as forgetfulness, difficulty concentrating, mental sluggishness and excessive mental effort, difficulty communicating, a feeling of "cloudy thinking," and fatigue.

This study aims to examine the relationship between the use of digital technologies and subjective neuropsychological symptoms observed in individuals. Specifically, the study investigated the relationship between multitasking behaviors, prolonged screen exposure, and coping mechanisms for attention division brought about by digitalization, and symptoms such as cognitive fatigue, forgetfulness, difficulty concentrating, and burnout. The study was designed as quantitative and cross-sectional research based on a correlational survey model. The sample of the study consisted of 295 university students aged 18–26 who were enrolled in formal education at state and foundation universities in Turkey and regularly used at least two social media platforms. Participants reported spending an average of 11.2 hours per week on social media; the most frequently used platforms were reported to be Instagram, TikTok, and X, respectively. While female students spent the most time on TikTok, male students spent the most time on Instagram. The FoMO Scale, Brain Fog Scale, Multiple Screen Addiction Scale, and demographic information form were used to collect data. All participants were healthy volunteers with no history of neurological or psychiatric diagnoses. The data collected were analyzed using the SPSS 30.0 program. First, descriptive statistics were calculated, followed by reliability analyses of the scales. Relationships between variables were examined using Pearson correlation analysis, and simple linear and multiple regression analyses were

applied to test the hypotheses. Additionally, multicollinearity assumptions (VIF and Tolerance values) were checked, and the statistical significance levels of the models were evaluated.

The study found strong and positive relationships between FoMO, multi-screen use, and brain fog, indicating that the digital lifestyle directly affects cognitive and psychological well-being. FoMO was identified as the strongest predictor of brain fog, explaining approximately 64% of its variance. Multi-screen use, particularly in its compulsive and addictive forms, was found to have a strong effect on general and physical brain fog symptoms. Social FoMO showed significant relationships with cognitive and psychological symptoms as well as physical exhaustion, suggesting that social belonging pressure may lead to physical fatigue. Personal FoMO was found to be more closely associated with cognitive and psychological exhaustion, while no significant effect on physical symptoms was observed. Compulsive use, one of the subdimensions of multi-screen addiction, was found to be highly correlated with both FoMO and brain fog, revealing that the nature of digital behavior is more decisive than its duration. Loss of control did not have a significant effect on physical brain fog but emerged as a factor that increased the overall feeling of exhaustion. While excessive screen time increased general and physical exhaustion, its effect was weaker compared to compulsive use and loss of control. Furthermore, the findings demonstrated that compulsive multi-screen behavior was the strongest predictor of cognitive fatigue, while social FoMO was particularly influential in explaining psychological exhaustion. The results also showed that the style of technology use (compulsive or controlled) is more critical than total time spent online, highlighting the importance of digital self-regulation. In addition, the study revealed that Generation Z's constant online engagement may lead not only to mental fatigue but also to somatic symptoms such as sleep problems and chronic tiredness. In light of this, the results indicate that the interplay of FoMO and multi-screen use systematically affects cognitive, psychological, and physical dimensions of well-being, underlining the urgent need for preventive strategies and awareness-based interventions.

Keywords: Brain Fog, Cognitive Fatigue, Social Media, Social Media Addiction, Multitasking, Fear of Missing Out.

Bu makale **intihal tespit yazılımlarıyla** taranmıştır. İntihal tespit edilmemiştir.

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Bu çalışmada **"Yükseköğretim Kurumları Bilimsel Araştırma ve Yayın Etiği Yönergesi"** kapsamında uyulması belirtilen kurallara uyulmuştur.

In this study, the rules stated in the **"Higher Education Institutions Scientific Research and Publication Ethics Directive"** were followed.

Yazarların çalışmadaki **katkı oranları**; birinci yazar %40, ikinci yazar %30, üçncü yazar %30.

Contribution rates of the authors in the study; first author 40%, second author 30%, third author %30.

Conceptualization: YEÖ, İA; Methodology: YEÖ; Data Curation: VŞÇ, İA; Writing – Original Draft: YEÖ; Writing – Review & Editing: YEÖ, İA, VŞÇ.

This study/methods section was **assisted** by the use of generative artificial intelligence tools. Specifically, Grammarly**,** Version 2.89.54151 was **used** for grammar checking and language editing.

Bu çalışma/yöntemler bölümü, üretken yapay zeka araçlarının kullanımıyla **desteklenmiştir.** Özellikle, dilbilgisi kontrolü ve dil düzenlemesi için Grammarly, Sürüm 2.89.54151 **kullanılmıştır.**

Çalışma kapsamında herhangi bir kurum veya kişi ile **çıkar çatışması** bulunmamaktadır.

There is no **conflict of interest** with any institution or person within the scope of the study.

Etik Kurul İzni | Ethics Committee Permission

Yıldız Teknik Üniversitesi Sosyal ve Beşeri Bilimler Araştırmaları Etik Kurulu'nun 01/06/2025 tarihli toplantısında alınan 2025.6 sayılı karar çerçevesinde çalışma etik açıdan bir sakınca içermemektedir.

Within the framework of the decision taken during the meeting Yıldız Technical University Social and Human Sciences Research Ethics Committee dated 01/06/2025 and numbered 2025.6 ; the study does not contain any ethical issues.