Erzincan Üniversitesi Eğitim Fakültesi Dergisi
Erzincan University Journal of Education Faculty
2023 Cilt 25 Sayı 3 (514-523) https://doi.org/10.17556/erziefd.1314856
Araştırma Makalesi / Researh Article

Perceived Stress and Social Media Addiction: Mediating Role of Flow Experiences

Algılanan Stres ve Sosyal Medya Bağımlılığı: Akış Yaşantılarının Aracı Rolü

Aynur Karabacak-Çelik[1] **Adem Peker**[2]

[1] Dr. Öğr. Üyesi, Atatürk Üniversitesi, Kazım Karabekir Eğitim Fakültesi, Erzurum, Türkiye
[2] Doç. Dr., Atatürk Üniversitesi, Kazım Karabekir Eğitim Fakültesi, Erzurum, Türkiye

Makale Bilgileri

Geliş Tarihi (Received Date)

15.06.2023

Kabul Tarihi (Accepted Date)

21.08.2023

Sorumlu Yazar

Aynur Karabacak-Çelik

Atatürk Üniversitesi Kazım Karabekir Eğitim Fakültesi Rehberlik ve Psikolojik Danışmanlık Anabilim Dalı

aynur.karabacak@atauni.edu.tr

Abstract: Social media addiction is a problem that has been emphasized in recent years and experienced by university students. Researchers have carried out many studies to clarify its antecedents and reduce this addiction. However, little is known about the positive effect of flow experiences in reducing social media addiction. In this context, the goal of this current research is to determine the mediator role of flow experiences in the relations between perceived stress and social media addiction. Participants comprised 542 university students (377 female and 165 male). The research used the Social Media Addiction Scale, the Perceived Stress Scale, and the Flow State Scale. Research results demonstrate that perceived stress and social media addiction have a statistically significant positive correlation, while flow experiences have a negative correlation. The findings also showed a bad correlation between social media addiction and experiences of flow. The mediation analysis results showed that flow experiences have a statistically significant mediating role in the relationships between perceived stress and social media addiction. Research findings underline that the positive effect of flow experiences is essential in reducing perceived stress's impact on social media addiction.

Keywords: Flow experiences, social media addiction, stress, mediation analysis

Öz: Sosyal medya bağımlılığı son yıllarda üzerinde önemle durulan ve üniversite öğrencilerinin yaşadığı bir sorundur. Araştırmacılar sosyal medya bağımlılığının öncüllerini tespit etmek ve bu bağımlılığı azaltmak için birçok çalışma gerçekleştirmiştir. Ancak aktiviteye odaklanma ve kontrol etme ile karakterize edilen akış deneyimlerinin olumlu etkisine sosyal medya bağımlılığının azaltılmasında daha az yer verilmektedir. Bu bağlamda, bu araştırma algılanan stres ve sosyal medya bağımlılığı arasındaki ilişkide akış deneyimlerinin aracılık rolünü belirlemeyi amaçlamaktadır. Katılımcılar 542 üniversite öğrencisinden (377 kadın, 165 erkek) oluşmaktadır. Araştırmada veri toplama aracı olarak kişisel bilgi formu, Sosyal Medya Bağımlılığı Ölçeği, Algılanan Stres Ölçeği ve Akış Durumları Ölçeği kullanılmıştır. Araştırma bulguları, algılanan stres ile sosyal medya bağımlılığı arasında pozitif, akış deneyimleri arasında ise negatif bir ilişki olduğunu göstermektedir. Aynı zamanda, sonuçlar akış deneyimleri ile sosyal medya bağımlılığı arasında negatif bir ilişki olduğunu ortaya koymuştur. Algılanan stres ile sosyal medya bağımlılığı arasındaki ilişkide akış deneyimlerinin aracılık etkisi bulunmaktadır. Araştırma bulguları, akış deneyimlerinin olumlu etkisinin, algılanan stresin sosyal medya bağımlılığı üzerindeki etkisini azaltmada önemli olduğunun altını çizmektedir.

Anahtar Kelimeler: Akış deneyimleri, sosyal medya bağımlılığı, stres, aracılık analizi

Karabacak-Çelik, A. & Peker, A. (2023). Perceived stress and social media addiction: mediating role of flow experiences. *Erzincan University Journal of Education Faculty*, 25(3), 514-523. https://doi.org/10.17556/erziefd.1314856

Introduction

Social Media Addiction

The use of social media is rising quickly today. Social media has developed into a vital platform for people to connect, share information, and interact with each other as a result of the rapid expansion of internet access and the widespread use of smartphones and other mobile devices (Çiftçi, 2018). Using social media has many positive aspects. Facilitating communication, helping to develop new ideas and produce content, contributing to freedom of expression, facilitating access to information, and helping to make economic gains are among the positive purposes of using social media (Baz, 2018; Demir, 2016). In a study conducted by Çömlekçi and Başol (2019), the purposes of using social media were discussed as communication with friends, having fun and relaxing, making use of leisure time, listening to music, sending and receiving messages, getting to know people better, following events/agenda, personal presentation, and information sharing, reaching people and organizations, exchanging ideas, and accessing to information. However, increasingly using social media, individuals may risk social media addiction (Başaran-Alagöz et al., 2017). It is the loss of control over social media use due to excessive use and an intense desire to stay connected to social media platforms and spend enough time on these platforms to disrupt other daily life tasks (Andreassen et al., 2014; Tutgun-Ünal, 2015). Social media addiction can occur due to a combination of many factors. These include young age, low self-esteem, loneliness, anxiety and depression (Kuss & Griffiths, 2017), lack of communication within the family, friendship and romantic relationship problems (Andreassen et al., 2016), and various features and innovations offered for the use of social media platforms (Kuss & Griffiths, 2017).

Research results on this addiction show that it is widespread among young people and can be a severe psychological problem (Andreassen et al., 2016; Kuss & Griffiths, 2017; Lenhart et al., 2010). Acording to the Turkish Statistical Institute's (2022) Household Information Technology Usage Survey in 2022, the rate of internet use among young people aged 16-24 in Turkey is 95.5%. The rates of individuals using social media platforms were WhatsApp at 82.0%, YouTube at 67.2% and Instagram at 57.6%. As a result, the widespread use of social media accounts and internet access among teenagers and young adults raises the possibility that social media addiction poses a risk for these people. Increased social media addiction has been linked to depression and anxiety, according to recent studies (Andreassen et al., 2016; Nie et al., 2017), decreased self-esteem and academic achievement (Lee et al., 2012; Malik &

Khan, 2015; Nie et al., 2017). It can also negatively affect one's daily life, leading to problems with work, school, relationships and other activities (Lee et al., 2012). Błachnio and Przepiorka (2016) indicated that problematic Facebook and Internet use is linked with low positive orientation, emotion regulation, and openness to experience. The study by Çiftçi (2018) examined social media addiction according to gender. It was found that boys were more addicted than girls, could not act in a controlled manner, and conflicted with themselves. It was also observed that the level of addiction increased in parallel with the level of education. Özdemir (2019) examined the social media addiction of university students in terms of socio-demographic variables. Accordingly, it was observed that social media addiction differed significantly according to gender, and the mean scores of male participants were higher than those of female participants. In addition, as the duration of social media use increased, social media addiction scores also increased.

Given the causes and consequences of social media addiction, one can assume that this problem brings many negative consequences. Considering the adverse effects, there is a need for preventive and remedial research on this issue. Therefore, this research aims to indicate the factors affecting this kind of social media addiction.

Perceived Stress and Social Media Addiction

Stress is the organism's reaction to any change process that creates pressure for the organism (Baltaş & Baltaş, 2008). Stress is the perception by the individual of a dangerous situation that arises due to interaction with the environment (Lazarus & Folkman, 1984). Stress is a part of daily life and helps individuals react to events by keeping them more dynamic. However, high-stress levels bring along situations that threaten physical and psychological health (Segerstrom & O'Connor, 2012).

University students in Turkey may encounter stressful stimuli in academic, professional and personal social problem areas. Trying to adapt to a new environment, starting university life in a new city, adapting to the culture, academic activities, and interpersonal relationships are possible problem areas (Donat et al., 2019; Erkan et al., 2012; Yılmaz et al., 2014) where stress may occur. Individuals use some coping mechanisms to reduce the stress they face in their daily life. Individuals with high problem-solving skills are more successful in coping with stress (Abdi & Sharyati, 2018). However, individuals who do not have very high coping skills may prefer to reduce stress with alternative methods. In this situation, people may overuse social media platforms to cope with their high perceived stress levels (Feng et al., 2019; Wolfers & Utz, 2022).

Many studies examining the relations between stress and social media addiction have demonstrated that stress is linked with social media addiction. A study by Xu and Tan (2012) indicated that people use social media more frequently as a stress reliever, leading to a rise in social media addiction. Similarly, Błachnio and Przepiorka (2016) found that highly stressed people use social media more. Feng et al. (2019) indicated that people with high-stress levels might experience social media addiction. Gong et al. (2021) found that perceived stress has a statistically significant relationship with internet addiction.Research also shows that social media use reduces stress and acts as a buffer (Wolfers & Utz, 2022). Bae (2022) indicated that social media use helps with stress reduction.

The relationships between stress and social media addiction indicate that if perceived stress increases, individuals cope with this stress by spending more time on social media, which may turn into addiction after a while (Başaran-Alagöz et al., 2017). Although studies have demonstrated the relationship between perceived stress and social media addiction, there is a need for more evidentiary studies on how perceived stress is related to individuals' social media addiction. In this direction, we predict that perceived stress will affect social media addiction.

Mediating Effect of Flow Experiences

Flow experiences are one of the concepts examined by positive psychology. Regarding positive psychology theory, flow is an important concept that reveals the strengths of individuals and enables them to live in the present moment (Hefferon & Boniwell, 2014; Seligman & Csikszentmihalyi, 2000). Flow experiences are a state of attention characterized by the individual's focusing on the activity they are currently engaged in, having control over it, and combining action and awareness (Csikszentmihalyi, 1990). Flow experiences are a concept of flow theory in positive psychology. Flow experiences are a pleasurable and motivating emotional state experienced by concentrating intensely during an activity and focusing on a goal without feeling how time passes (Nakamura & Csikszentmihalyi, 2014).

Research results showed that moderate levels of anxiety and stress were positively related to flow experience (Keller et al., 2011; Peifer et al., 2014). Sahranç (2008) found that stress control assessment positively affected the flow experience. Yılmaz and Talu (2022) found that the online group psycho-education program developed based on flow theory increased individuals' ability to cope with stress. On the other hand, some research findings showed that flow experiences decrease when stress experiences increase. Accordingly, Ko and Lee (2013) revealed that flow experiences decreased as the stress level increased. Increased stress levels may make it difficult for individuals to stay in the moment and prevent them from giving themselves to the activity.

The literature evaluates the relations between flow experiences and social media addiction in two ways. In the first evaluation, social media addiction increases in the case of an increase in these experiences due to the focus of flow experiences on an activity and the inability to understand how time passes (Brailovskaia & Teichert, 2020; Miranda et al., 2023). Research has revealed that streaming experiences increase internet and social media addiction (Liu & Chang, 2016; Yang et al., 2014). In the second evaluation, flow experiences have a positive-reducing effect on social media addiction (Ko & Lee, 2013; Pearson et al., 2021; Wan & Chiou, 2006). Contextually, Pearson et al. (2021) demonstrated that flow experiences have a significant negative indirect impact on life satisfaction and problematic smartphone use. Billieux et al. (2019) pointed out that in individuals who play video games, the high level of involvement in an activity of flow experiences is not always problematic. This research also emphasized that individuals may feel a positive, not necessarily pathological, sense of absorption in video games they play for entertainment and may involve themselves in the game. However, research showed that in recreational video games, vigorous activities do not always lead to pathological addiction, and flow experiences do not always reveal a negative situation (Sepehr & Head, 2012).

Since flow experiences are characterized by focusing attention, being involved in the activity, and having control over the action (Csikszentmihalyi, 1990), individuals may use social media more controlled way when they experience flow experiences. When evaluated in terms of the work concentration and control sub-dimensions of flow experiences, an individual who has control over the activity may also have control over the use of social media. Therefore, when individuals experience flow experiences, they can distance themselves from the overuse of social media since they will have control over the activity they are interested in. In this study, in light of this theoretical information, we hypothesized that social media addiction and stress would decrease if flow experiences increased. In this context, we predicted that flow experiences might reduce the negative impact of perceived stress on social media addiction.

Present Study

University students in Turkey may encounter stressful stimuli in academic, professional and personal social problem areas. Studies reveal that university students experience different problems. For example, Erkan et al. (2012) revealed that university students experience emotional, academic, and economic problems. Yılmaz et al. (2014) revealed that university students experience moderate levels of trait anxiety. Topkaya and Meydan (2013) found that university students experience intense romantic, economic, academic, personality, adjustment, and family problems. Students may resort to stress coping mechanisms to protect themselves from such stressful stimuli. While some ways of coping with stress are functional, others may not be. One dysfunctional stress coping mechanism may be the overuse of social media as there are research findings showing that social media addiction may increase as a result of excessive use of social media platforms (Başaran-Alagöz et al., 2017; Özdemir, 2019).

While previous studies have found that social media use has significant and positive effects on the streaming experience (Mauri et al., 2011; Zhao & Zhou, 2021), a limited number of studies have been conducted on the effect of streaming experience on social media addiction. For example, (Yao et al., 2023) reported that social media use involves interaction with others, provides practical, and emotional experiences, and produces pleasant emotions that positively affect individuals' flow experience. In a similar study, Sofyan et al. (2023) reported the effect of searching for information on social media on the flow experience. Pelet et al. (2017) stated that social media's immersive and interactive features will help individuals feel good. However, these studies need to adequately explain the mechanisms underlying the relationship between stress and social media addiction. Therefore, this study is related to the fact that the streaming experience reduces social media addiction.

The studies above provide essential information on determining the reciprocal relations between perceived stress, flow experiences, and social media addiction. According to research, stress and addiction to social media are related. However, little is known about whether flow mediates the relations between perceived stress and social media addiction. Although earlier research identified the factors that affect social media addiction (Başaran-Alagöz et al., 2017; Błachnio and Przepiorka, 2016; Feng et al., 2019), it had only a limited impact on its reduction. Therefore, uncovering the different underlying mechanisms controlling the relations between perceived stress and social media addiction may expand the literature. In this current study, we hypothesize that perceived stress is linked with social media addiction. Moreover, flow experiences may mediate the relations between perceived stress and social media addiction. In line with these aims, we tested the following hypotheses in the current study:

1. Perceived stress is a statistically significant negative predictor of flow experiences.
2. Perceived stress is a statistically significant positive predictor of social media addiction.
3. Flow experiences mediate the relationship between perceived stress and social media addiction.

Method

Research Model

Since the study aimed to determine the relationships between perceived stress, flow experiences and social media addiction, we designed the research following the relational model (Fraenkel et al., 2012). The correlational study aims to determine the relationships and the degree of association between at least two or more variables without trying to influence the variables (Fraenkel et al., 2012; McMillan & Schucamher, 2010; Mertens, 2015).

Participants

We collected the data online, as online education continued in universities due to the Kahramanmaraş-based earthquakes on February 6, 2023. The participants for the current study were chosen using a convenient sampling technique. In this sampling method, the sample is selected based on time, money, location (Özmen & Karamustafaoğlu, 2019). This study's online data collection process was preferred because it has time and economic benefits for researchers.

Participants consist of 542 university students continuing their education in various Atatürk University Kazım Karabekir Faculty of Education departments. Regarding gender they consist of 377 female (69.6%) and 165 male (30.4%) students. The participants's mean age was 23.04, and the standard deviation was 4.87. 128 (23.6%) of the students were first-year students, 44 (0.8%) were sophomores, 158 (38.9%) were juniors, and 211 (36.7%) were seniors. Regarding the departments, 25 (0.5%) of the students studied German teaching, 34 (0.6%) French, 30 (0.6%) philosophy group, 97 (17.8%) guidance and psychological counseling, 77 (14. 2) special education, 119 (21.9%) Turkish, 31 (0.6%) art, 40 (0.7%) elementary mathematics, 25 (0.5%) music, 39 (0.7%) preschool and 25 (0.5%) physical education.

Data Collection Tools

Perceived Stress Scale

The scale was translated into Turkish by Bilge et al. (2009) to assess adult subjects' levels of stress. Perceived stress and coping are the two sub-dimensions of the scale (e.g., *"I felt stressed.", "Events beyond my control made me angry.").* A 5-point Likert-style scale with a range of 0 to 32 is used. Cronbach's Alpha for the scale was .81. The scale's total and subscale scores may be used by the researchers. A high score indicates that there is a lot of stress being felt. The perceived stress and coping sub-scales for the current study had internal consistency coefficients of .83 and .80, respectively.

Flow States Scale

The scale to evaluate the main characteristics of the flow experience as described by Csikszentmihalyi was created by Magyarodi et al. (2013) and translated into Turkish by Uz-Bas (2019). These characteristics include a difficult task, a balance of skills, and the capacity to focus entirely on the task at hand to block out other stimuli. A 5-point Likert scale, two factors, and 20 items make up the scale. Balance, the first factor, has eleven items, and Concentration on Work, the second factor, has nine items (e.g., *"My mind worked in full harmony with my body.", "My skills were balanced in terms of the challenge of the activity.").* The scale's internal consistency coefficients for the sub-dimensions were .92 and .90. The scale includes two sub-dimensions— work concentration and balance—and 12 items measuring flow experiences.

Social Media Addiction Scale

Çömlekçi and Başol (2019) revised Günüç's (2009) internet addiction scale for social media addiction. This revised scale is a one-dimensional scale measuring social media addiction and consisting of 7 items (e.g., *"I had problems with my family because of my use of social media.", "People around me complain about the time I spend on social media.").* The scale is a five-point Likert scale, and an increase in the scores means an increase in social media addiction. Confirmatory factor analysis results demonstrated that the validity of the scale showed that the scale had construct validity (χ^2 = 54.40, df = 14, χ^2/df = 3.88, RMSEA = .078, CFI = .96, NFI = .96, GFI = .95, NNFI = .95, AGFI = .89). We found the Cronbach's alpha of the social media addiction scale was .85.

Data Collection

Before the data collection phase of this study, we granted ethical permission number 04/10 from Atatürk University Educational Sciences Unit Ethics Committee. The researchers collected the data online because university education continued online due to the earthquakes centred in Kahramanmaraş on February 6, 2023. We prepared the scales through Google Forms and sent them to the participants via its link. Online data collection tools are available at https://forms.gle/RY1RYScg37wSU8dF8. In addition, we gave an informed consent form to the participants explaining the purpose of the study, stating that they would voluntarily participate in the research and that we would not share the results with others. The researchers completed the online data collection process within 20 days.

Data Analysis

The online data collection process found no missing data, as one question was not marked before the next. As a result, 554 people completed the scales. Before analyzing the data, we examined the outlier and normality values. As a result of these processes, the researchers removed the data of 12 individuals from the data set because they did not meet the normality assumption. In the last stage, we used the AMOS 21.0 program for multivariate normality tests of the data set and looked at Mardia's kurtosis and skewness values. Based on the result of this process, we observed that we confirmed Mardia's assumption of multivariate normality (p>.05). As a result of all these procedures, we analyzed 542 data (Tabachnick et al., 2007).

We first used the SPSS-22 program to test the descriptive statistics of the research variables and correlation analysis between the variables. Using Pearson Correlation analysis, we ascertained the relationships between the variables. Then, using structural equation modeling (SEM), we assessed the fit and path coefficients of the measures for the mediator role of flow between perceived stress and social media addiction. We employed the AMOS 21.0 program for this. To assess the structural equation model's model fit, researchers adopted a few indices. These model fit indices state that an acceptable model fit is defined as χ^2/df less than 5, CFI, GFI, TLI, NFI greater than.90, RMSEA, and SRMR values less than .08 (Kline, 2015). The model fit indices for this study were χ^2/df = 4.29, RMSEA =.07, SRMR =.05, CFI =.93, TLI =.91, NFI =.91, and GFI =.92. Finally, for the rigor of the results, we used the Bootstrap method to validate the confidence intervals (CI) of the indirect, direct, and total effects. This increased the reliability of the research's findings. In order to ensure that the confidence intervals did not contain zero, we decided to use the 5000-sampling method (Preacher & Hayes, 2004).

Results

Relationships Between Variables

To demonstrate the connections between perceived stress, flow states, and social media addiction, we conducted a correlation analysis. Table 1 shows the correlation analysis results:

Table 1. Correlations between perceived stress, flow experiences and social media addiction

	1	2	3
1. Perceived stress	1		
2. Flow lives	-.19*	1	
3. Social media addiction	.40*	-.23*	1
$\bar{X}$	13.81	39.24	13.90
SD	5.53	6.60	5.67
Skewness	.20	.00	.85
Kurtosis	-.85	.08	.66

Note. $*p < .001$, N = 542

Table 1 demonstrates a significant positive relation between perceived stress and social media addiction (r = .40). It shows a negative relation between perceived stress and flow experiences (r = -.19). Besides, it indicates a significant negative relation between flow experiences and social media addiction (r = -.23). These results imply that while students' perceived stress levels increased, their social media addiction also increased. While their flow experiences increased, their perceived stress and social media addiction decreased.

Measurement Model Results

Before testing to the structural model of mediation analysis, we performed to test the measurement model. Figure 1 demonstrates the measurement model results:

Figure 1 shows the measurement model results. Regarding the fit indexes, the measurement model has an acceptable level (χ^2 = 317.344, df = 74, χ^2/df = 4.29, RMSEA = .07, SRMR = .05, CFI = .928, NFI = .905, GFI = .918, TLI = .908).

Mediation Analysis Result

Table 2 and Figure 2 present the findings of our mediation analysis, which was used to ascertain the indirect impact of flow experiences on the association between perceived stress and social media addiction.

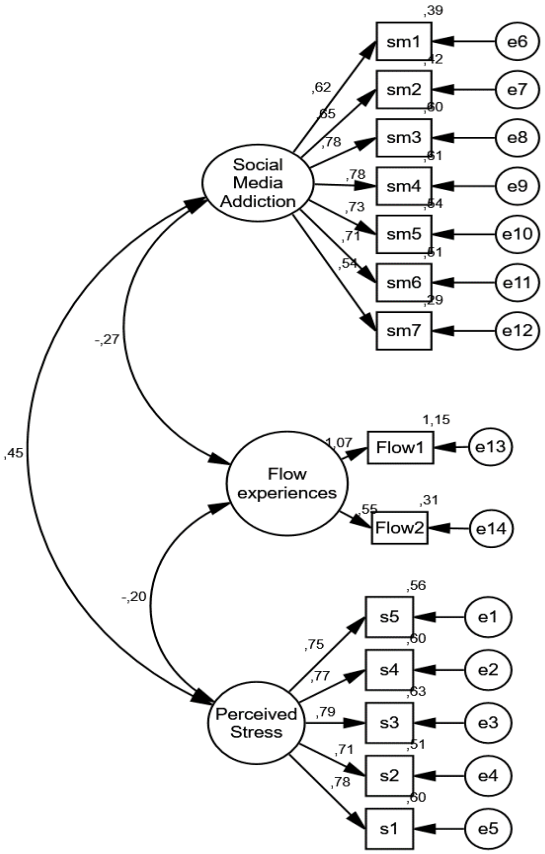

Figure 1. Measurement model (standardized coefficients)

Table 2. The mediator role of flow experiences in the relations between perceived stress and social media addiction (unstandardized coefficients)

	Outcomes					
	Flow experiences			**Social media addiction**		
Antecedents	**Estimate**	***SE***	**Std. Estimate**	**Estimate**	***SE***	**Std. Estimate**
Perceived stress	-.84*	.18	-.20*	.27*	.04	.42*
Flow experiences	-	-	-	-.03*	.01	-.19*
	R^2 = .04*			R^2 = .24*		

Note. *p < .001

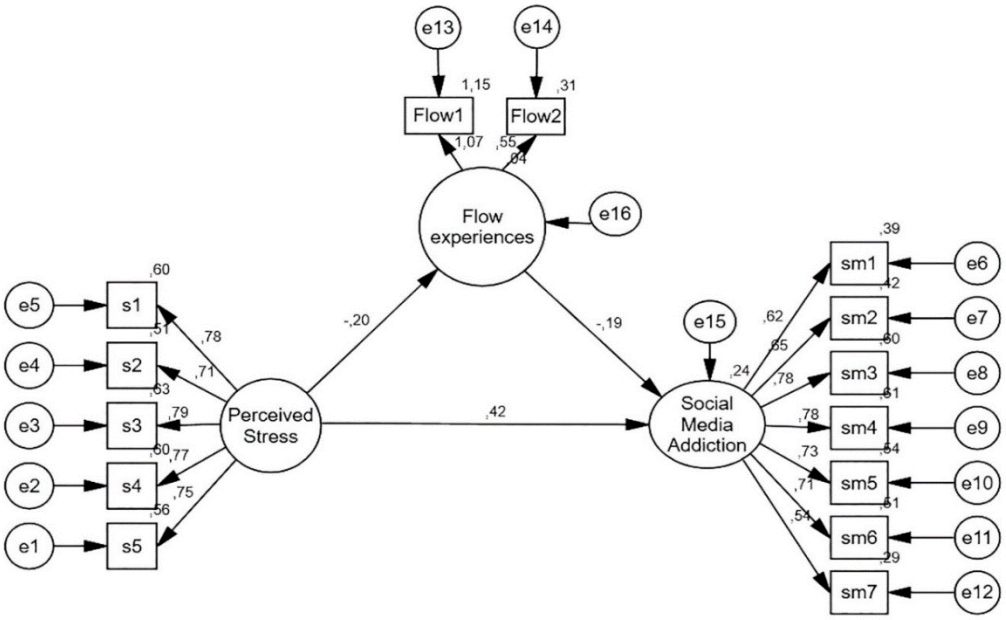

Figure 2. Mediation analysis results (standardized coefficients)

Table 3. Total, direct, and indirect effects of the variables (unstandardized coefficients)

	Estimate	95% CI		Std. Estimate
		BLLCI	BULCI	
Total Effect				
PS→SMA	.29	.22	.38	.45
Direct Effect				
PS→SMA	.27	.19	.35	.42
Indirect Effect				
PS→FE→SMA	.02	.01	.05	.04

Note. PS = Perceived stress, SMA = Social media addiction, FE = Flow experiences, BLLCI = Bootstrapp lower-level confidence interval, BULCI = Bootstrapp upper level confidence interval, CI = Confidence interval

Figure 2 demonstrates the structural model of the study. Regarding the fit indexes to the structural model, it has an acceptable level. The fix indices of the structural model were χ^2 = 317.344, df = 74, χ^2/df = 4.29, RMSEA = .07, SRMR = .05, CFI = .925, NFI = .905, GFI = .918, TLI = .908. Mediation analysis results demonstrate that perceived stress significantly affected social media addiction (B =.27, SE =.04). Additionally, it shows that flow experiences were directly impacted by perceived stress (B = -.84, SE =.18). Last but not least, flow experiences directly impacted social media addiction (B = -.03, SE =.00). To ascertain whether flow experiences significantly mediate the relations between perceived stress and social media addiction, we performed a regression analysis using the Bootstrap method. The confidence intervals showed that flow experiences had a significant mediator role in relations between social media addiction and perceived stress (B =.03, 95% CI [.01, .05]). Furthermore, the mediation effect was significant, and we were able to support the research's primary hypothesis (H2) regarding mediation because neither the lower nor upper Bootstrap confidence intervals included 0.

Total, Direct and Indirect Effects

Table 3 demonstrates the total, direct, and indirect effects of the variables:

Table 3 shows that the total effect of perceived stress on social media addiction (B = .29, 95% CI [.22, .38]) and its direct effect (B = .27, 95% CI [.19, .35]) are significant. Furthermore, the indirect effect of perceived stress on social media addiction through flow experiences (B = .02, 95% CI [.01, .05]) is also significant. Since we determined the standardized total indirect effect value as .04, we concluded that flow experiences have a moderate mediating effect.

Discussion

This research revealed that as individuals' perceived stress levels increase, their social media addictions also increase. Another result of the study showed that the mediating role of flow experiences is statistically significant in the relations between perceived stress and social media addiction.

The first finding of the study showed that as the perceived stress levels of the students increased, their social media addictions increased. While this result overlaps with some studies in the literature (Dailey et al., 2020; Doan et al., 2022; Ostovar et al., 2016; Rasmussen et al., 2020; Zhao, 2023). Individuals may have preferred to use social media to cope with daily stressful stimuli. Individuals may have found communication channels through social media and interacted socially with people by creating more attractive profiles that they could not experience in social life. This alluring profile and interaction process may lead individuals to use social media more.

When individuals encounter stressful situations, they can cope with stress through cognitive and behavioral efforts that they produce and develop to overcome the demands of their environment (Folkman & Lazarus, 1988, Peker & Cengiz, 2022; Peker & Yalçın, 2022). However, individuals with low problem-solving skills may also have low-level coping skills. Therefore, individuals with a low ability to cope with stress can use social media uncontrollably and at an addictive level to escape stress.

The study's other result reveals that flow experiences reduce the effect of perceived stress on social media addiction. Research results support this finding in the literature (Barberis et al., 2022; Billieux et al., 2019; Ko & Lee, 2013; Pearson et al., 2021; Sepehr & Head, 2012) and conflicting research results (Liu & Chang, 2016; Yang et al., 2014). The increase in flow experiences can be associated with the individual giving themselves more to the activity and being involved in an activity so much that they cannot understand how time passes (Pearce et al., 2004). Some studies have revealed that flow experiences are a risk factor for internet and social media addiction (Hsu, 2020; Huang et al., 2022; Kara, 2021; Liu & Chang, 2016; Wang et al., 2020; Yang et al., 2014). Increased perceived stress may be a risk factor that reduces flow experiences. Individuals with high-stress levels may not experience the sense of involvement and control that characterize flow experiences. They may need help to fully immerse themselves in the activity they are interested in and may not have control over it. High-stress levels may prevent the person from focusing on the time spent, reducing the flow of experiences. In this context, as a result of the research conducted by Kim and Park (2018), increased stress was examined as a variable that decreases flow experiences. In this respect, university students are likely to be exposed to stress during the stages of trying to achieve developmental tasks related to interpersonal relationships and academic and professional expectations. Increasing stress levels of university students may negatively affect their focus on the present moment, and increased stress levels may lead to a decrease in flow experiences.

However, this research shows that the increase in flow experiences is a variable that reduces stress and social media addiction. Because it is a fact that people who experience flow experiences also have control over the activity (Nakamura & Csikszentmihalyi, 2014). Individuals who control their activity can also control how much they use social media. Similarly, with the experience of flow experiences, the individual has the motivation to achieve success in an activity and to achieve success to the extent of her competence (Novak & Hoffman, 1997). Slightly above the ability level of the individual where

flow experiences are most experienced, activities that force the individual lead to more flow experiences (Csikszentmihalyi, 1990). When talent-skill balance is considered, individuals may see themselves competent in using social media and managing these platforms. In this case, their stress level decreased, and their addictions may have appeared less. However, studies have emphasized that the components of flow experiences do not always describe a negative situation. To resolve this controversial situation, Billieux et al. (2019) pointed out that a high level of involvement in the activity, a component of streaming experiences, is not always problematic for individuals playing video games. Pearson et al. (2021) revealed a negative and significant indirect effect of flow experiences in the relationship between problematic smartphone use and life satisfaction. On the other hand, Sepehr and Head (2013) emphasized that activities done with passion in video games played for entertainment purposes do not always create a pathological addiction. The current research also reveals that the mediating effect of flow experiences on the relationship between perceived stress and social media addiction is significant. Therefore, the current study's mediation results underline that the impact of perceived stress on social media emerges through flow experiences.

Conclusion

This study revealed that as the perceived stress levels of adult individuals increase, their social media addictions also increase. Besides, the research results showed a mediation relationship between the perceived stress of flow experiences and social media addiction. The findings expand the literature on reducing social media addiction and offer a new perspective on helping mental health professionals identify social media addiction and protective and risk factors. Moreover, the results are consistent with the flow theory's view on reducing social media addiction, and our findings provide compelling insights into the model.

Limitation and Recommendations

Despite the theoretical implications of the research results, these results must be examined in the light of the limitations. First, the participants in the study consist of a limited number of adult individuals in a province. Therefore, to generalize our results, researchers can replicate them on adults in different geographical regions. A second limitation of the study can be the difficulties in reaching the participants since we made the scale applications during the online education period. Repetition of the study in a period when face-to-face training is introduced may enable it to reach more participants. Third, the scales used in this study may not reflect all the characteristics of the variables. For example, we used a 5-items stress-related scale in this study. Researchers may use different scales to measure the stress level of individuals. In future studies, researchers may use the scales containing different sub-dimensions related to social substance addiction. The fourth limitation is that the number of female participants is higher than that of male participants. In future studies, researchers can increase the number of male participants. Finally, the study is a cross-sectional study and is limited in terms of showing longitudinal effects. Researchers can design longitudinal or experimental studies in future research.

Author Contributions

All authors were equally involved in all processes of the article. All authors have read and approved the final version of the study.

Ethical Declaration

This study was carried out with the approval decision taken at the Human Research Ethics Committee in Social Sciences of Atatürk University (Protocol No. 04/10) at the meeting dated 30.03.2023.

Conflict of Interest

The authors declare that there is no conflict of interest with any institution or person within the scope of the study.

References

Abdi, M., & Sharyati, A. (2019). Comparing the training effects of problem-solving and coping skills with stress. *Global Journal of Psychology Research: New Trends and Issues*, *9*(1), 16-22. https://doi.org/10.18844/gjpr.v9i1.4110

Andreassen, C. S., Billieux, J., Griffiths, M. D., Kuss, D. J., Demetrovics, Z., Mazzoni, E., & Pallesen, S. (2016). The relationship between addictive use of social media and video games and symptoms of psychiatric disorders: A large-scale cross-sectional study. *Psychology of Addictive Behaviors*, *30*(2), 252-262. https://psycnet.apa.org/doi/10.1037/adb0000160

Andreassen, C. S., Torsheim, T., & Pallesen, S. (2014). Predictors of use of social network sites at work-a specific type of cyberloafing. *Journal of Computer-Mediated Communication*, *19*(4), 906-921. https://doi.org/10.1111/jcc4.12085

Bae, M. (2023). Coping strategies initiated by COVID-19-related stress, individuals' motives for social media use, and perceived stress reduction. *Internet Research*, *33*(1), 124-151. https://doi.org/10.1108/INTR-05-2021-0269

Baltaş, A., & Baltaş, Z. (2008). *Stres ve başaçıkma yolları.* Remzi Kitabevi.

Barberis, N., Cannavò, M., Costa, S., & Cuzzocrea, F. (2022). Problematic behaviours and flow experiences during screen-based activities as opposite outcomes of the dual process of passion and basic needs. *Behaviour & Information Technology*, *41*(14), 3110-3123. https://doi.org/10.1080/0144929X.2021.1972158

Başaran-Alagöz, S., Yazgan, A. E., & Baiturova, K. (2017). Tüketicilerin internet bağımlılığının sosyal medya reklamlarına yönelik genel algı ve tutumları üzerindeki etkisi. *Journal of Suleyman Demirel University Institute of Social Sciences*, *29*(4), 287-310.

Baz, F. Ç. (2018). Sosyal medya bağımlılığı: Üniversite öğrencileri üzerine çalışma. *OPUS International Journal of Society Researches*, *9*(16), 276-295.

Bilge, A. F., Ogce, U. F., Etki-Genç, R., Tuna-Oran, N. (2009). Psychometric eligibility of Turkish version of perceived stress scale. *Journal of Ege Uni Sch Nur. 2*(25), 61-72.

Billieux, J., Flayelle, M., Rumpf, H. J., & Stein, D. J. (2019). High involvement versus pathological involvement in video games: A crucial distinction for ensuring the validity and utility of gaming disorder. *Current Addiction Reports*, *6*, 323-330. https://doi.org/10.1007/s40429-019-00259-x

Błachnio, A., & Przepiorka, A. (2016). Personality and positive orientation in Internet and Facebook addiction. An empirical report from Poland. *Computers in Human Behavior, 59*, 230-236. https://doi.org/10.1016/j.chb.2016.02.018

Brailovskaia, J., & Teichert, T. (2020). "I like it" and "I need it": Relationship between implicit associations, flow, and addictive social media use. *Computers in Human Behavior, 113*, 106509. https://doi.org/10.1016/j.chb.2020.106509

Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. Harper and Row.

Çiftçi, H. (2018). Üniversite öğrencilerinde sosyal medya bağımlılığı. *MANAS Sosyal Araştırmalar Dergisi*, *7*(4), 417-434.

Çömlekçi, M.F., & Başol, O. (2019). Gençlerin sosyal medya kullanım amaçları ile sosyal medya bağımlılığı ilişkisinin incelenmesi. *Manisa Celal Bayar Üniversitesi Sosyal Bilimler Dergisi*, *17*(4), 173-188. https://doi.org/10.18026/cbayarsos.525652

Dailey, S. L., Howard, K., Roming, S. M., Ceballos, N., & Grimes, T. (2020). A biopsychosocial approach to understanding social media addiction. *Human Behavior and Emerging Technologies*, *2*(2), 158-167. https://doi.org/10.1002/hbe2.182

Demir, Ü. (2016). Sosyal medya kullanımı ve aile iletişimi: Çanakkale'de lise öğrencileri üzerine bir araştırma, *Selçuk İletişim, 9*(2), 27-50. https://doi.org/10.18094/si.99029

Doan, L. P., Le, L. K., Nguyen, T. T., Nguyen, T. T. P., Le, M. N. V., Vu, G. T., ... & Zhang, M. W. (2022). Social media addiction among Vietnam youths: patterns and correlated factors. *International Journal of Environmental Research and Public Health*, *19*(21), 14416. https://doi.org/10.3390/ijerph192114416

Erkan, S., Özbay, Y., Cihangir-Çankaya, Z., Terzi, Ş. (2012). Problems experienced by university students and their willingness to seek psychological help. *Education and Science, 37* (164), 94-107.

Feng, Y., Ma, Y., & Zhong, Q. (2019). The relationship between adolescents' stress and internet addiction: A mediated-moderation model. *Frontiers in Psychology*, *10*, 2248. https://doi.org/10.3389/fpsyg.2019.02248

Folkman, S., & Lazarus, R. S. (1988). Coping as a mediator of emotion. *Journal of personality and social psychology*, *54*(3), 466. https://psycnet.apa.org/doi/10.1037/0022-3514.54.3.466

Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2012). *How to design and evaluate research in education* (Vol. 7, p. 429). McGraw-hill.

Gong, Z., Wang, L., & Wang, H. (2021). Perceived stress and internet addiction among Chinese college students: mediating effect of procrastination and moderating effect of flow. *Frontiers in Psychology*, *12*, 632461. https://doi.org/10.3389/fpsyg.2021.632461

Günüç, S. (2009). *İnternet bağımlılık ölçeğinin geliştirilmesi ve bazı demografik değişkenler ile internet bağımlılığı arasındaki ilişkilerin incelenmesi.* (Tez No. 234300) [Yüksek lisans tezi. Yüzüncü Yıl Üniversitesi-Van) Yükseköğretim Kurulu Ulusal Tez Merkezi.

Hayes, A. F. (2013). *Mediation, moderation, and conditional process analysis. Introduction to mediation, moderation, and conditional process analysis: A regression-based approach.* Guilford Publications.

Hefferon, K., & Boniwell, I. (2014). *Pozitif psikoloji: Kuram, araştırma ve uygulamalar.* T. Doğan (Çev. Ed.). Nobel Akademi Yayıncılık.

Hsu, C. L. (2020). How vloggers embrace their viewers: Focusing on the roles of para-social interactions and flow experience. *Telematics and Informatics*, *49*, 101364. https://doi.org/10.1016/j.tele.2020.101364

Huang, Q., Hu, M., & Chen, H. (2022). Exploring stress and problematic use of short-form video applications among middle-aged Chinese adults: the mediating roles of duration of use and flow experience. *International Journal of Environmental Research and Public Health*, *19*(1), 132. https://doi.org/10.3390/ijerph19010132

Jackson, S. A., & Eklund, R. C. (2004). The flow scales manual. Fitness Information Technology. *Morgantown, WV: Publishers Graphics*.

Kara, M. (2021). High schoolers' usage intensity of mobile social media and nomophobia: Investigating the mediating role of flow experience. *Participatory Educational Research*, *8*(1), 409-422. http://dx.doi.org/10.17275/per.21.24.8.1

Keller, J., Bless, H., Blomann, F., & Kleinbohl, D. (2011). Physiological aspects of flow experiences: Skills–demand-compatibility effects on heart rate variability and salivary cortisol. *Journal of Experimental Social Psychology*, *47*(4), 849-852. http://dx.doi.org/10.1016/j.jesp.2011.02.004

Kim, M. Y., & Park, S. (2018). Associations of stress, self-esteem, and collective efficacy with flow in simulation among nursing students: A descriptive cross-sectional study. *Nurse Education Today*, *71*, 193-197. https://doi.org/10.1016/j.nedt.2018.09.033

Kline, R. B. (2015). *Principles and practice of structural equation modeling.* Guilford Publications.

Ko, H. J., & Lee, M. G. (2013). The effects of flow on stress and well-being in Korean college students: The moderating effect of flow and the mediating effect of coping strategies. *The Korean Journal of Stress Research*, *21*(4), 283-292.

Kuss, D. J., & Griffiths, M. D. (2017). Social networking sites and addiction: Ten lessons learned. *International Journal of Environmental Research and Public Health*, *14*(3), 311. https://doi.org/10.3390/ijerph14030311

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer Publishing Company.

Lee, Z. W., Cheung, C. M., & Thadani, D. R. (2012). An investigation into the problematic use of Facebook. In *2012 45th Hawaii international conference on system sciences* (pp. 1768-1776). IEEE.

Lenhart, A., Purcell, K., Smith, A., & Zickuhr, K. (2010). Social media & mobile internet use among teens and young adults. *Millennials*.

Lin, J., Lin, S., Turel, O., & Xu, F. (2020). The buffering effect of flow experience on the relationship between overload and social media users' discontinuance intentions. *Telematics and Informatics*. https://doi.org/10.1016/j.tele.2020.101374

Liu, C. C., & Chang, I. C. (2016). Model of online game addiction: The role of computer-mediated communication motives. *Telematics and Informatics*, *33*(4), 904-915. https://doi.org/10.1016/j.tele.2016.02.002

Magyaródi, T., Nagy, H., Soltész, P., Mózes, T., & Oláh, A. (2013). Psychometric properties of a newly established

flow state questionnaire. *The Journal of Happiness & Well-Being, 1*(2), 85-96.

Malik, S., & Khan, M. (2015). Impact of facebook addiction on narcissistic behavior and self-esteem among students. *Journal of the Pakistan Medical Association*, *65*(3), 260-263.

Mauri, M., Cipresso, P., Balgera, A., Villamira, M., & Riva, G. (2011). Why is Facebook so successful? Psychophysiological measures describe a core flow state while using Facebook. *Cyberpsychology, Behavior, and Social Networking*, 14, 723-731. https://doi.org/10.1089/cyber.2010.0377

McMillan, J. H., & Schumacher, S. (2010). *Research in education: Evidence-based inquiry*, Pearson.

Mertens, D. M. (2015). *Research and evaluation in education and psychology* (4th ed.) Sage Publications.

Miranda, S., Trigo, I., Rodrigues, R., & Duarte, M. (2023). Addiction to social networking sites: Motivations, flow, and sense of belonging at the root of addiction. *Technological Forecasting and Social Change*, *188*, 122280. https://doi.org/10.1016/j.techfore.2022.122280

Nakamura, J. & Csikszentmihalyi, M. (2005). 'The concept of flow'. In *Handbook of positive psychology*. Snyder, C. R. ve Lopez, S. J. (Eds.). (pp. 89-105). Oxford University Press.

Nakamura, J., & Csikszentmihalyi, M. (2014). The concept of flow. In *Flow and the foundations of positive psychology* (pp. 239-263). Springer.

Nie, J., Zhang, W., & Liu, Y. (2017). Exploring depression, self-esteem and verbal fluency with different degrees of internet addiction among Chinese college students. *Comprehensive Psychiatry*, *72*, 114-120. https://doi.org/10.1016/j.comppsych.2016.10.006

Novak, T. P., & Hoffman, D. L. (1997). Measuring the flow experience among web users. *Interval Research Corporation*, *31*(1), 1-35. http://www2000.ogsm.vanderbilt.edu/

Ostovar, S., Allahyar, N., Aminpoor, H., Moafian, F., Nor, M. B. M., & Griffiths, M. D. (2016). Internet addiction and its psychosocial risks (depression, anxiety, stress and loneliness) among Iranian adolescents and young adults: A structural equation model in a cross-sectional study. *International Journal of Mental Health and Addiction*, *14*, 257-267. https://doi.org/10.1007/s11469-015-9628-0

Özdemir, Z. (2019). Üniversite öğrencilerinde sosyal medya bağımlılığı. *Beykoz Akademi Dergisi*, *7*(2), 91-105.

Özmen, H., & Karamustafaoğlu, O. (2019). Eğitimde Araştırma Yöntemleri, Ankara: Pegem Akademi.

Pearce, J. M., Ainley, M., & Howard, S. (2005). The ebb and flow of online learning. *Computers in Human Behavior*, *21*(5), 745-771. https://doi.org/10.1016/j.chb.2004.02.019

Pearson, A. D., Young, C. M., Shank, F., & Neighbors, C. (2021). Flow mediates the relationship between problematic smartphone use and satisfaction with life among college students. *Journal of American College Health*, 1-9. https://doi.org/10.1080/07448481.2021.1910274

Peifer, C., Schulz, A., Schachinger, H., Baumann, N., & Antoni, C.H. (2014). The relation of flow-experience and physiological arousal under stress- Can u shape it? *Journal of Experimental Social Psychology*, *53*, 62-69. https://doi.org/10.1016/j.jesp.2014.01.009

Peker, A., & Cengiz, S. (2022). Covid-19 fear, happiness and stress in adults: the mediating role of psychological resilience and coping with stress. *International Journal of Psychiatry in Clinical Practice*, *26*(2), 123-131. https://doi.org/10.1080/13651501.2021.1937656

Peker, A., & Yalçın, R. Ü. (2022). Resilience levels of Turkish adolescents cyber-victims in social networking sites: The mediation roles of cyberbullying and active coping. *Current Psychology*, 1-16. https://doi.org/10.1007/s12144-022-04163-y

Pelet, J. É., Ettis, S., & Cowart, K. (2017). Optimal experience of fow enhanced by telepresence: Evidence from social media use. *Information & Management*, *54*(1), 115-128. https://doi.org/10. 1016/j.im.2016.05.001

Preacher, K. J., Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers 36*(4), 717-731. https://doi.org/10.3758/BF03206553

Rasmussen, E. E., Punyanunt-Carter, N., LaFreniere, J. R., Norman, M. S., & Kimball, T. G. (2020). The serially mediated relationship between emerging adults' social media use and mental well-being. *Computers in Human Behavior*, *102*, 206-213. https://doi.org/10.1016/j.chb.2019.08.019

Sahranç, Ü. (2008). A state flow model: Stress control, general self-efficiency, status anxiety, life satisfaction and flow relations. *The Journal of SAU Education Faculty*, 16, 122-144.

Segerstrom, S. C., & O'Connor, D. B. (2012). Stress, health and illness: Four challenges for the future. *Psychology & Health*, *27*(2), 128-140. https://doi.org/10.1080/08870446.2012.659516

Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist*, *55*(1), 5-14.

Sepehr, S., & Head, M. (2012). Dualistic Model of Passionate Video Gameplay: Addiction or flow. *SIGHCI 2012 Proceedings2012*.

Sofyan, Y., Shang, Y., & Pan, Y. (2023). Social media knowledge seeking, diversive curiosity, and flow experience: moderated mediation of performance goal orientation. *Current Psychology*, https://doi.org/10.1007/s12144-023-04933-2

Tabachnick, B. G., Fidell, L. S., & Ullman, J. B. (2007). *Using multivariate statistics* (Vol. 5). Pearson.

Topkaya, N., & Meydan, B. (2013). University students' problem areas, sources of help, and intentions to seek psychological help. *Trakya University Journal of Education*, *3*(1), 25-37.

Tutgun-Ünal, A. (2015). *Sosyal medya bağımlılığı: Üniversite öğrencileri üzerine bir araştırma.* (Tez No. 396821) [Yayımlanmamış doktora tezi. Marmara Üniversitesi-İstanbul]. Yükseköğretim Kurulu Ulusal Tez Merkezi.

Türkiye İstatistik Kurumu. (2022). Bilişim Teknolojileri Kullanım Araştırması. https://data.tuik.gov.tr/Bulten/Index?p=Hanehalki-Bilisim-Teknolojileri-(BT)-Kullanim-Arastirmasi-2022-45587

Uz-Baş, A. (2019). *Akış Yaşantıları Ölçeği'nin Türkçe'ye uyarlanması, geçerlik ve güvenirlik çalışması.* [Bildiri

sunumu] I. Uluslararası Bilim, Eğitim, Sanat ve Teknoloji (UBEST) Sempozyumu, İzmir, Türkiye.

Wan, C. S., & Chiou, W. B. (2006). Psychological motives and online games addiction: Atest of flow theory and humanistic needs theory for taiwanese adolescents. *CyberPsychology & Behavior*, *9*(3), 317-324. https://doi.org/10.1089/cpb.2006.9.317

Wang, Z., Yang, X., & Zhang, X. (2020). Relationships among boredom proneness, sensation seeking and smartphone addiction among Chinese college students: Mediating roles of pastime, flow experience and self-regulation. *Technology in Society*, *62*, 101319. https://doi.org/10.1016/j.techsoc.2020.101319

Wolfers, L. N., & Utz, S. (2022). Social media use, stress, and coping. *Current Opinion in Psychology*, *45*, 101305. https://doi.org/10.1016/j.copsyc.2022.101305

Xu, H., & Tan, B. C. (2012). Why do I keep checking Facebook: Effects of message characteristics on the formation of social network services addiction. Research in Progress. Thirty Third International Conference on Information Systems, Orlando 2012.

Yang, S., Lu, Y., Wang, B., & Zhao, L. (2014). The benefits and dangers of flow experience in high school students' internet usage: The role of parental support. *Computers in Human Behavior*, *41*, 504-513. https://doi.org/10.1016/j.chb.2014.09.039

Yao, S., Xie, L., & Chen, Y. (2023). Efect of active social media use on fow experience: Mediating role of academic self-efcacy. *Education and Information Technologies*, 28, 5833-5848 https://doi.org/10.1007/s10639-022-11428-3

Yılmaz H., & Talu, E. (2022). A flow theory-based psycho-educational program on the stress of the Covid-19 pandemic of adolescents. An experimental study. *Journal of the National Academy of Education, 6*(2), 156-174. https://doi.org/10.32960/uead.1134581

Yılmaz, İ. A., Dursun, S., Güzeller, E. G., & Pektaş, K. (2014). Determining the anxiety level of university students: A case study. *Electronic Journal of Vocational Colleges-December*, 116-126.

Zhao, L. (2023). Social media addiction and its ımpact on college students' academic performance: the mediating role of stress. *The Asia-Pacific Education Researcher*, *32*(1), 81-90. https://doi.org/10.1007/s40299-021-00635-0

Zhao, N., & Zhou, G. (2021). COVID-19 stress and addictive social media use (SMU): mediating role of active use and social media flow. *Frontiers in Psychiatry*, 12, 635546. https://doi.org/10.3389/fpsyt.2021.635546