



The Relationship Between Fear of Missing Out and Depression Among Tourism Students: A Serial Mediating Roles of Social Media Addiction and Anxiety

Turizm Öğrencilerinde Gelişmeleri Kaçırma Korkusu ile Depresyon Arasındaki İlişki:
Sosyal Medya Bağımlılığı ve Anksiyetenin Seri Aracılık Rolü

Erkan Güneş¹ , Zeynep Ekmekçi² 

¹ Erzincan Binali Yıldırım University Vocational School of Tourism and Hotel Management., Erzincan / Türkiye

² Erzincan Binali Yıldırım University Vocational School of Tourism and Hotel Management., Erzincan / Türkiye

Özet

Gençlerde gelişmeleri kaçırma korkusu (FOMO)'nun sosyal medya bağımlılığını (SMB) artırma, anksiyeteyi yükseltme ve sonuçta depresyona yol açma üzerindeki etkisini inceleyen nispeten sınırlı araştırma bulunmaktadır. Bu çalışmanın amacı turizm alanında yükseköğrenim gören öğrenciler arasında FOMO ile depresyon arasındaki ilişkide SMB ve anksiyetenin kümülatif aracılık etkisini incelemektir. Bu kapsamda çalışmada, kolayda örnekleme yöntemi ile 395 katılımcıya çevrimiçi anket uygulaması gerçekleştirilmiştir. Çalışmada tanımlayıcı istatistikler, korelasyon analizleri ve seri aracılık analizi gerçekleştirilmiştir. Verilerin analizinde, SPSS 24.0, PROCESS Macro v4.0 ve AMOS 24.0 programlarından yararlanılmıştır. Bulgular, FOMO ile depresyon arasındaki ilişkide SMB ve anksiyetenin aracılık rolünü ortaya koymaktadır. Genç bireylerde FOMO seviyesinin artması, SMB ve anksiyete düzeylerinde bir artışa, bu da sonuç olarak depresyonun artmasına yol açmaktadır. Bu nedenle, gençlerde FOMO'nun depresyon üzerindeki etkisinde SMB ve anksiyetenin çift yönlü ilişkileri dikkate alınmalıdır.

Anahtar Kelimeler: Gelişmeleri Kaçırma Korkusu, Sosyal Medya Bağımlılığı, Anksiyete, Depresyon

Abstract

There is relatively limited research examining the impact of fear of missing out (FOMO) on increasing social media addiction (SMA) in youth, increasing anxiety, and ultimately leading to depression. The study aimed to examine the cumulative mediating effect of SMA and anxiety between FOMO and depression among university students majoring in tourism. In this context, an online survey was conducted with 395 participants using the convenience sampling method. Descriptive statistics, correlation analyses, and serial mediation analyses were performed in the study. Data analyses were conducted using SPSS 24.0, PROCESS Macro for SPSS v4.0, and AMOS 24.0. The findings revealed the mediating role of SMA and anxiety on the relationship between FOMO and depression. The increased level of FOMO in youths leads to an increase in SMA and anxiety levels, which ultimately leads to an increase in depression. Therefore, the bidirectional relationships of SMA and anxiety should be taken into account in the effect of FOMO on depression in youth.

Keywords: Fear of Missing Out, Social Media Addiction, Anxiety, Depression.

Social media platforms enable users to socialize continuously, leading to the emergence of the Fear of Missing Out (FOMO) emotion (Hussain et al., 2023). FOMO arises from the possibility of individuals not being able to participate in the enjoyable activities of others due to the interactive nature of these platforms (Asur & Huberman, 2010). FOMO is a phenomenon that can cause problems at both the individual and social level (Przybylski et al., 2013).

According to Abel et. al. (2016), FOMO reinforces social media users to constantly follow the lives of others and compare their own lives negatively.

Social media content can lead to feelings of exclusion or inadequacy for those who do not participate in other enjoyable activities (Hussain et al., 2023). This can result in negative psychological effects, such as anxiety (Dempsey

İletişim / Correspondence:

Assoc. Prof. Erkan Güneş
Erzincan Binali Yıldırım University
Vocational School of Tourism and
Hotel Management., Erzincan
e-mail: egunes@erzincan.edu.tr

Yükseköğretim Dergisi / TÜBA Higher Education Research/Review (TÜBA-HER), 14(3), 161-173. © 2024 TÜBA
Geliş tarihi / Received: Haziran / June 2, 2024; Kabul tarihi / Accepted: Temmuz / July 29, 2023

Bu makalenin atıf künyesi / How to cite this article: Güneş, E., & Ekmekçi, Z. (2024). The Relationship Between Fear of Missing Out and Depression Among Tourism Students: A Serial Mediating Roles of Social Media Addiction and Anxiety. *Yükseköğretim Dergisi*, 14(3), 161-173. <https://doi.org/10.53478/yuksekogretim.1494222>

ORCID: E. Güneş: 0000-0002-9196-3958; Z. Ekmekçi: 0000-0002-2110-8438.

et al., 2019; Zhang et al., 2023), depression (Pang & Quan, 2024; Tao et al., 2023; Park, 2022), loneliness, and low self-confidence, in individuals (Rozgonjuk et al., 2020; Yin et al., 2023). This process, called FOMO for short, leads individuals to Social Media Addiction (Tomczyk & Selmanagic-Lizdeb, 2018) and social isolation (Lai et al., 2016). The prolonged use of social media leads to SMA, which is a type of addiction. SMA, as defined by Griffiths (2000, p. 416) is a subtype of internet addiction. It is characterized by uncontrolled and excessive use of social media platforms, along with difficulties in stopping (Castells, 2016). Hence, a negative correlation exists between SMA and the mental well-being of its users (Griffiths, 2009). The study investigates the adverse impact of addiction to social media on mental health. In this context, research suggests that excessive use of social media can have negative effects, including feelings of FOMO, anxiety, and depression (Franchina et al., 2018). Anxiety is a prevalent mental health issue associated with SMA. Aparicio-Martinez et al. (2019) found that adolescents who are addicted to social media are more likely to experience anxiety than individuals who are not addicted to social media. Additionally, Watson et al. (2022) stated that there is a positive relationship between compulsive social media use and anxiety and depression.

The impact of social media on daily life has been a topic of extensive debate in recent years. Some studies suggest that social media can lead to depression by making users less social and leading to negative emotions (Choudhury et al., 2013; Hudson & Harkness, 2021). This relationship is believed to be correlational. Hence, it is imperative to acknowledge the potential adverse impacts of social media utilization on mental well-being and to advocate for moderation. It has been determined that individuals with a tendency towards depression may have higher levels of SMA, which in turn may increase the risk of depression (Appel et al., 2015).

Furthermore, there have been limited studies (Elhai et al., 2020; Tao et al., 2023; Wolniewicz et al., 2019) that focus on the examination of either the direct or the indirect effect of FOMO on depression. Notably, there is a gap in the literature regarding the role of SMA and anxiety as potential mediators in this association. Thus, the current study seeks to explore the correlation between FOMO and depression and assess whether SMA and anxiety serve as serial mediators in this relationship. Therefore, this study will provide a potential way to better understand the different consequences caused by FOMO and will help demonstrate the negative effects of high levels of FOMO on youths.

Theoretical Framework

Fear of Missing Out (FOMO)

FOMO phenomenon is related to a lack of satisfaction of psychological needs, whether situational or chronic (Przybylski et al., 2013; Varchetta et al., 2020); and it also acts as a mediator that links deficiencies in psychological

needs to social media use (Sommantico et al., 2023). As a result, FOMO and social media interaction are directly and indirectly linked to low or no fulfillment of basic needs. Individuals with low basic needs may use social media as a means of communication, social competence development, and strengthening social connections. It is worth noting that the relationship between basic needs and social media interaction is indirect and may be influenced by FOMO, as suggested by (Blackwell et al., 2017). FOMO is characterized by restlessness, anxiety, and fear that arise from the awareness of challenging experiences and activities in which the person cannot participate (Uslu & Tosun, 2023).

Social Media Addiction

SMA involves behavioural patterns similar to other types of addiction. It is characterized by excessive thinking about social media activities, difficulty in disengaging from social media, experiencing withdrawal symptoms when away from social media, feeling the need to use social media more, and unsuccessful attempts to reduce or stop social media use (Griffiths, 2000). The behaviours commonly associated with excessive use of social media include neglecting important life activities, continuing to use social media despite negative consequences, attempting to conceal the duration or impact of social media use, using social media as a means of escape or relaxation when feeling bad, and experiencing problems in relationships or missing important opportunities (Petry et al., 2014). Hence, social media usage poses a risk of evolving into an addiction among its users, thereby serving as a potential risk factor.

Anxiety

Anxiety is experienced as an unpleasant, negative emotion and is usually accompanied by symptoms such as physiological arousal, impaired attention and concentration, intellectual confusion, tension, and restlessness, and it is also considered an emotional state with the subjectively experienced quality of fear (World Health Organization, 2023). One of the individual-specific states of anxiety is defined as social anxiety disorder. Cognitive and emotional symptoms of anxiety include constant worry and impatience, negative predictions about the future, fear of losing control, and separation anxiety (American Psychological Association, 2015; Park et al., 2021). FOMO is also a specific type of anxiety that, at a basic level, causes the individual to experience anxiety and apprehension due to experiences that occur around him and in which he cannot be involved (Przybylski et al., 2013).

Depression

Depression is a serious mental health problem that can affect people from all walks of life (Richardson et al., 2005). It is manifested by symptoms such as a prolonged depressive mood, loss of interest or pleasure, and a decrease in activities of daily living (Cunningham et al., 2021). Depression can significantly affect a person's work, school, relationships, and overall life (American Psychological Association,



2023). As reported by the World Health Organization (2024), approximately 3.8% of the global population is affected by depression, resulting in an estimated annual prevalence of 30 million cases. In studies examining the relationship between social media use and depression, it has been determined that social media use does not have a direct relationship with depression, but the depression levels of addicts who use social media problematically have a direct positive relationship with the duration of social media use (Aalbers et al., 2018; Alutaybi et al., 2020; Appel et al., 2015). Therefore, it has been determined that long-term and compulsive social media use causes depression (Cunningham et al., 2021).

Social Comparison Theory

The social comparison theory (Festinger, 1954) is based on the premise that individuals construct an understanding of their own abilities and skills by comparing them with those of others. Consequently, individuals establish their own perspectives, capabilities, and competencies by referencing the perceptions of others. There are numerous ways in which social comparison can be conducted. For instance, individuals may compare themselves with others who possess similar characteristics (Huguet et al., 2001) or with individuals who are entirely dissimilar (Festinger, 1954), whom they perceive to be superior or inferior to themselves.

Social comparison is a fundamental mechanism that enables individuals to comprehend their emotional and behavioural processes, as well as the events occurring around them (Gibbons, 1986). Nevertheless, this process can also result in negative outcomes, potentially leading to feelings of inadequacy. In particular, when individuals encounter others who are more successful than themselves, this can give rise to psychological difficulties such as depression, anxiety, and a lack of self-confidence (McCarthy & Morina, 2020). The advent of social media has facilitated the process of comparison, making it more accessible than ever before. The advent of social media has facilitated the ability of users to connect with individuals across the globe, thereby affording them the opportunity to observe the lives of others. However, this facilitates the comparison of oneself with others, which may result in the development of positive or negative emotions. For instance, it has been demonstrated that there is a direct correlation between Facebook usage, social interaction, and depression (Helmut et al., 2016). Additionally, it has been documented that individuals who engage in comparisons of their lives with those of others on social networks may experience depression (Brian et al., 2013). In studies conducted on young adults, it was found that there were positive and significant relationships between FOMO (Fear of Missing Out), social comparison and social media addiction (Parveiz et al., 2023). In this context, it has also been emphasized that social comparison plays a mediating role between FOMO and social media use (Servidio et al., 2021). Furthermore, these factors may lead to more intensive social media use (Tandon et al., 2021).

Hypothesis Development

The Mediating Role of Social Media Addiction in the Relationship Between Fear of Missing Out and Depression.

In a study on harmful habits among adolescents, 50% of participants reported compulsive internet use, 46% reported suicidal thoughts, and 18% reported a tendency towards depression (Juliansen et al., 2024; Riaz et al., 2024). On the other hand, SMA has been found to cause negative health symptoms such as depression (Cunningham et al., 2021) and anxiety (D'Arienzo et al., 2019) poor sleep quality (Mou et al., 2022), low self-esteem (Sek'scińska & Jaworska, 2022) and low physical activity (Maartje Boer et al., 2020). Sommantico et al. (2023) examined the relationships between depression, self-esteem, fear of missing out, online fear of missing out, and social media addiction in a sample of 311 Italian young adults. The study found a positive correlation between depression, FOMO and SMA.

The relationship between social media and depression is related to SMA (Cunningham et al., 2021; Yuana et al., 2020). Spending more time on social media or checking it frequently seems to increase depression symptoms, regardless of age and gender (Yoon et al., 2019). A study conducted on SMA and depression levels in medical students found a mutually positive relationship between both variables (Stankovi & Neši, 2022). These findings suggest that there may be a relationship between SMA, FOMO, and depression. Based on this evidence, this study hypothesized that SMA mediates the effect of FOMO on depression. To be specific, FOMO may increase SMA in young adults, which, in turn, may increase depression. Based on the issues discussed above, this study proposes the following hypothesis:

Hypothesis 1 (H₁): SMA will mediate the relationship between FOMO and depression (mediation model 1).

The Mediating Role of Anxiety in the Relationship Between Fear of Missing Out and Depression

In a study on SMA, FOMO increased the level of anxiety, users adopted narcissistic admiration and competition processes that affect self-disclosure and social comparison in different ways, and social media fatigue positively (Jabeen et al., 2023). It has been determined that adolescents with high levels of FOMO are addicted to social media (Casale et al., 2018), use social media more to meet their psychological needs, which can cause users to use social media in a problematic way (Fabris et al., 2020). There is a two-way relationship between SMA and depression, and anxiety plays a mediating role between SMA and depression (Stankovi & Neši, 2022). Therefore, social media has increased the awareness of individuals about experiences in which they do not participate, emerging as an anxiety factor that triggers the feeling of FOMO, leading to various negative psychological consequences such as depression, pessimism, loneliness and emotional distress (Holte, 2023; Elhai et al., 2020; Holte & Ferraro, 2020).

Mou et al. (2022) determined in another study that social media users with high anxiety levels had high levels of SMA, users with high addiction had sleep problems, and as a result, users' academic success was negatively affected. Based on this evidence, this study hypothesized that anxiety mediates the effect of FOMO on depression. To be specific, FOMO may increase anxiety in young adults, which, in turn, may increase depression. Based on the issues discussed above, this study proposes the following hypothesis:

Hypothesis 2 (H2): Anxiety will mediate the relationship between FOMO and depression (mediation model 2).

The Serial Mediating Role of Social Media Addiction and Anxiety in the Relationship Between Fear of Missing Out and Depression

FOMO, along with Facebook addiction, negatively affects mental health and leads the user to loneliness and pessimistic thoughts (Uram & Skalski, 2022). In addition, adolescents with high FOMO levels also have high SMA levels (Franchina et al., 2018). In studies focusing on SMA and personality traits, it has been found that users who are young, have high levels of anxiety, are prone to depression, and have introverted personality traits have high FOMO and SMA levels (Ademoyegun et al., 2024; Blackwell et al., 2017; D'Arienzo et al., 2019). In studies focusing on SMA and personality traits, it has been determined that users who are young, have high anxiety levels, tend to depression, and have introverted personality traits have high FOMO and SMA levels (Ademoyegun et al., 2024; Blackwell et al., 2017; D'Arienzo et al., 2019).

Social media users who experience FOMO may experience increased levels of negative emotions, which can lead to disruptions in social interactions (James et al., 2017). In this context, anxiety and depression can be two negative emotions caused by the compulsive use of social media that affect daily life. FOMO is an important predictor of SMA in daily life, explaining 58.6% of the total variance of SMA (Blackwell et al., 2017; Varchetta et al., 2020). FOMO emerges as an important parameter in studies focusing on social media studies and their psychological effects. Thus, this study hypothesized that FOMO may indirectly influence depression through the paths of SMA and anxiety. Based on the issues discussed above, this study proposes the following hypothesis:

Hypothesis 3 (H3): Both SMA and anxiety will mediate the relationship between FOMO and depression (serial multiple mediation model). The sequence of the pathway will be FOMO> SMA> ANX>DEP. (serial multiple mediation model).

Method

Sampling and data collection

This study, which employed hypothesis testing, aims to provide insights conducive to decision-making processes. It adopts a cross-sectional research design and involves

the participation of students pursuing associate and undergraduate degrees in tourism within Turkey. Given constraints pertaining to time and financial resources, a convenience sampling method was deemed appropriate for participant selection. The study collected data from October 2023 to December 2023. Students were informed in advance about the nature and objectives of this research and the significance of their participation in this survey. Students were invited to participate voluntarily in this study. Further, full confidentiality and anonymity of the participants and their responses were guaranteed. The study was conducted through the distribution of online questionnaires. The procedure commenced with the development of a questionnaire, followed by a pilot test and subsequent distribution of the questionnaire to the participants. The pilot test involved the participation of 40 respondents who completed the questionnaire through Google Forms. No changes were made to the questionnaire after the pilot test.

Consequent to the study, 420 questionnaires were acquired. After initial screening for any missing entries and outliers, we finalized 395 responses for further analysis. Respondents had an associate degree education in tourism (58.7%) undergraduate education in tourism (41.3%). Six different departments participated in the study, including culinary (44.3), tourism and hospitality (11.6%), tourism guidance (2.8%), gastronomy and culinary arts (29.9%), recreation (6.3%), tourism management (5.1%). Women accounted for 69.4% and men 30.6% of respondents. When we look at the gender distribution of the students who constitute the sample of the research, it is seen that the number of female students is higher. In recent years, gastronomy, culinary arts, and cooking programs have attracted significant attention among tourism programs in Türkiye. In particular, these programs are more preferred among female students than male students (Council of Higher Education, 2024), which is thought to have a decisive impact on research participation rates. Respondents were young, between the ages of 18-20 (57.2%) and 21-23 (30.4%) and 24-28 (%12.4). Additionally, 35.4% of the participants stated that they spend 2-4 hours a day on social media, and 29% stated that they spend more than 8 hours a day on social media.

Instrument

This study measures a model consisting of several research variables. The variables used in this study are FOMO, SMA, anxiety, and depression. The questionnaire for this study was developed by adapting pre-validated scales from relevant literature. In this research, items for measuring variables were carefully selected from published and repeatedly validated measurement scales to ensure the reliability of the questionnaire content. The questionnaire was comprised of five sections to investigate: FOMO, SMA, anxiety, depression, and socio-demographic characteristics. *Fear of Missing Out (FOMO) Scale*: The scale developed by (Przybylski et al., 2013) and adapted by (Hattingh et al., 2022). The scale used in this study adapts measurements

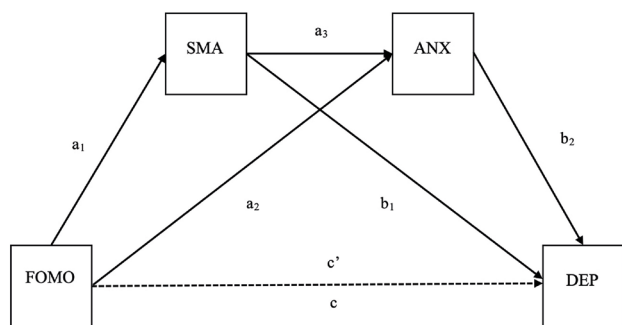


used by previous researchers to ensure validity and reliability. FOMO is measured by adapting from the 3- item scale. *Social Media Addiction Scale*: The Bergen Social Media Addiction Scale (BSMAS), developed by Andreassen and colleagues, consists of six items and enjoys widespread usage (Andreassen et al., 2017). The BSMAS is a modified version of the previously validated Bergen Facebook Addiction Scale (BFAS) (Andreassen et al., 2012). The modification involves using the term ‘social media’ instead of the word ‘Facebook,’ with social media defined as “Facebook, Twitter, Instagram, and the like” in the instructions. Many studies have demonstrated the appropriate psychometric properties of this scale in different cultural contexts (Casale et al., 2023; Stanculescu, 2022; Zarate et al., 2023) including Turkish culture (Demirci, 2019). *Anxiety Scale*: Anxiety was tested using the anxiety scale developed by (Greca & Lopez, 1998) The scale has five items. *Depression Scale*: Depression was tested using the depression scale developed by (Salokangas et al., 1995). The scale has five items. The respondents were asked to choose responses on the 5-point Likert scale, ranging from 1, as “I strongly disagree” to 5, as “I strongly agree”. The fifth part included questions concerning socio-demographic characteristics of respondents, such as gender, age, department, and social media usage time.

Research Model

Based on the literature, this study suggests a relationship between FOMO and depression and proposes a serial mediation model SMA and via anxiety. FOMO would increase SMA, which then increases anxiety and eventually depression. Figure 1 shows the serial multiple mediation model (PROCESS macro-Model 6) depicting the indirect effect of FOMO on depression through SMA and anxiety.

Figure 1.
Research Model



Data Analysis

The study utilized IBM SPSS 24.0, IBM AMOS 24.0, and the SPSS PROCESS MACRO for data analysis. Confirmatory Factor Analysis (CFA) was conducted to establish the reliability and validity of the measurement model. Additionally, convergence validity was assessed, specifically focusing on the validity of the scales. To measure the reliability of the scales used in the study, an internal consistency analysis was conducted. Cronbach’s alpha, one

of the internal consistency measures, was employed for assessing reliability. Pearson correlation tests were applied among all variables. Descriptive analysis of the sample’s characteristics was conducted using means, standard deviations, and frequency analysis. Two single mediation analyses were performed to examine how various variables would influence the severity of depression (Model 4 of the SPSS PROCESS procedure, as shown in Figure 2 and Figure 3). The mediation hypothesis was tested with a serial multiple mediation model (PROCESS model 6, as illustrated in Fig. 4). To mitigate the impact of multicollinearity, all variables in the analysis were mean-centered. Both Model 4 and Model 6 of the PROCESS macro were used to examine the mediating effect of anxiety and SMA on the relationship between the FOMO and depression. A sample size of 5,000 was used for bootstrapping, with a 95% confidence interval (Hayes, 2013). In the multiple mediation analysis with two consecutive mediators, the mediator variables are SMA (M1) and anxiety (M2). The independent variable in the research is the FOMO (X), and the dependent variable is the depression (Y) scale. The serial multiple mediation model of the research includes three indirect mediation effects on the effect of X on Y: FOMO → SMA → depression (Model 1); FOMO → anxiety → depression (Model 2); and FOMO → SMA → anxiety → depression (Model 3). The Skewness and Kurtosis coefficients for the measurement items were evaluated to determine their normal distribution. The Skewness-Kurtosis normality distribution test was used to determine whether the measurements were suitable for normal distribution. Since the coefficients of Skewness and Kurtosis remain within the range of -1,5 to +1,5 which indicate that the scores have a normal distribution (Tabachnick & Fidell, 2013). According to the Skewness-Kurtosis technique, FOMO, SMA, anxiety, and depression all of them showed normal distribution.

Results

Confirmatory Factor and Correlation Analysis

CFA was employed using AMOS 24.0 to assess the reliability and validity of the measurement model. This analytical technique was utilized to ascertain whether the items intended to gauge a specific variable were effectively measuring it, thus evaluating the construct validity. The criterion for practical significance was set at a minimum factor loading of 0.5, indicating a substantial relationship between the observed items and the latent variable under consideration (Hair et al., 2013; Rua, 2020). Two items were excluded from the analysis due to factor loadings below 0.50. One of these items is “I get anxious when I don’t know what my friends are up to” from the SMA Scale, and the other is “Using social media too much negatively affects my work/study” from the FOMO Scale. The Fear of Missing Out, comprising two items, displayed factor loadings ranging from 0.805 to 0.884. The SMA Scale, encompassing five items, exhibited factor loadings from 0.526 to 0.673. The Anxiety Scale, consisting of five items, demonstrated

factor loadings between 0.654 and 0.915. Likewise, the Depression Scale, comprising five items, showed factor loadings ranging from 0.713 to 0.835. A model including all four variables (i.e., FOMO, SMA, anxiety and depression) demonstrated an acceptable fit: $\chi^2=378.87$, $df=113$ $\chi^2/df = 3.353$, $p = 0.000$; TLI = 0.910; CFI = 0.925; SRMR = 0.066; RMSEA = 0.07. A RMSEA value below 0.08 is considered acceptable, with a more favorable fit indicated by a value equal to or lower than 0.05. Acceptable fit for CFI and TLI is suggested when their values exceed 0.9 (Byrne, 2001). Subsequently, various models were tested and compared with the measurement model, including three-factor (models 1, 2, and 3), two-factor (model 4), and single-factor (model 5) structures. Upon analysis, it was discerned that the four-factor measurement model demonstrated superior fit with the data in comparison to the alternative models. This finding suggests that the four distinct constructs under investigation exhibit discriminant validity within the current study context. The outcomes of the CFA conducted utilizing the maximum likelihood estimation method to evaluate the discriminant validity of the research variables are delineated in Table 1.

Table 1.
Comparison of Measurement Models

Models	χ^2	df	TLI	CFI	SRMR	RMSEA	χ^2/df
Measurement model, four factor	378.87	113	0.91	0.925	0.06	0.07	3.353
Model 1, Three-factor model	593.11	116	0.843	0.866	0.07	0.10	5.113
Model 2, Three-factor model	644.53	116	0.826	0.851	0.09	0.10	5.556
Model 3, Two-factor model	891.92	118	0.749	0.784	0.11	0.12	7.559
Model 4, Two-factor model	653.04	116	0.823	0.849	0.09	0.10	5.630
Model 5, One-factor model	Nan	Nan	Nan	1.000	0.11	0.25	Nan

Model 1= FOMO fit and SMA fit combined into a single factor,
Model 2= FOMO fit and ANX fit combined into a single factor,
Model 3= SMA fit and ANX fit combined into a single factor,
Model 4 = FOMO fit, SMA fit and ANX fit combined into a single factor,
Model 5= All variables combined into a single factor.

Cronbach's alpha test was performed to evaluate the reliability of the instruments in the study. Cronbach's alpha scores of FOMO ($\alpha = 0.831$), SMA ($\alpha = 0.728$), anxiety ($\alpha = 0.912$), and depression ($\alpha = 0.888$). The Cronbach Alpha results for each construct were above the recommended threshold of 0.70 (Hair et al., 2013). These results indicate that the study has good internal reliability and validity of the constructs. Additionally, the present investigation checked

Table 2.
Means, Standard Deviations, and Correlations Among the Variables

Scales	\bar{x}	S.D	FOMO	SMA	ANX	DEP
FOMO	2.10	.909	-			
SMA	2.85	.835	0.348**	-		
ANX	2.33	1.080	0.334**	0.361**	-	
DEP	2.56	1.080	0.257**	0.306**	0.522**	-

n=395; **p < .01.

for Common Method Bias (CMB) using Harman's method (Harman, 1976). According to Podsakoff et al. (2011), no single component should account for more than 50% of the variance. The results of the Harman single-factor analysis for the current study explained 31.517% of the variance, thereby indicating the absence of common method bias in the data.

Table 2 presents the mean values, standard deviations, and correlations among all the variables investigated in the study. The correlations between FOMO and SMA ($r= 0.348$; $p<0.01$), anxiety ($r= 0.334$; $p<0.01$), and depression ($r= 0.257$; $p<0.01$) significant. Between SMA and anxiety ($r= 0.361$; $p<0.01$) and depression ($r= 0.306$; $p<0.01$) were also significantly correlated. So were anxiety and depression ($r= 0.522$; $p<0.01$) significant (Cohen, 1992). All correlation coefficients between constructs were found to be below 0.70, thereby indicating the absence of multicollinearity in the current research (Kautis et al., 2021).

Hypothesis Testing

In the model with SMA as the mediator (Fig. 2), the direct effect of FOMO on depression was significant ($\beta = 0.204$, % 95 CI [.085, .323], $p=0.001$), and FOMO on SMA was significant ($\beta = 0.320$, % 95 CI [.234, .405], $p=0.000$). The direct effect of SMA on depression was significant ($\beta = 0.322$, % 95 CI [.193, .452]). A significant indirect effect of FOMO on depression via SMA was also observed ($\beta = 0.103$, % 95 CI [.055, .157], $p=0.000$).

Figure 2.

The mediating effect of SMA on the relationship between FOMO and depression (Model 1) [FOMO \rightarrow SMA \rightarrow Depression].

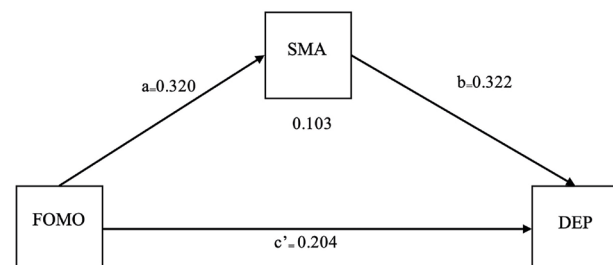
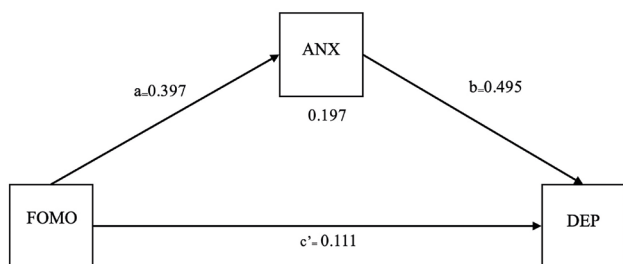




Figure 3. The mediating effect of anxiety on the relationship between FOMO and depression (Model 2 [FOMO → Anxiety → Depression]).



The results showed that SMA significantly mediated the relationship between FOMO and depression. The fact that the confidence intervals (CI) obtained as a result of the analyses do not include the zero (0) value confirms that the obtained indirect effect (mediating effect) is significant (MacKinnon et al., 2004). In sum, a high level of FOMO was significantly associated with a higher level of SMA, and then a higher level of SMA was associated with higher levels of depression symptoms among tourism students. These results supported the mediational hypothesis 1. SMA was a significant mediator between FOMO and depression.

In the model with anxiety as the mediator (Fig. 3), the direct effect of FOMO on depression significant ($\beta = 0.111$, % 95 CI [.004, .218], $p=0.043$), and the direct effect of FOMO on anxiety was significant ($\beta = 0.397$, % 95 CI [.286, .508], $p=0.000$). Addition the direct effect of anxiety on depression was significant ($\beta = 0.495$, % 95 CI [.405, .585], $p=0.000$). A significant indirect effect of FOMO on depression via anxiety was also observed ($\beta = 0.197$, % 95 CI [.123, .279]). The fact that the confidence intervals (CI) obtained as a result of the analyzes do not include the zero (0) value confirms that the obtained indirect effect (mediating effect) is significant (MacKinnon et al., 2004). The results showed that anxiety significantly mediated the relationship between FOMO and depression. Hence a high level of FOMO was significantly associated with a higher level of anxiety, and then a higher level of anxiety was associated with higher levels of depression among tourism students. Thus, hypothesis 2 was supported and that anxiety was a significant mediator between FOMO and depression.

Figure 4. Serial multiple mediation model of SMA and anxiety in the relationship between FOMO and depression (Model 3 [FOMO → SMA → Anxiety → Depression]).

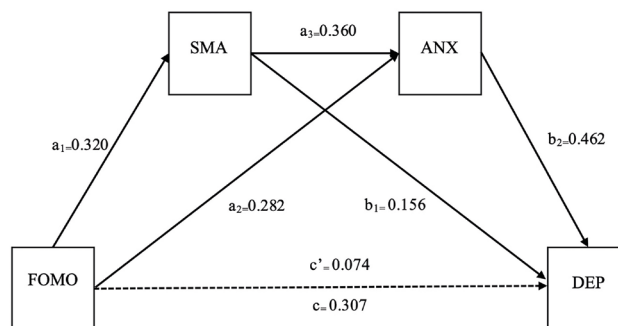


Figure 4 displays the relationships among FOMO, SMA, anxiety and depression. As shown in Figure 4, (a1) the direct effect of FOMO on SMA was significant ($\beta = 0.320$, % 95 CI [.234, .405], $p=0.000$); (a2) the direct effect of FOMO on anxiety was significant ($\beta = 0.282$, % 95 CI [.168, .396], $p=0.000$); (a3) the direct effect of SMA on anxiety was significant ($\beta = 0.360$, % 95 CI [.236, .484], $p=0.000$); (c') the direct effect of FOMO on depression was not significant ($\beta = 0.07$, % 95 CI [-.036, .184], $p=0.187$); (b1) the direct effect of SMA on depression was significant ($\beta = 0.156$, % 95 CI [.035, .277], $p=0.012$); and (b2) the direct effect of anxiety on depression was significant ($\beta = 0.462$, % 95 CI [.0368, .555], $p=0.000$).

Furthermore, as illustrated in Table 3, the indirect effect of FOMO on depression through the mediation of SMA and anxiety was significant ($\beta = 0.053$, % 95 CI [.028, .084]). Bootstrapping results supported the proposed serial multiple mediation model, FOMO → SMA → ANX → DEP (Model 6 of the SPSS PROCESS procedure, Fig. 4). The indirect effect of FOMO on the depression first through SMA then through anxiety was significant indirect effect. These results supported the serial-mediation hypothesis. This result shows that those experiencing FOMO experience an increase in SMA and as SMA increases, anxiety increases, and this increases depression.

Table 3. Serial Multiple Mediation Analysis

Direct Effect of X on Y	Effect	SE	t	p	LLCI	ULCI
Model 1 FOMO → DEP	0.204	0.061	3.377	0.001	0.085	0.323
Model 2 FOMO → DEP	0.111	0.054	2.032	0.043	0.004	0.218
Model 3 FOMO → DEP	0.074	0.056	1.323	0.187	-0.036	0.184
Indirect Effect of X on Y	Effect	BootSE			BootLLCI	BootULCI
Model 1 FOMO → SMA → DEP	0.103	0.026			0.055	0.155
Model 2 FOMO → ANX → DEP	0.197	0.039			0.123	0.276
Model 3 FOMO → SMA → ANX → DEP	0.053	0.014			0.028	0.084

Discussion and Implications

The study tested the direct associations among FOMO, SMA, anxiety, and depression. Additionally, the mediating effects of SMA and anxiety on the relationship between FOMO and depression, as well as the serial mediating effects of SMA and anxiety on that relationship, were examined. In the model with SMA as the mediator, FOMO was positively associated with depression and also positively associated with SMA. SMA, in turn, was positively associated with depression. A notable indirect impact of FOMO on depression via the intermediary of SMA was detected. Furthermore, in the model incorporating anxiety as a mediator, FOMO exhibited positive associations both with depression and anxiety. Anxiety, in turn, demonstrated a positive correlation with depression, and a significant indirect effect of FOMO on depression through anxiety mediation was observed. The results of the model with serial multiple mediation showed that the indirect effect of FOMO on depression through the mediation of SMA and anxiety was significant. Furthermore, all mediators (i.e., SMA and anxiety) had significant effects on depression. According to the findings, hypotheses were supported.

Social media, by its very nature, has made the process of social comparison easier. Social media platforms allow people to connect with other people around the world and see their lives. This makes people more likely to compare themselves to people who are doing better or worse. Social comparison is an important process that helps people understand their own feelings and behaviours, as well as the situations that take place around them (Gibbons, 1986). Helmut et al. (2016) conducted a study on Facebook users and found a direct relationship between Facebook use and social comparison and depression. Brian et al. (2013) examined whether the tendency to compare oneself negatively with others while using Facebook leads to an increase in depressive symptoms. In the study conducted with a sample of university students, it was concluded that comparing users' lives with the lives of others in social networks causes depression by creating a negative mood. In another study conducted to investigate the relationship between FOMO, social comparison, and social media addiction with participants aged 18-30 years, a significant positive relationship was found between FOMO, social comparison, and SMA (Parveiz et al., 2023). Research on FOMO shows that FOMO is associated with many negative emotional states. In the study conducted by Tandon et al. (2021), it was determined that FOMO mediated the feeling of burnout and jealousy, and similarly, in the study conducted by Zhu and Xiong (2022), it was found that those with high FOMO levels among young people also had high levels of social media addiction. These results are consistent with this study. As a result, a close relationship was found between FOMO, SMA, anxiety, and depression. The

FOMO on the developments of the students participating in the study increases their SMA, the increasing SMA increases their anxiety level, and the tendency to depression increases as a result of increased anxiety. This finding is supported by the theory of social comparison.

People have basic needs such as belonging to a group and building relationships. Communication plays a key role in meeting these needs and making social comparisons. In the communication society, social media enables its users to communicate by allowing them to comment and evaluate the posts, make suggestions, and make comparisons without time and place limitations. Therefore, the easy accessibility of social media allows it to be included in every stage of daily life. As a result, the use of social media is a common online behaviour among people. Thus, the impact on users' worldviews, perceptions of values, and physical and mental health is becoming more and more pronounced. The most obvious predictor of research on social media is psychological effects. Therefore, the mental well-being of users is the subject of social media studies. In this context, anxiety, depression, and FOMO are the study precursors of psychological well-being and SMA.

Conclusions

This study is the first to explore the relationships among FOMO, SMA, anxiety, and depression in students studying tourism at universities in Türkiye. Serial multiple mediation effects of SMA and anxiety were found on the path from FOMO to depression. SMA first played a mediating role in the association between FOMO and depression, then anxiety in turn mediated the pathway from FOMO to depression. It can be suggested that interventions for FOMO, SMA, and anxiety should be strengthened to prevent depression in youth.

Theoretical and Practical Implications

Theoretical significance of this research is threefold. Firstly, the study contributes to the existing literature on SMA, anxiety, and depression by highlighting the significant impact of FOMO on youth. It addresses the need for more scholarly research in addiction contexts (Dhir et al., 2018). Secondly, the findings indicate that FOMO is linked to depression through a serial mediation model involving two mediators: SMA and anxiety. This discovery is noteworthy as previous studies have established associations among FOMO, SMA, anxiety, and depression, emphasizing their significant implications. However, no research has explored the interplay of these factors through a multiple serial mediating approach. Third, the study developed by Festinger (1954) addresses psychological issues such as depression, anxiety, and lack of self-esteem and also contributes to the theory of social comparison.



Studies have shown that there is a negative relationship between SMA and anxiety, and participation in physical activity (Ademoyegun et al., 2024). This means that increasing physical activity reduces SMA. Therefore, in order to reduce SMA and anxiety, projects and practices that support the participation of social media users in physical activities can be made. Some shortcuts can be used when using social media to reduce FOMO, such as filtering, auto-replying, setting status, and summarizing (Alutaybi et al., 2020). These shortcuts will reduce the tendencies of FOMO, anxiety and depression, as they will allow you to spend less time on social media.

When all variables are considered together, the findings contribute to the literature and may also provide support for depression prevention programs. Additionally, the findings may provide a potential pathway to better understand the consequences of FOMO and help demonstrate the negative impact of high levels of FOMO on youth. However, the findings suggest that FOMO may be a more descriptive measure than simple evaluations. Therefore, FOMO may help understand depression as it is associated with negative mental health outcomes. In addition to all these, actions such as planning social media use, receiving training for conscious social media use, improving relationships with the real world, and increasing participation in physical activities will contribute to preventing negative situations that may arise due to FOMO.

Limitations and Future Research

Similar to any research endeavor, this study is not devoid of limitations, which could be addressed by forthcoming investigations. The study has some limitations related to the choice of survey participants. One of the limitations of the research is that the sample was only university students who are students of tourism in Türkiye. Türkiye-based students are not representative enough to generalize the findings of this study to the entire population of tourism and hospitality students. The distribution time of the survey may also limit the generalization of the findings to other time periods. Further studies must magnify the findings using more samples from other places, thus providing a cross-country outlook. Nonetheless, this study adds to prior research on relations between FOMO, SMA, anxiety, and depression constructs. Further adds the examination of constructs such as SMA and anxiety that may account for depression. Future research should examine demographic and sociocultural variables and social media frequency of usage for relations with depression. Future research could test whether interventions aimed at reducing individuals' FOMO and SMA can help prevent youth from suffering from depressive symptoms.

References

- Aalbers, G., McNally, R. J., Heeren, A., & Fried, S. d. (2018). Social media and depression symptoms: A network perspective. *Journal of Experimental Psychology: General*, 148(48), 1454-1462. <https://doi.org/http://dx.doi.org/10.1037/xge0000528>
- Abel, J. P., Buff, C. L., & Burr, S. A. (2016). Social media and the fear of missing out: Scale development and assessment. *Journal of Business & Economics Research*, 14(1), 33-44.
- Ademoyegun, A. B., Ibitoye, A. G., Afolabi, J., Idowu, O. A., Fawole, H., Awotidebe, T. O., & Mbada, C. E. (2024). Can physical activity attenuate the impact of internet addiction on anxiety in young adults? A moderation analysis. *Journal of Affective Disorders Reports*, 16, 100718. <https://doi.org/https://doi.org/10.1016/j.jadr.2024.100718>
- Alutaybi, A., Al-Thani, D., McAlaney, J., & Ali, R. (2020). Combating fear of missing out (FoMO) on social media: The FoMO-R method. *International Journal of Environmental Research and Public Health*, 6128. <https://doi.org/http://dx.doi.org/10.3390/ijerph17176128>
- Andreassen, C. S., Pallesen, S., & Griffiths, M. D. (2017). The relationship between addictive use of social media, narcissism, and self-esteem: Findings from a large national survey. *Addictive Behaviors*, 64, 287-293. <https://doi.org/https://doi.org/10.1016/j.addbeh.2016.03.006>
- Andreassen, C. S., Torsheim, T., Brunborg, G. S., & Pallesen, S. (2012). Development of a facebook addiction scale. *Psychological Reports*, 110(2), 501-517. <https://doi.org/10.2466/02.09.18.PR0.110.2.501-517>
- American Psychological Association (2015). Depressive disorders DSM-5 selections. American Psychiatric Pub.
- American Psychological Association (2023). American Psychological Association. Retrieved from Amerikan Psychological Association Depression: [https://www.psychiatry.org/patients-families/depression/what-is-depression#:~:text=Depression%20\(major%20depressive%20disorder\)%20is,in%20activities%20you%20once%20enjoyed.](https://www.psychiatry.org/patients-families/depression/what-is-depression#:~:text=Depression%20(major%20depressive%20disorder)%20is,in%20activities%20you%20once%20enjoyed.)
- Aparicio-Martinez, P., Perea-Moreno, A.-J., Martinez-Jimenez, M. P., Redel-Macias, M. D., Vaquero-Abellan, M., & Pagliari, C. (2019). A Bibliometric analysis of the health field regarding social networks and young people. *International Journal of Environmental Research and Public Health*, 16(4024). <https://doi.org/http://dx.doi.org/10.3390/ijerph16204024>
- Appel, H., Crusius, J., & Gerlach, A. L. (2015). Social comparison, envy, and depression on facebook: A study looking at the effects of high comparison standards on depressed individuals. *Journal of Social and Clinical Psychology*, 34(4), 277-289.
- Asur, S., & Huberman, B. A. (2010). Predicting the future with social media. *IEEE/WIC/ACM International Conference on Web Intelligence and Intelligent Agent*, <https://doi.org/10.1109/WI-IAT.2010.63>
- Blackwell, D., Leaman, C., Tramosch, R., Osborne, C., & Liss, M. (2017). Extraversion, neuroticism, attachment style and fear of missing out as predictors of social media use and addiction. *Personality and Individual Differences*, 116, 69-72. <https://doi.org/http://dx.doi.org/10.1016/j.paid.2017.04.039>
- Brian A. Feinstein, R. H., Bhatia, V., Latack, J. A., Meuwly, N., & Davila, J. (2013). Negative social comparison on facebook and depressive symptoms: Rumination as a mechanism. *Psychology of Popular Media Culture*, 2(3), 161-170.
- Byrne, B. M. (2001). Structural equation modelling with AMOS, EQS, and LISREL: Comparative approaches to testing for the factorial validity of a measuring instrument. *International Journal of Testing*, 55-86. https://doi.org/https://doi.org/10.1207/S15327574IJT0101_4
- Casale, S., Akbari, M., Seydavi, M., Benucci, S. B., & Fioravanti, G. (2023). Has the prevalence of problematic social media use increased over the past seven years and since the start of the COVID-19 pandemic? A meta-analysis of the studies published since the development of the Bergen social media addiction scale. *Addict Behaviors*, 147. <https://doi.org/DOI:10.1016/j.addbeh.2023.107838>
- Casale, S., Rugai, L., & Fioravanti, G. (2018). Exploring the role of positive metacognitions in explaining the association between the fear of missing out and social media addiction. *Addictive Behaviors*, 85, 83-87. <https://doi.org/https://doi.org/10.1016/j.addbeh.2018.05.020>
- Castells, M. (2016). İletişim Gücü. İstanbul Bilgi Üniversitesi Yayınları.
- Choudhury, M. D., Gamon, M., Counts, S., & Horvitz, E. (2013). Predicting depression via social media. *Proceedings of the Seventh International AAAI Conference on Weblogs and Social Media*, (pp. 128-137).
- Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112(1), 155-159. <https://doi.org/doi:10.1037/0033-2909.112.1.155>
- Council of Higher Education (2024), Yükseköğretim program atlası. Retrieved from <https://yokatlas.yok.gov.tr/>.
- Cunningham, S., Chloe C. Hudson, & Kate Harkness. (2021). Social media and depression symptoms: A meta analysis. *Research on Child and Adolescent Psychopathology*, 49, 241-253. <https://doi.org/10.1007/s10802-020-00715-7>
- D'Arienzo, M. C., Boursier, V., & Griffit, M. D. (2019). Addiction to social media and attachment styles: A systematic literature review. *International Journal of Mental Health and Addiction*, 17(2), 1094-1118. <https://doi.org/10.1007/s11469-019-00082-5>
- Demirci, İ. (2019). Bergen Sosyal medya bağımlılığı ölçeğinin Türkçeye uyarlanması depresyon ve anksiyete belirtileriyle ilişkisinin değerlendirilmesi. *Anadolu Psikiyatri Dergisi*, 20(1), 15-22. <https://doi.org/DOI:10.5455/apd.41585>
- Dempsey, A. E., O'Brien, K. D., Mojisola F. Tiemiyya, & Elhai, J. D. (2019). Fear of missing out (FoMO) and rumination mediate relations between social anxiety and problematic Facebook use. *Addictive Behaviors Reports*, 9. <https://doi.org/https://doi.org/10.1016/j.abrep.2018.100150>
- Dhir, A., Yossatorn, Y., Kaur, P., & Chene, S. (2018). Online social media fatigue and psychological wellbeing-A study of compulsive use, fear of missing out, fatigue, anxiety and depression. *International Journal of Information Management*, 40, 141-152. <https://doi.org/https://doi.org/10.1016/j.ijinfomgt.2018.01.012>
- Elhai, J. D., Yang, H., Fang, J., Bai, X., & Halld, B. J. (2020). Depression and anxiety symptoms are related to problematic smartphone use severity in Chinese young adults: Fear of missing out as a mediator. *Addictive Behaviors*, 101, 105962. <https://doi.org/https://doi.org/10.1016/j.addbeh.2019.04.020>
- Fabris, M., Marengo, D., Longobardi, C., & Settanni, M. (2020). Investigating the links between fear of missing out, social media addiction and emotional symptoms in adolescence: The role of stress associated with neglect and negative reactions on social media. *Addictive Behaviors*, 106(106364). <https://doi.org/https://doi.org/10.1016/j.addbeh.2020.106364>
- Festinger, L. (1954). A Theory of social comparison processes. *Human Relations*, 117-140. <https://doi.org/DOI:10.1177/001872675400700202>



- Franchina, V., Abeele, M. V., Rooij, A. J., Coco, G. L., & Marez, L. D. (2018). Fear of missing out as a predictor of problematic social media use and phubbing behavior among Flemish adolescents. *International Journal of Environmental Research and Public Health*, 15(10), 1-18. <https://doi.org/doi:10.3390/ijerph15102319>
- Gibbons, F. X. (1986). Social comparison and depression: Company's effect on misery. *Journal of personality and Social Psychology*, 51(1), 140-148.
- Greca, A. M., & Lopez, N. (1998). Social anxiety among adolescents: Linkages with peer relations and friendships. *Journal of Abnormal Child Psychology*, 26(2), 83-94. <https://doi.org/doi:10.1023/a:1022684520514>
- Griffiths M.D., M. (2000). Internet addiction - time to be taken seriously? *Addiction Research*, 8(5), 413-418. <https://doi.org/https://doi.org/10.3109/16066350009005587>
- Griffiths, M. D. (2009). The role of context in online gaming excess and addiction: Some case study evidence. *International Journal of Mental Health and Addiction*, 8(1), 119-125.
- Hair, J., Black, W. C., Babin, B., & Rolph.E. A. (2013). *Multivariate data analysis: Pearson New international Edition, Seventh. Harlow.: Pearson Education.*
- Harman, H. (1976). *Modern Factor Analysis.* University of Chicago Press.
- Hattingh, M., Dhir, A., Ractham, P., Ferraris, A., & Yahiaoui, D. (2022). Factors mediating social media-induced fear of missing out (FoMO) and social media fatigue: A comparative study among Instagram and Snapchat users. *Technological Forecasting and Social Change*, 185. <https://doi.org/https://doi.org/10.1016/j.techfore.2022.122099>
- Hayes, A. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach,* New York, NY.: The Guilford Press.
- Helmut, A., Gerlach, A. L., & Crusius, J. (2016). The interplay between Facebook use, social comparison, envy, and depression. *Current Opinion in Psychology*, 9, 44-49. <https://doi.org/http://dx.doi.org/10.1016/j.copsyc.2015.10.006>
- Holte, A. J. (2023). The state fear of missing out inventory: Development and validation. *Telematics and Informatics Reports*, 10, 1-13. <https://doi.org/tps://doi.org/10.1016/j.teler.2023.100055>
- Holte, A. J., & Ferraro, F. r. (2020). Anxious, bored, and (maybe) missing out: Evaluation of anxiety attachment, boredom proneness, and fear of missing out (FoMO). *Computers in Human Behavior*, 112(November), 1-12. <https://doi.org/https://doi.org/10.1016/j.chb.2020.106465>
- Hudson, S. C., & Harkness, K. (2021). Social media and depression symptoms: a meta analysis. *Research on Child and Adolescent Psychopathology*, 49, 241-253. <https://doi.org/https://doi.org/10.1007/s10802-020-00715-7>
- Huguet, P., Dumas, F., Monteil, J. M., & Genestoux, N. (2001). Social comparison choices in the classroom: further evidence for students' upward comparison tendency and its beneficial impact on performance. *European Journal of Social Psychology*, 31, 557-578. <https://doi.org/https://doi.org/10.1002/ejsp.81>
- Hussain, S., Raza, A., Haider, A., Ishaq, M. I., & Talpur, Q.-u.-a. (2023). Fear of missing out and compulsive buying behavior: The moderating role of mindfulness. *Journal of Retailing and Consumer Services*, 75(103512). <https://doi.org/https://doi.org/10.1016/j.jretconser.2023.103512>
- Jabeen, F., Tandon, A., Sithipolvanichgul, J., Srivastava, S., & Dhir, A. (2023). Social media-induced fear of missing out (FoMO) and social media fatigue: The role of narcissism, comparison, and disclosure. *Journal of Business Research*, 159, 1-11. <https://doi.org/https://doi.org/10.1016/j.jbusres.2023.113693>
- James, T. L., Lowry, P. B., Wallace, L., & Warkentin, M. (2017). The effect of belongingness on obsessive compulsive disorder in the use of online social. *Journal of Management Information Systems*, 34(2), 560-596. <https://doi.org/doi.org/10.1080/07421222.2017.1334496>
- Juliansen, A., Heriyanto, R. S., Muljono, M. P., Budiputri, C. L., Sagala, Y. D., & Gilbert. (2024). Mental health issues and quality of life among school-based adolescents in Indonesia. *Journal of Medicine, Surgery, and Public Health*. April 2024, 100062 <https://doi.org/https://doi.org/10.1016/j.jglmedi.2024.100062>
- Kautis, P., Kour, P., & Walia, S. (2021). The moderating influence of social support on career anxiety and career commitment: An empirical investigation from India. *Journal of Travel & Tourism Marketing*, 38(8), 782-801. <https://doi.org/DOI:10.1080/10548408.2021.1977765>
- Lai, C., Altavilla, D., Ronconi, A., & Aceto, P. (2016). Fear of missing out (FOMO) is associated with activation of the right middle temporal gyrus during inclusion social cue. *Computers in Human Behavior*, 516-512. <https://doi.org/http://dx.doi.org/10.1016/j.chb.2016.03.072>
- Maartje Boer, Eijnden, R. J., Boniel-Nissim, M., Wong, S.-L., J. C., Badura, P., . . . Gonneke W. J. M. Stevens, G. W. (2020). Adolescents' intense and problematic social media use and their well-being in 29 countries. *Journal of Adolescent Health*, 66(6), 89-99. <https://doi.org/10.1016/j.jadohealth.2020.02.014>
- MacKinnon, D. P., Lockwood, C. M., & Williams, J. (2004). Confidence limits for the indirect effect: Distribution of the product and resampling methods. *Multivariate Behavioural Research*, 39(1), 99-128.
- McCarthy, P. A., & Morina, N. (2020). Exploring the association of social comparison with depression and anxiety: A systematic review and meta-analysis. *Clinical Psychology & Psychotherapy*, 27, 640-671. <https://doi.org/https://doi.org/10.1002/cpp.2452>
- Mou, Q., Zhuang, J., Gao, Y., Zhong, Y., Lu, Q., Gao, F., & Zhao, M. (2022). The relationship between social anxiety and academic engagement among Chinese college students: A serial mediation model. *Journal of Affective Disorders*, 311, 247-253. <https://doi.org/https://doi.org/10.1016/j.jad.2022.04.158>
- Pang, H., & Quan, L. (2024). Assessing detrimental influences of fear of missing out on psychological well-being: the moderating role of self-presentation, upward contrast, and social media stalking. *Applied Research in Quality of Life*. 19(3), 881-904 <https://doi.org/https://doi.org/10.1007/s11482-024-10272-6>
- Park, E.-J., Kim, S.-Y., Kim, Y., Sung, D., Kim, B., Hyun, Y., . . . Park, M.-H. (2021). The relationship between adverse childhood experiences and sleep problems among adolescent students: Mediation by depression or anxiety. *International journal of Environmental Research and Public Health*, 18(1), 236. <https://doi.org/https://doi.org/10.3390/ijerph18010236>
- Park, H. J. (2022). Impact of Facebook usage intensity on fear of missing out and depression: Moderated mediating effect of Facebook usage behaviour. *Telematics and Informatics*, 74. <https://doi.org/https://doi.org/10.1016/j.tele.2022.101878>
- Parveiz, S., Amjad, A., & Ayub, S. (2023). Fear of missing out (FOMO), social comparison and social media addiction among young adults. *Pakistan Journal of Applied Psychology*, 3(1), 224-235. <https://doi.org/https://doi.org/10.52461/pjap.v3i1.1283>

- Petry, N. M., Rehbein, F., Gentile, D. A., Lemmens, J. S., Rumpf, H.-J., Mößle, T., . . . O'Brien, C. P. (2014). An international consensus for assessing internet gaming disorder using the new DSM-5 approach. *Addiction*, 109(9), 1399-1406. <https://doi.org/doi:10.1111/add.12457>
- Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2011). Sources of method bias in social science research and recommendations on how to control it. *The Annual Review of Psychology*, 63, 539-569. [https://doi.org/0066-4308/12/0110-0539\\$20.00](https://doi.org/0066-4308/12/0110-0539$20.00)
- Przybylski, A. K., Murayama, K., DeHaan, C. R., & Gladwell, V. (2013). Motivational, emotional, and behavioral correlates of fear of missing out. *Computers in Human Behavior*, 29(4), 1841-1848. <https://doi.org/doi:10.1016/j.chb.2013.02.014>
- Riaz, S., Anjum, F., & Soomro, D. L. (2024). Effect of social media addiction on the wellbeing of adolescents. *International Journal of Contemporary Issues In Social Sciences*, 4(1), 242-250.
- Richardson, C. R., Avripas, S. A., Neal, D. L., & Marcus, S. M. (2005). Increasing lifestyle physical activity in patients with depression or other serious mental illness. *Journal of Psychiatric Practice*, 11(6), 379-388
- Rozgonjuk, D., Sindermann, C., Elhai, J. D., & Montag, C. (2020). Fear of missing out (FoMO) and social media's impact on daily-life and productivity at work: do WhatsApp, Facebook, Instagram and Snapchat use disorders mediate that association? *Addictive Behaviors*, 110, 1-40. <https://doi.org/https://doi.org/10.1016/j.addbeh.2020.106487>
- Rua, S. V. (2020). Perceptions of tourism: a study of residents' attitudes towards tourism in the city of Girona. *Journal of Tourism Analysis. Revista de Análisis Turístico*, 27(2), 165-184. <https://doi.org/DOI 10.1108/JTA-03-2019-0015>
- Salokangas, R. K., Poutanen, O., & Stengård, E. (1995). Screening for depression in primary care. Development and validation of the Depression Scale, a screening instrument for depression. *Acta Psychiatr Scandinavica*, 92(1), 10-16. <https://doi.org/doi:10.1111/j.1600-0447.1995.tb09536.x>
- Sek'ścińska, K., & Jaworska, D. (2022). Who felt blue when Facebook went down? - The role of self-esteem and FoMO in explaining people's mood in reaction to social media outage. *Personality and Individual Differences*, 188. <https://doi.org/https://doi.org/10.1016/j.paid.2021.111460>
- Servidio, R., Sinatra, M., Griffiths, M. D., & Monacis, L. (2021). Social comparison orientation and fear of missing out as mediators between self-concept clarity and problematic smartphone use. *Addictive Behaviors*, 122. <https://doi.org/https://doi.org/10.1016/j.addbeh.2021.107014>
- Sommantico, M., Ramaglia, F., & Lacatena, M. (2023). Relationships between Depression, Fear of Missing Out and Social Media Addiction: The Mediating Role of Self-Esteem. *Healthcare*, 11(1667). <https://doi.org/https://doi.org/10.3390/healthcare11121667>
- Stanculescu, E. (2022). The bergen social media addiction scale validity in a Romanian sample using item response theory and network analysis. *International Journal of Mental Health and Addiction*, 21, 2475-2492. <https://doi.org/doi: 10.1007/s11469-021-00732-7>
- Stankovic, M., & Nešić, M. (2022). Association of internet addiction with depression, anxiety, stress, and the quality of sleep: Mediation analysis approach in Serbian medical students. *Current Research in Behavioral Sciences*, 3, 100071. <https://doi.org/https://doi.org/10.1016/j.crbeha.2022.100071>
- Tabachnick, B., & Fidell, L. S. (2013). *Using multivariate statistics* (Sixth edition). United States: Pearson Education.
- Tandon, A., Dhir, A., Talwari, S., Kaur, P., & Mantymaki, M. (2021). Dark consequences of social media-induced fear of missing out (FoMO): Social media stalking, comparisons, and fatigue. *Technological Forecasting & Social Change*, 171. <https://doi.org/https://doi.org/10.1016/j.techfore.2021.120931>
- Tao, Y., Tang, Q., Zou, X., Wang, S., Ma, Z., & Liu, X. (2023). Effects of attention to negative information on the bidirectional relationship between fear of missing out (FoMO), depression and smartphone addiction among secondary school students: Evidence from a two-wave moderation network analysis. *Computers in Human Behavior*, 148. <https://doi.org/https://doi.org/10.1016/j.chb.2023.107920>
- Tomczyka, L., & Selmanagic-Lizdeb, E. (2018). Fear of Missing Out (FOMO) among youth in Bosnia and Herzegovina -Scale and selected mechanisms. *Children and Youth Services Review*, 88, 541-549. <https://doi.org/https://doi.org/10.1016/j.childyouth.2018.03.048>
- Uram, P., & Skalski, S. (2022). Still logged in? The link between Facebook addiction, FoMO, self-esteem, life satisfaction and loneliness in social media users. *Mental & Physical Health*, 125(1), 218-231. <https://doi.org/DOI: 10.1177/0033294120980970>
- Uslu, A., & Tosun, P. (2023). Examining the impact of the fear of missing out on museum visit intentions. *Journal of Hospitality & Tourism Research*, 48(6), 1097-1112. <https://doi.org/doi.org/10.1177/10963480231168606>
- Varchetta, M., Mari, E., & Giannini, A. M. (2020). Adicción a redes sociales, Miedo a perderse experiencias (FOMO) Vulnerabilidad en línea en estudiantes Universitarios. *Vista Digital de Investigacionen Docencia Universitaria*, 14. <https://doi.org/https://doi.org/10.19083/ridu.2020.1187>
- Watson, J. C., Prosek, E. A., & Giordano, A. L. (2022). Distress among adolescents: An exploration of mattering, social media addiction, and school connectedness. *Journal of Psychoeducational Assessment*, 40(1), 95-107. <https://doi.org/DOI: 10.1177/07342829211050536>
- World Health Organization (2023). *World Health Organization Disorders*. Retrieved from World Health Organization: https://www.who.int/news-room/fact-sheets/detail/mental-disorders/?gclid=CjwKCAiAtt2tBhBDEiwALZuhAAvSrURwHn-gHdHP20oxeUVLlzcvhessCu3cnAEExpILHs4ELHKq21hoCOPAQA vD_BwE
- World Health Organization (2024). *who.int/news-room/fact-sheets/detail/depression*. Retrieved from Who.int: <https://www.who.int/news-room/fact-sheets/detail/depression>
- Wolniewicz, C. A., Rozgonjuk, D., & Elhai, J. D. (2019). Boredom proneness and fear of missing out mediate relations between depression and anxiety with problematic smartphone use. *Human Behavior and Emerging Technologies*, 1-10. <https://doi.org/DOI: 10.1002/hbe2.159>
- Yin, Y., Cai, X., Ouyang, M., Sen Li e, X. L., & Wang, P. (2023). FoMO and the brain: Loneliness and problematic social networking site use mediate the association between the topology of the resting-state EEG brain network and fear of missing out. *Computers in Human Behavior*, 141. <https://doi.org/https://doi.org/10.1016/j.chb.2022.107624>
- Yoon, S., Kleinman, M., Mertz, J., & Brannick, M. (2019). Is social network site usage related to depression? A meta-analysis of Facebook-depression relations. *Journal of Affective Disorders*, 248, 65-72. <https://doi.org/https://doi.org/10.1016/j.jad.2019.01.026>



- Yuana, G., Elhai, J. D., & Halld, B. J. (2020). The influence of depressive symptoms and fear of missing out on severity of problematic smartphone use and Internet gaming disorder among Chinese young adults: A three-wave mediation model. *Addictive Behaviors*, 112, 106648. <https://doi.org/https://doi.org/10.1016/j.addbeh.2020.106648>
- Zarate, D., Hobson, B. A., March, E., Griffiths, M. D., & Stavropoulos, V. (2023). Psychometric properties of the Bergen social media addiction scale: An analysis using item response theory. *Addictive Behaviors Reports*, 17. <https://doi.org/https://doi.org/10.1016/j.abrep.2022.100473>
- Zhang, M. X., Yu, S. M., Demetrovics, Z., & Wu, A. M. (2023). Metacognitive beliefs and anxiety symptoms could serve as mediators between fear of missing out and gaming disorder in adolescents. *Addictive Behaviors*, 145. <https://doi.org/https://doi.org/10.1016/j.addbeh.2023.107775>
- Zhu, X., & Xiong, Z. (2022). Exploring Association Between Social Media Addiction, Fear of Missing Out, and Self-Presentation Online Among University Students: A Cross-Sectional Study. *Frontiers in Psychiatry*, 13, 896762. <https://doi.org/doi:10.3389/fpsy.2022.896762>

Bu makale Creative Commons Attribution-NonCommercial-NoDerivs 4.0 Unported (CC BY-NC-ND 4.0) Lisansı standartlarında; kaynak olarak gösterilmesi koşuluyla, ticari kullanım amacı ve içerik değişikliği dışında kalan tüm kullanım (çevrimiçi bağlantı verme, kopyalama, baskı alma, herhangi bir fiziksel ortamda çoğaltma ve dağıtma vb.) haklarıyla açık erişim olarak yayımlanmaktadır. / *This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivs 4.0 Unported (CC BY-NC-ND 4.0) License, which permits non-commercial reuse, distribution and reproduction in any medium, without any changing, provided the original work is properly cited.*

Yayıncı Notu: Yayıncı kuruluş olarak Türkiye Bilimler Akademisi (TÜBA) bu makalede ortaya konan görüşlere katılmak zorunda değildir; olası ticari ürün, marka ya da kuruluşlarla ilgili ifadelerin içerikte bulunması yayıncının onayladığı ve güvence verdiği anlamına gelmez. Yayıncının bilimsel ve yasal sorumlulukları yazar(lar)ına aittir. TÜBA, yayınlanan haritalar ve yazarların kurumsal bağlantıları ile ilgili yargı yetkisine ilişkin iddialar konusunda tarafsızdır. / *Publisher's Note: The content of this publication does not necessarily reflect the views or policies of the publisher, nor does any mention of trade names, commercial products, or organizations imply endorsement by Turkish Academy of Sciences (TÜBA). Scientific and legal responsibilities of published manuscript belong to their author(s). TÜBA remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.*

