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# Social Media Interaction Motivation Scale: Development and Relations with Fear of Missing Out, Phubbing, Social Media Disorder, Gender and Time Spent

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## ABSTRACT

Social media, which is one of the platforms where online activities are most intensely observed, has become an indispensable element of daily life as it enables individuals to interact. The aim of this three-phase study was to develop a measure of social media interaction motivation (SMIM) among those who use at least one of these platforms, to test its validity and reliability, and then to examine its relationship with some variables that were found to be similar. SMIM increases unhealthy cyber behaviors such as fear of missing out (FoMO) and phubbing. Comparing the measures across the three studies, the means of SMD, FoMO, and phubbing do not differ by gender, except for the higher SMIMS scores of females in Study 2. However, these means increase dramatically with time spent on social media. Considering some limitations of the study, we present our suggestions for future studies.

## KEYWORDS

Social media interaction; scale development; FoMO; phubbing; SMD

## 1. Introduction

Online behavior is defined as the new normal, a way of being in today's world (Kuss & Griffiths, 2012). The risk of disease transmission through interpersonal contact during the COVID-19 pandemic has created a need for individuals to rely on and interact with online channels. One of the most common online activities is using social media to communicate a story, share personal experiences, or host content created by oneself and shared by others. Accordingly, social media are considered to play an important role in browsing news and entertainment and maintaining social connections (Ni et al., 2020; Sun, 2023).

Personal factors such as ease of use, perceived usefulness, and trust in community members are also thought to directly impact motivation to use social media (Lal, 2017; Parra-López et al., 2011; Yuan et al., 2021). Statista (2024) reported that 5.52 billion people out of a world population of 8.08 billion use the internet and 63.8% of the general population are social media users. Analyzing the social media platforms used, Facebook has the highest number of users (3.6 billion). In contrast, platforms such as YouTube (2.5 billion), Instagram (2 billion) and TikTok (1.6 billion) also host a significant number of users. Similar figures can be observed in Turkey. The most used social media channels are YouTube (57.5 million), Instagram (57.1 million), TikTok (37.7 million), Facebook (34 million) and X (20 million).

The above data indicate that those who spend too much time on social media are more likely to engage in over-engagement, which leads to behavioral and mental health

problems (Buzenski, 2024). In this regard, excessive social media use is often referred to as social media addiction or problematic social media use (Karakose et al., 2022). Similarly, some empirical studies suggest that clinical symptoms resulting from excessive social media use are related to addiction (Shahnawaz & Rehman, 2020; Van den Eijnden et al., 2016). Excessive use has been associated with negative emotions such as cognitive and academic failure (Tülübaş et al., 2023), decreased sleep quality, eating problems due to dislike of one's appearance, depression, and anxiety (Lemay et al., 2019; Nguyen et al., 2020; Skogen et al., 2021; Vidal et al., 2020; Xanidis & Brignell, 2016). Despite these negative experiences, it can be said that satisfaction factors such as being liked, social approval, and being a member of the community increase individuals' motivation to engage in social media-based interactions. In conclusion, it can be said that there is a motivation behind the use of social media.

When we look at the research on social media use, the most prominent approach to motivation is the uses and gratifications theory (Katz et al., 1973). The theory attempts to answer the question, *what do people do with media?* rather than the question, *what does media do to people?* that has been posed for years. The theory's basic premise is that individuals act to satisfy their needs. According to this perspective, users become aware of their motivations and accordingly prefer social media that satisfy their needs. Uses and gratifications theory, therefore, also focuses on the content of motivations for using social networking sites. In line with the theory, how individuals use social media networks and how they are positioned in them becomes important.

As a result, the motivation to receive interaction in social media (SMIM) will be used to explain this situation and the behavior of individuals in social media networks will be examined. Accordingly, the objectives of the study are as follows:

- To develop a valid and reliable measurement tool to determine individuals' social media interaction motivations,
- To examine the relationship between social media interaction motivation and FoMO, phubbing, gender, and time spent on social media.

### 1.1. FoMO and SMIM

Besides being used for communication, social media also provide information about the movements of other individuals in daily life (Çakır, 2020). Individuals are curious about where others are going, even if they are not there at that moment, which leads to an increase in screen time. The increase in screen time has led current research to focus on the concept of FoMO (fear of missing out) to determine whether technology is harmful to adults (Elhai et al., 2021). FoMO is defined as a concern about others' rewards for being on social media and a desire to be in constant contact with others (Przybylski et al., 2013; Wu et al., 2024). At the core of FoMO is the drive to stay connected with social media, which leads to the overuse of social networking hubs and websites (Elhai et al., 2021). In the context of FoMO, individuals fear losing likes and rewards on social media (Rozgonjuk et al., 2020). Accordingly, FoMO may be related to social media interaction motivation.

### 1.2. Phubbing and SMIM

FoMO includes being online, being on social media, spending time on the phone, and engaging in phubbing (Rozgonjuk et al., 2020). Phubbing is a combination of the words phone and snubbing (Chotpitayasunondh & Douglas, 2018). Phubbing is defined as paying attention to one's phone instead of focusing on the other person and communicating with them in social settings (Latifa et al., 2019). In the literature, the dimensions of the concept of phubbing are internet addiction, game addiction, social media addiction, and nomophobia (Yam & İlhan, 2020). Individuals who play games on their phones, spend time on social media, or constantly look at the screen to avoid being separated from their phones when they have no work to do are referred to as phubbing (Ballı, 2020). Accordingly, phubbing behavior may be related to the social media interaction motivation.

### 1.3. SMD and SMIM

Social media disorder (SMD) is characterized by problematic social media use that is similar to behavioral addictions. Research shows that excessive interaction with social media platforms can lead to a variety of mental health problems,

including anxiety, depression, low well-being, and decreased self-esteem (Dennon, 2022; Nazari et al., 2023). The concept of problematic social media use refers to a non-drug-related disorder in which individuals feel compelled to interact excessively with these platforms, often at the expense of their mental health and overall life satisfaction (Dennon, 2022; Nazari et al., 2023). Numerous studies highlight the negative psychological effects associated with social media disorder. For example, excessive time spent on social media is associated with low self-esteem, increased feelings of loneliness and stress, and has been linked to increased depression, anxiety, and even substance abuse among users (Dennon, 2022; Sun, 2023). Accordingly, it is thought that social media disorder may be related to social media interaction motivation.

### 1.4. Gender, time spent and SMIM

Studies on gender and social media use show that women use social media more than men and social media addiction scores are higher among women (Uslu, 2021; Yin et al., 2024). The prevalence of social media use among women can be explained by their efforts to maintain communication with friends regardless of distance (Shaw & Black, 2008). In addition, the fact that elements such as fashion, diet, healthy eating, and shopping occupy an important place in social media are also cited as one of the reasons why women are more in demand in this area (Uslu, 2021). At the same time, a study conducted at the University of Bonn provides evidence that women are genetically more susceptible to addiction (Nakaya, 2015). In a technology addiction study of 23,533 adults, it was found that being male was significantly associated with the addictive use of video games while being female was significantly associated with the addictive use of social media (Andreassen et al., 2016).

Statista (2024) reports that the time spent on social media worldwide is 2.23 hr. It is noteworthy that Turkey has similar figures, and the daily time spent on social media is 2.44 hr. These data show that the time spent on social media is relatively high. The increase in the time spent on social media leads to the weakening of the individual's relationship with the environment and the increase in the level of addiction (Yukay-Yüksel et al., 2020). In a study, it was found that students' social media addiction scores increased with the duration of social media use (Zıvdr & Karakul, 2023). Another study conducted on middle school students found a positive and high correlation between social media disorder and screen time (Prakasha et al., 2023). A comprehensive study conducted on 6,595 adolescent participants in the United States reported that those who used social media for more than three hours per day were at higher risk of internalizing problems and having mental health problems (Riehm et al., 2019). Based on many studies in the literature, it can be said that the time spent on social media is related to addiction/disorder (Al-Menayes, 2015; Bilge et al., 2020; Caz & Bardakçı, 2019; Şafak & Kahraman, 2019; Yang et al., 2022). In light of this information, it is believed that it

would be useful to consider gender and time spent on social media variables along with SMIM.

### 1.5. Present study

The assessment of social media use is very important to determine the severity of use. However, it is seen that the existing tools are mostly created on the axis of social media addiction and try to measure this addiction with tools such as the Bergen Social Media Addiction Scale (B-SMAS) (Andreassen et al., 2016), Social Media Disorder Scale (SMD) (Van den Eijnden et al., 2016), Social Media Addiction Scale (SMAS) (Tutgun-Ünal & Deniz, 2015). These instruments are mostly based on the concept of addictive behavior, which is related to the clinical criteria for substance-related addictions and internet gaming disorder defined in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5-TR). These criteria include elements such as preoccupation, mood changes, tolerance depletion, conflict, and relapse (American Psychiatric Association (APA), 2022). However, assessing social media behavior on the axis of addiction or disorder generally introduces a limitation to the topic and makes it difficult to explore the dynamics underlying behavior on these channels. The current measurement tool aims to draw attention to the interaction-oriented use of social media, which does not reach the level of addiction or disorder. On the other hand, some measures of social media engagement are in the literature. These tools have been developed in adult (Saleem & Iglesias, 2019; Wisessathorn et al., 2022) and adolescent (Ni et al., 2020) populations. In the studies conducted with adult individuals, commercial interactions were more prominent and addressed the purchases individuals made on social media (Saleem & Iglesias, 2019). Wisessathorn et al. (2022) and Ni et al. (2020) highlight the negative effects that can occur as a result of excessive social media interaction. While the aforementioned measurement tools look at social media interaction in a more general perspective, the current study attempts to create a more specific framework with a focus on sharing and receiving interaction. In this regard, the current measurement tool differs from other related studies. The Motivation Scale for Using Social Networking Sites (MSUSNS) (Masciantonio & Bourguignon, 2023) is similar in content to the current study. However, the related study focuses on the purpose for which individuals use social networks, asking users *why*. The current measurement tool, on the other hand, focuses on *how* users use social media networks rather than *why* they use them and attempts to examine the motivation for interaction. Therefore, in the present study, the current measurement tool is developed to determine the motivation of those who use social media as a means of satisfaction to receive interaction and what behaviors they exhibit for this purpose.

Most previous studies on the effects of social media use on physiology and psychology generally use objective indicators such as frequency of Internet use, time spent online, and number of online friends (Peng & Zhu, 2011; Valkenburg et al., 2006). There is a widely held view that

surfing the Internet, playing online games, and engaging in online activities can be detrimental to an individual's mental health. Beyond these objective variables, there is a need for more comprehensive indicators that can reveal the true relationship between social media use and mental health. In this respect, the primary influencing factor for individuals may be their interactions on social media, rather than the time they spend on social media, the frequency or purpose of their social media use. Thus, it is necessary to develop a valid and reliable instrument to more accurately assess the psychological impact of social media use and measure interaction, focusing on the link between psychology and social media. Thus, the developed tool can also help identify users' motivations for interaction and explain the links with related concepts. Accordingly, the objectives of the study are as follows

## 2. Method

### 2.1. Research design

This research was conducted in three separate phases: scale development, and testing the relationships between the developed instrument and other variables. In the first step, a valid instrument was developed to determine individuals' motivations for social media interaction. In this direction, the process of developing a Likert-type instrument that can reveal individuals' motivations for social media interaction was followed. In the second step, analyses were conducted to validate and test the measurement instrument's reliability. In the third step, the relational research model was used to reveal the relationship between SMIM and FoMO, phubbing, gender, and time spent on social media. The main purpose of this model is to reveal whether there is a relationship between the variables and, if so, the direction and degree of this relationship (Fraenkel et al., 2015). Although correlational studies offer the possibility of predicting the future, they do not provide information about the cause-and-effect relationship. Studies that allow for inference are conducted using advanced, complex methods such as structural equation modeling (SEM). SEM is considered more advantageous in examining the relationships between variables in terms of causality, predictivity, and testing different models (Fraenkel et al., 2015). For this reason, SEM based on the relational survey model was used to determine the role of FoMO in the relationship between SMIM and phubbing.

### 2.2. Participants

In the research process, data were collected from 3 different study groups for exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and mediation analysis. Descriptive information about each study group is provided in this section. First, to determine the factor structure of the SMIM, data were collected from a total of 333 participants, of whom 227 were female (68.2%) and 106 were male (31.8%). The age of the participants ranged from 18 to 39 years, and the mean age was  $22.47 \pm 2.54$  years. To verify

the factor structure of the SMIM, data were collected from 389 participants, of whom 278 were female (71.5%) and 111 were male (28.5%). The mean age of the participants was  $20.62 \pm 1.87$ , ranging from 18 to 33 years. Finally, to test the mediating effect of FoMO on the effect of SMIM on phubbing, data were collected from a larger sample of 609 participants, 355 female (58.3%) and 254 male (41.7%), aged 18–70, with a higher mean age than in the first two studies (Mean =  $31.20 \pm 11.51$ ).

The researchers personally reached the participants and met with them face-to-face, explained the purpose of the study, and shared the link where the scale forms were transferred to the online platform with those who volunteered. Therefore, all participants in the current study approved the online informed consent form. Inclusion criteria were that participants were over 18 years of age, actively used at least one social media platform, and had a smartphone. Participants with a past or current diagnosis of a mental disorder and those with fake/anonymous social media accounts were excluded to ensure data validity and reliability.

### 2.3. Data collection tools

The Social Media Disorder Scale was used to test the criterion and predictive validity of the construct obtained in the first step, and the Fear of Missing Out Scale and the General Scale of Phubbing were used to find further evidence.

#### 2.3.1. Information form

In addition to questions about gender and age, this form aims to determine how much time participants spend on social media platforms during the day [under 30 min (1), 30 min to 1 hr (2), 1–3 hr (3), 3–5 hr (4), 5–8 hr (5), over 8 hr (6)].

#### 2.3.2. Social Media Interaction Motivation Scale (SMIMS)

In order to prepare a valid and reliable scale form to determine the social media interaction motivation of individuals, studies that are considered relevant to the topic (Andreassen et al., 2016; Masciantonio & Bourguignon, 2023; Tutgun-Ünal & Deniz, 2015; Van den Eijnden et al., 2016) were first reviewed. The preparation process continued with the opinions of individuals who actively use social media. A draft version of the scale form was prepared with the assistance of two experts who have studied the topic. In order to evaluate the comprehensibility of the prepared questions, the opinions of two language experts were consulted. The commonly used five-point Likert type was preferred for answering the scale items. The draft form was administered to university students who actively use social media and volunteered to participate. After receiving the participants' opinions, the data collection process started with the 26-item form that resulted from the necessary corrections.

#### 2.3.3. Social Media Disorder Scale (SMD)

Social Media Disorder Scale (SMD): Van den Eijnden et al. (2016) developed the instrument to measure SMD based on the diagnostic criteria for Internet Gaming Disorder (IGD) as defined in the DSM-5. The 9-item, unidimensional scale is reported to have robust and sensitive psychometric properties. The original structure of the instrument, adapted to Turkish culture by Savci et al. (2018), was confirmed. Cronbach's alpha, which was reported between 0.76 and 0.82 in the development study and 0.81–0.86 in the adaptation study, was calculated as 0.83 in the current study sample ( $N = 389$ ). Scores obtained from the 5-point Likert scale (0–Never, 4–Always) range from 0 to 36, with higher scores indicating an increased risk of SMD.

#### 2.3.4. Fear of Missing Out Scale (FoMO)

Zhang et al. (2020) reported that the scale, which they developed by focusing on the fear of missing out on developments in social environments, has two dimensions consisting of a total of 9 statements, five items of personal and four items of social FoMO. The two-dimensional structure of the scale adapted to Turkish culture by Çelik and Özkara (2022) was confirmed, and the results of the second-order confirmatory factor analysis showed that the fit indices were at a good level, so it was reported that the total score of the scale could also be used. Responses to the 7-point Likert-type questions range from “Strongly disagree (1)” to “Strongly agree (7).” The lowest and highest possible scores range from 9 to 63, with higher scores interpreted as increased FoMO risk. Cronbach's alpha was calculated as .86 for the personal dimension and 0.92 for the social dimension in the development study, 0.85–0.90 for personal FoMO, 0.85–0.89 for social FoMO, and .89 for the total scale in the adaptation study, and 0.91 for both personal and social FoMO and the total scale in the current study sample ( $N = 609$ ).

#### 2.3.5. General Scale of Phubbing

A 15-item scale developed by Chotpitayasunondh and Douglas (2018) to measure the phenomenon of individuals ignoring others for their smartphones in social interactions, consisting of four factors: nomophobia, interpersonal conflict, self-isolation, and problem acknowledgement. The researchers report that the scale can also be used with a total score. The structure of the instrument adapted to Turkish culture by Ergün et al. (2020) was confirmed in the original study. The responses to the 7-point Likert-type questions range from “Never (1)” to “Always (7).” The minimum-maximum scores that can be obtained from the scale range from 15 to 105, and higher scores are interpreted as an increased risk of phubbing. Cronbach's alpha coefficients ranged from 0.85 to 0.92 in the development study, 0.91 in the adaptation study, and 0.90 in the current study sample ( $N = 609$ ).

**Table 1.** EFA results ( $N = 333$ ).

Items	Factor loadings
1. I check my posts frequently.	0.717
2. I care about the number of likes on my posts.	0.793
3. I can predict which of my posts will get how many likes and comments.	0.720
4. I care about increasing the number of my followers.	0.671
5. I pay attention to sharing content that people will like.	0.718
6. I wonder about the number of likes after I post.	0.776
7. I get upset when my posts are liked less than I expected.	0.777
8. I know what kind of posts people usually like.	0.699
9. I post frequently.	0.578
10. I am at the center of my posts.	0.583
11. I feel happy when the number of likes increases.	0.770
12. I get bored when there is no activity related to my posts (views, likes, comments, etc.).	0.810
13. I know the time of day when my posts get the most views (e.g., noon, evening, etc.).	0.764
14. I share content on my social media that I think will get more likes and comments.	0.720
15. I keep notifications of social media applications open.	0.453
Explained variance (%)/Eigenvalue	50.32/7.55

## 2.4. Data analysis

Exploratory and confirmatory factor analyses were used to examine the structure and validity of the scale developed in Study 1 and Study 2; correlation and regression were used for criterion and predictive validity, and internal consistency, test-retest, and split-half analyses were used for reliability. These analyses were performed using SPSS 26 and AMOS 22. In Study 3, regression analysis based on the bootstrap method was used to determine the mediating role (5000 bootstrap). Recent studies indicate that this method is more reliable than the traditional method of Baron and Kenny and the Sobel test (Gürbüz, 2019; Hayes, 2018; Zhao et al., 2010). The relevant mediation analysis was conducted using the Process macro 3.4 version developed by Hayes (2018). In the mediation test, it was considered that the confidence interval (BCa CI) should not include zero (0) for the research hypothesis to be accepted (MacKinnon et al., 2004).

## 3. Results

### 3.1. Study 1

#### 3.1.1. Exploratory factor analysis (EFA)

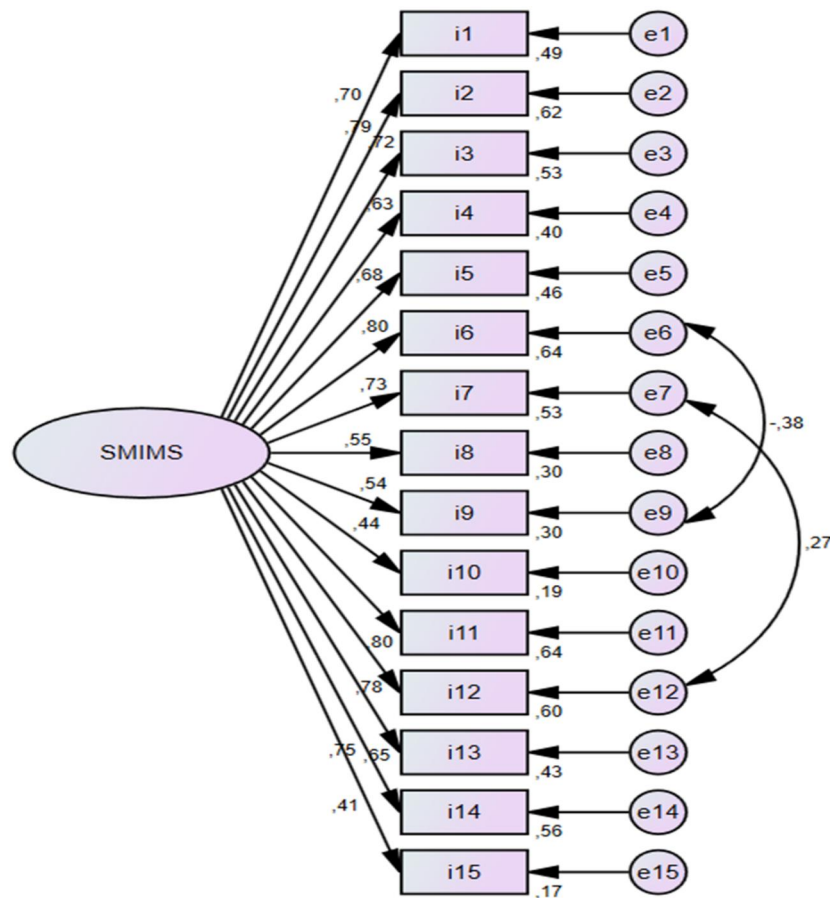
EFA is defined as the transformation of a large number of observable variables that are thought to be related to each other into a smaller number of unobservable variables (Çolakoğlu & Büyükeksi, 2014). Garson (2013) defines EFA as the reduction of factors in a measurement instrument in order to obtain a purer structure and make a causal interpretation. In the present study, the responses collected from the first study group, which was 333 participants (227 female (68.2%), 106 male (31.8%), 18–39 years old (mean =  $22.47 \pm 2.54$ ), studying at Bayburt University, were included in the EFA. It was assumed that there was a relationship between the factors to be obtained in the analysis, so the direct oblimin rotation technique, which is an oblique rotation type, was used. In addition, the factor loading criterion of the items was set at 0.32, and those below this criterion were excluded from the factor analysis. The principal components method was used for the extraction method due to the use of different samples for CFA. The results are presented in Table 1.

Before the EFA, it was considered that the KMO coefficient should be greater than 0.6 and the eigenvalue of the identified factor should be greater than 1 (Pallant, 2020), the factor loading of the items should be greater than 0.32 (Tabachnick & Fidell, 2019), and the explained variance should not be less than 50% (Dawson, 2017). According to the results of the first analysis, a three-factor structure with 26 items with an eigenvalue greater than 1, explaining 56.1% of the total variance, with Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) 0.951, Bartlett's test of sphericity (Approx. chi-square 4478.45,  $df = 300$ ,  $p = 0.00$ ) was obtained. On the other hand, although there were no items with factor loadings lower than 0.32, 11 overlapping items that were under more than one factor and had a difference of less than  $\pm 0.10$  between them were removed one by one, and the analysis was repeated, and finally an one-factor structure with 15 items was obtained with a KMO coefficient of 0.947, Bartlett's test of sphericity (Approx. chi-square 2600.33,  $df = 105$ ,  $p = 0.00$ ), explaining 50.32% of the total variance, with an eigenvalue greater than 1. Considering that the total variance explained by scales developed and used in social sciences varies between 50 and 60% (Yong & Pearce, 2013) and the total variance explained by single-factor scales is on average around 51% (Koyuncu & Kılıç, 2019), it can be said that the EFA results are sufficient.

### 3.2. Study 2

#### 3.2.1. Confirmatory factor analysis (CFA)

Unlike EFA, CFA is used in cases where the model assumption is strong and to test a previously tested structure (Orçan, 2018). Schumacker and Lomax (2010) state that the data set used in CFA in scale development studies should be different from that used in EFA. Orçan (2018) mentions two methods to do this. The first is to divide the sample into two parts and use one part for EFA and the other part for CFA, and the second is to collect data from two different samples at different times and independently of each other and use them for EFA and CFA, respectively. In the present study, data for CFA were collected from another sample (Ahi Evran University) consisting of 389 participants (278 female (71.5%), 111 male (28.5%), aged 18–33 years (mean =  $20.62 \pm 1.87$ ). The results of the analysis are shown in Figure 1.



CMIN=303,366; DF=88; CMIN/DF=3,447; RMSEA=.079; CFI=.928; GFI=.905; AGFI,870

Figure 1. CFA results ( $N = 389$ ).

It can be seen that the model obtained after the modifications made between items 6 and 9 and items 7 and 12 in accordance with the suggestions for reducing the chi-square/degrees of freedom ratio ( $\chi^2/df$ ) and error coefficients is significant ( $(\chi^2/df (303.366/88)=3.447, p=0.00)$ ). The fit indices were calculated as NFI = 0.902, IFI = 0.928, TLI = 0.914, CFI = 0.928, GFI = 0.905, AGFI = 0.870, error coefficients RMSEA = 0.079, RMR = 0.065, SRMR = 0.044. It has been reported that  $\chi^2$  is highly sensitive to the number of samples (Alavi et al., 2020), a ratio of less than 3 to df indicates a good fit (Brown, 2015), and less than 5 indicates an acceptable fit (Meydan & Şeşen, 2015).

AGFI above 0.85 (Schermelleh-Engel et al., 2003) and other fit indices above 0.90 are interpreted as acceptable fit, error coefficient and residuals below 0.05 are interpreted as good fit, and below 0.08 are interpreted as acceptable fit (West et al., 2023). Accordingly, the fit indices of the model presented in Figure 1 are acceptable.

### 3.2.2. Criterion and predictive validity

Criterion validity refers to the relationship between the score obtained from the scale and a previously defined outcome. It takes two forms: concurrent validity, which provides information about the relationship between the developed measurement tool and an alternative tool that measures the same

construct, and predictive validity, which is used to determine the extent to which the score obtained from a scale predicts another behavior (Johnson & Morgan, 2016). James et al. (2017) reported that social media fulfills individuals' innate need to belong through online contact. They point out that maintaining interpersonal connections plays an important role in satisfying this need, that individuals who are good at managing their social media use exhibit healthy socialization behaviors, and that those who are not are at increased risk for social media addiction. Wadsley et al. (2022) emphasize that excessive time spent on social media is related to social rewards, while Kuss and Griffiths (2017) emphasize that the need to be online can lead to addiction. Based on this information, it was considered that the scale to be developed in the current study could increase individuals' social media addiction; therefore, the SMD scale was used in the criterion validity, and the results are presented in Table 2.

Correlation results show that there is a moderate positive relationship between SMIM and SMD ( $r=0.546$ ), and regression results show that SMIM explains 29.8% of the variance in SMD.

### 3.2.3. Reliability

Johnson and Morgan (2016) define reliability as the consistency of participants' responses, noting that internal consistency coefficients are frequently reported. The reliability

results, including the data collected from the second group of participants in the study, are presented in Table 3.

The split-half analysis showed that the  $\alpha$  coefficient of the first half (8 items) was 0.894, the  $\alpha$  coefficient of the second half (7 items) was 0.839, the correlation between the two halves was 0.830, the Spearman-Brown coefficient was 0.907, and the test-retest reliability coefficient obtained from 102 participants 6 weeks apart was 0.882. It can be seen that the internal consistency would increase to 0.924 with the removal of the 10th item and to 0.925 with the removal of the 15th item, but considering that the internal consistency was already high (0.923), that the related items had significant correlations with the others, and that the internal consistency would increase slightly if they were removed, it was decided to keep them in scale form.

### 3.3. Study 3

#### 3.3.1. Further evidence: Relationships between SMIM, FoMO, and phubbing

The third study examined the relationship between the framed construct and some unhealthy cyber behaviors to

**Table 2.** Regression results for criterion validity ( $N = 389$ ).

Model	Variable	<i>B</i>	Std error	$\beta$	<i>t</i>	<i>p</i>
1	Constant	0.482	0.913		0.527	0.598
	SMIM	0.270	0.021	0.546	12.827	0.000

$R = 0.546$ ,  $R^2 = 0.298$ ,  $F_{(1,388)} = 164.523$ ,  $p = 0.000$ .

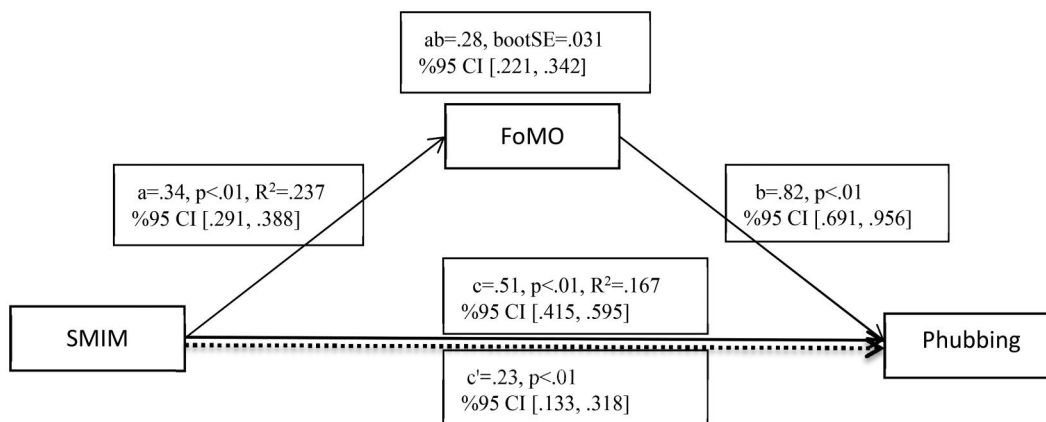
**Table 3.** Reliability results.

Items	Item total correlation	Cronbach's alpha	Cronbach's alpha if the item is deleted
1	0.673		0.917
2	0.744		0.915
3	0.694		0.916
4	0.606		0.919
5	0.650		0.918
6	0.735		0.915
7	0.698		0.916
8	0.541	0.923	0.921
9	0.521		0.921
10	0.428		0.924
11	0.757		0.914
12	0.754		0.914
13	0.644		0.918
14	0.728		0.915
15	0.400		0.925

find further evidence. Social networks offer users, especially adolescents, a space where they can constantly monitor what their peers are doing and what they are missing out on. The idea of controlling other people increases the use of social media because it provides temporary relief from anxiety (Franchina et al., 2018). With the anxiety they experience, individuals constantly focus on their phones and spend most of their time in social media environments (Sezerer Albayrak, 2021). As a result, they use social media more effectively and interact more. However, the desire not to be left behind and to be in constant interaction with the desire to control what is happening can lead to FoMO in users. In addition, both SMIM and FoMO run the risk of making people more dependent on their phones and isolating them from their real social relationships (Tandon et al., 2022; Varchetta et al., 2020). Given these relationships, it is reasonable to hypothesize that FoMO mediates the effect of SMIM on phubbing. To test the hypothesized structure, a larger sample of 609 participants, 355 female (58.3%) and 254 male (41.7%), with a higher mean age than in the first two studies (range: 18–70, mean:  $31.20 \pm 11.51$ ), was obtained in this study. The results of the mediation analysis are shown in Figure 2.

Analyzing the relationships between the measures, SMIM has a moderately significant correlation with phubbing ( $r = 0.409$ ,  $p < .001$ ) and FoMO ( $r = 0.487$ ,  $p < 0.001$ ), and FoMO has a moderately significant correlation with phubbing ( $r = 0.554$ ,  $p < 0.001$ ). Figure 2 shows that the total effect of SMIM on phubbing is significant ( $c = 0.51$ ,  $p < 0.01$ ,  $R^2 = 0.167$ ,  $F_{(1,607)} = 121.760$ ). In addition, the direct effect was also found to be significant in the presence of the mediator variable FoMO in the model ( $c' = 0.23$ ,  $p < 0.01$ ,  $se = 0.047$ ,  $t = 4.801$ ). Again, the analysis of Figure 2 shows that the effects of SMIM on the mediating variable FoMO ( $a = 0.340$ ,  $p < 0.01$ ,  $R^2 = 0.237$ ,  $F_{(1,607)} = 188.572$ ) and FoMO on the dependent variable phubbing ( $b = 0.823$ ,  $p < 0.01$ ,  $se = 0.067$ ,  $t = 12.226$ ) are significant.

The indirect effect examined to determine the mediation of FoMO was significant ( $ab = 0.28$ ,  $se = 0.031$ , 95% CI [0.221, 0.342]). The fully standardized effect size ( $K^2$ ) of this effect was calculated to be 0.226. When interpreting the effect size, if  $K^2 = 0.01$ , it is considered a low effect; if it is close to 0.09, it is considered a medium effect; and if it is



**Figure 2.** Mediation of FoMO in the effect of SMIM on phubbing ( $N = 609$ ).

**Table 4.** Descriptive statistics, time spent and relationships between measures.

	Min-max	$\bar{X}$	SD	Skewness	Kurtosis	1	2	4
Study 1								
1. Time spent	1–6	–	–	–0.199	–0.037	–		
2. SMIM	15–74	40.82	13.43	–0.089	–0.753	0.290*		
Study 2								
1. Time spent	1–6	–	–	–0.041	0.095	–		
2. SMIM	15–75	41.54	12.72	–0.114	–0.393	0.275*	–	
3. SMD	0–36	11.68	6.28	0.356	0.081	0.287*	0.546**	
Study 3								
1. Time spent	1–6	–	–	0.198	0.125	–		
2. SMIM	15–66	36.15	11.92	0.069	–0.718	0.314*	–	
4. FoMO	9–43	16.63	8.31	1.176	0.674	0.301*	0.487**	
5. Phubbing	15–88	41.79	14.73	0.583	0.140	0.405*	0.409**	0.554**

\*Spearman's correlation  $p < 0.001$ ; \*\*Pearson's correlation  $p < 0.001$ .

close to 0.25, it is considered a high effect (Preacher & Kelley, 2011). In this context, the indirect effect of SMIM on phubbing by FoMO is high.

### 3.3.2. Comparison of measures across the three studies

Apart from SMIM, which was examined in all three studies, SMD was measured in the second study and FoMO and phubbing were measured in the third study with the questions on gender and time spent on social media applications. Descriptive statistics of the related measures and the relationships between them are presented in Table 4.

No cutoff points were reported for the total scores of the instruments, but considering the minimum-maximum scores, it can be said that the SMIM scores of the participants in Study 1 and Study 2 were slightly above the average, while the SMIM scores of the participants in Study 3 were slightly below the average. The SMD scores examined in Study 2 were below average, the phubbing scores examined in Study 3 were also below average, and the FoMO scores were well below average. In addition, SMIM, SMD, FoMO, and phubbing are positively correlated both with increases in time spent on social media and with each other. Results comparing mean scores by gender and time spent are presented in Table 5 and Figure 3.

When comparing the measurements in Table 5, the mean SMIM of the females in the Study 1 sample ( $41.57 \pm 13.26$ ) did not differ from that of the males ( $39.21 \pm 13.69$ ) ( $p = 0.135$ ). Similarly, the mean SMIM in the Study 3 sample did not differ by gender (female:  $35.98 \pm 11.65$ , male:  $36.35 \pm 12.30$ ,  $p = 0.706$ ). However, it was noted that the average SMIM of females in the Study 2 sample ( $42.35 \pm 12.43$ ) was higher than that of males ( $39.52 \pm 13.27$ ) ( $p = 0.048$ ). In addition, it was observed that the mean SMD measured in Study 2 and the mean FoMO and Phubbing measured in Study 3 did not differ by gender. It is noteworthy that the means of SMIM, SMD, FoMO, and phubbing increased linearly with the time spent on social media in all study groups (Figure 3).

## 4. Discussion

In the first section of the current study, which aims to identify the motivation of social media users to interact on these platforms, the unidimensional structure of the concept was

explored, the second section validated the discovered construct and tested its criterion and predictive validity, and finally its reliability through SMD, a type of addiction. The third section, designed to provide further evidence, examined the relationship between this motivation and some online behaviors. To summarize the main results, social media engagement motivation was developed as a valid and reliable instrument with psychometric properties and predicts unhealthy online engagement behaviors such as SMD, FoMO, and phubbing.

In the current study, FoMO was found to mediate the relationship between SMIM and phubbing at a high level. A review of the literature indicates that there are mediation studies that examine FoMO and phubbing together. For example, in a study conducted with adults with an average age of 28, FoMO was found to mediate the relationship between social appearance anxiety and phubbing (Batmaz et al., 2024). In another study conducted with college students, FoMO was found to mediate the relationship between the dark triad (Machiavellianism, psychopathy, and narcissism) and phubbing (Akat et al., 2023). A study conducted with university students during the COVID-19 pandemic process found that loneliness and FoMO, both together and separately, mediated the effect of boredom tendency on phubbing (Gao et al., 2023). These findings are similar and consistent with the results of the current study.

The FoMO phenomenon significantly affects students' social media behavior, often leads to compulsive control and interaction online. This leads them to withdraw from real-life interactions and academic responsibilities (Zhang et al., 2023). Similarly, phubbing negatively affects interpersonal relationships and creates a sense of disconnection. As a result, social dynamics among students become more complex. These behaviors not only affect individual well-being, but also reflect broader trends in how digital technologies shape social norms and relationships in academic settings (Nazari et al., 2023; Zhang et al., 2023). As college students struggle with these challenges, understanding the motivations behind their social media interactions and the resulting psychological effects is critical to developing healthier online habits and improving their overall mental health.

In the current study, it was found that mean SMIM scores differed by gender in the second study, but not in the other studies. When reviewing the literature, it is noted that studies that examine gender with concepts similar to social

Table 5. Comparison of measures by gender and time spent on social media.

Study		<i>n</i>	SMIM	SMD	FoMO	Phubbing
1	Gender	Female <sup>a</sup>	227	41.57 ± 13.26		
		Male <sup>b</sup>	106	39.21 ± 13.69		
	Time spent	<i>p</i> *		– ( <i>t</i> = 1.50, <i>p</i> = 0.135)		
		Under 30 min <sup>a</sup>	10	26.10 ± 9.10		
		30 min to 1 hr <sup>b</sup>	36	30.75 ± 13.12		
		1–3 hr <sup>c</sup>	87	40.93 ± 11.93		
		3–5 hr <sup>d</sup>	132	42.14 ± 12.09		
		5–8 hr <sup>e</sup>	54	45.39 ± 14.27		
	Over 8 hr <sup>f</sup>	14	46.43 ± 15.92			
	<i>p</i> **		a = b < c = d = e = f ( <i>F</i> = 9.54; <i>p</i> < 0.001)			
2	Gender	Female <sup>a</sup>	278	42.35 ± 12.43	11.74 ± 6.18	
		Male <sup>b</sup>	111	39.52 ± 13.27	11.52 ± 6.54	
	Time spent	<i>p</i> *		a > b ( <i>t</i> = 1.99, <i>p</i> = 0.048)	– ( <i>t</i> = 0.32, <i>p</i> = 0.753)	
		Under 30 min <sup>a</sup>	4	28.75 ± 11.95	2.75 ± 2.99	
		30 min to 1 hr <sup>b</sup>	29	32.07 ± 12.48	9.55 ± 6.93	
		1–3 hr <sup>c</sup>	104	39.64 ± 12.46	10.21 ± 5.96	
		3–5 hr <sup>d</sup>	167	41.96 ± 11.44	11.69 ± 5.62	
		5–8 hr <sup>e</sup>	66	46.47 ± 12.31	13.95 ± 6.27	
	Over 8 hr <sup>f</sup>	19	48.26 ± 15.42	16.89 ± 7.18		
	<i>p</i> **		a = b = c < d < e < f ( <i>F</i> = 8.28; <i>p</i> < 0.001)	a = b = c = d < e = f ( <i>F</i> = 8.53; <i>p</i> < 0.001)		
3	Gender	Female <sup>a</sup>	355	35.98 ± 11.65	16.69 ± 8.52	42.21 ± 14.46
		Male <sup>b</sup>	254	36.35 ± 12.30	16.55 ± 8.04	41.20 ± 15.10
	Time spent	<i>p</i> *		– ( <i>t</i> = –0.38, <i>p</i> = 0.706)	– ( <i>t</i> = 0.21, <i>p</i> = 0.838)	– ( <i>t</i> = 0.84, <i>p</i> = 0.402)
		Under 30 min <sup>a</sup>	36	24.72 ± 10.90	12.25 ± 5.51	30.78 ± 13.33
		30 min to 1 hr <sup>b</sup>	93	31.09 ± 10.36	12.43 ± 4.61	33.72 ± 11.59
		1–3 hr <sup>c</sup>	248	36.37 ± 11.02	16.53 ± 8.13	40.81 ± 13.87
		3–5 hr <sup>d</sup>	158	38.84 ± 12.09	18.45 ± 8.56	45.70 ± 14.10
		5–8 hr <sup>e</sup>	52	40.58 ± 10.76	20.08 ± 9.41	50.98 ± 13.23
	Over 8 hr <sup>f</sup>	22	43.59 ± 11.95	21.41 ± 11.29	55.09 ± 14.22	
	<i>p</i> **		a = b < c < d = e = f ( <i>F</i> = 16.65; <i>p</i> < 0.001)	a = b < c = d = e = f ( <i>F</i> = 12.61; <i>p</i> < 0.001)	a = b < c < d = e = f ( <i>F</i> = 23.31; <i>p</i> < 0.001)	

\**t*: Independent Sample *t* test; \*\**F*: ANOVA Test; a, b, c, d, e, f: Scheffe test for comparing differences between groups.

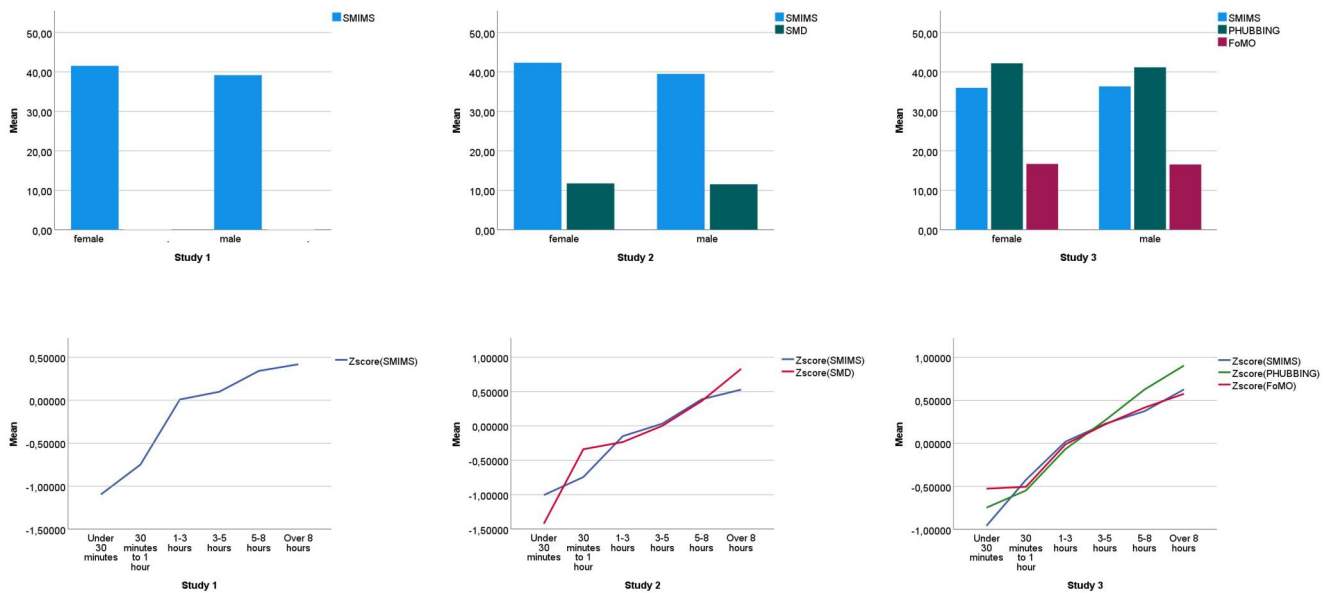


Figure 3. Means by gender and time spent on social media.

media interaction motivation have different results. For example, in a study that examined the purpose of social media use, it was reported that interpersonal interaction differed according to gender; however, there was no differentiation in the dimension of preparation for class (Şişman Eren, 2014). In another study conducted with university students, it was concluded that the motivations for using social media differed according to gender; no significant difference was observed in the sub-dimensions of social interaction, monitoring, and self-presentation (Barak, 2018).

The frequency and intensity of interaction between men and women on social media varies significantly depending on factors such as age, cultural norms, and gender stereotypes (Yin et al., 2024). Gender stereotypes play an important role in shaping attitudes toward technology use and influence the likelihood that individuals will engage in social media interactions. Such stereotypes can set societal expectations about the appropriate use of technology between men and women, potentially leading to different patterns of behavior. In light of this information, it can be said that more research is needed to understand the gender differences in motivation for social media interaction.

In the current study, the mean scores of SMIM, FoMO, phubbing, and SMD differ according to the duration of internet use, and the mean scores increase as the duration of internet use increases. When reviewing the literature, it is noticeable that there are many studies that are consistent with the current research findings (Aydođdu & Yaşar, 2022; Caz & Bardakçı, 2019; Şişman Eren, 2014; Uygun & Kalender, 2023). The time spent by university students on social media has shown a significant increase, especially during the COVID-19 pandemic. Before the pandemic, adolescents and young adults in the United States typically spent one to two hours per day interacting through social media platforms; during the pandemic, this number increased to an average of three to four hours per day as students had to

adapt to online learning and maintain social connections virtually (Dennon, 2022). The increase in screen time has been found to have a profound effect on their mental health, with symptoms of anxiety and depression increasing significantly in this population as social media use adds to social isolation and increased stress (Dennon, 2022). Research shows that social media engagement is not just a passive activity, but often intersects with various aspects of students' lives, including academic responsibilities. For example, many students report experiencing FoMO while engaged in homework or work tasks, suggesting that social media use is intricately woven into their daily routines (Dennon, 2022; Nazari et al., 2023). Overall, the evolving landscape of social media and its integration into the lives of college students highlights the need for continued research on the psychological effects and implications of social media engagement motivation in this age group.

The relationship between social media engagement motivation and psychological phenomena such as FoMO, phubbing, social media disorder, gender, and time spent online is a critical area of research, especially among college students. As social media platforms increasingly permeate daily life, they have a significant impact on interpersonal relationships, mental health, and academic performance (Tülubaş et al., 2023). College students are particularly vulnerable to the psychological consequences of social media use, with many experiencing increased feelings of anxiety, loneliness, and depression related to their online interactions (Lemay et al., 2019).

Social media have become an integral part of college students' lives, impacting their social interactions, mental health, and overall well-being. As students increasingly engage with platforms that allow them to create and share content, they are faced with both advantages and disadvantages associated with this digital interaction (Nazari et al., 2023; Sun, 2023). The unique nature of social media allows

users to connect with friends and maintain relationships beyond a physical presence, but it also poses the risk of challenges that can negatively impact mental health.

#### 4.1. Limitations and future studies

Social media have changed the dynamics of interpersonal relationships and communication among college students, creating an environment that fosters both social interaction and a range of psychological effects. Unlike traditional media, where users often engage in passive, one-way interactions, social media platforms increase social interaction by enabling active content creation and sharing. This participatory nature of social media allows users to connect with friends, maintain relationships, and expand their circles, leading to significant lifestyle changes (Nazari et al., 2023). Research shows that social media can play a positive role in enhancing well-being. For example, interacting with others online often increases self-esteem and provides important social support from peers (Zhang et al., 2023). The sense of connectedness fostered by social media platforms can alleviate feelings of loneliness and isolation among college students navigating social environments. In fact, students are more likely to rely on social media platforms than traditional sources such as family or mental health professionals when seeking social support (Reining et al., 2018). However, the positive reinforcement experienced through interactions (e.g., receiving compliments and encouragement) can also strengthen an individual's sense of belonging and self-worth. As students interact more through social media networks, they may be more likely to receive supportive feedback, which may have a positive effect on their psychological well-being.

However, social media interaction has its downsides. The exaggerated nature of the content on these platforms creates an idealized perception of reality that leads to feelings of inadequacy, anxiety, and depression in users (Buzenski, 2024). This filtered reality often leads users to compare their own lives unfavorably to those of their peers, potentially negatively affecting their self-esteem and overall mental health. Furthermore, negative experiences such as cyberbullying can further complicate the relationship between social media use and well-being. This is because cyberbullying not only damages individuals' self-esteem, but also reduces the perceived benefits of online social support and may negatively affect motivation to interact on social media platforms (Zhang et al., 2023).

In this study, participants were asked how much time they spent on social media during the day, but not specifically which platforms they used and how much time they spent on each. This limits insight into what may be more influential in participants' unhealthy online behaviors. Future studies could identify the platforms used and the time spent on them. Future studies can identify the platforms that are actively used (e.g., Instagram, X, Facebook) and how much time they spend on them.

Another limitation is that some demographic characteristics, such as education level and socioeconomic status, which

may have an impact on participants' social media engagement styles, were not determined. For stronger predictive analyses, it is recommended that these factors be determined in future studies, and the mean scores should be compared and controlled to examine users' social media engagement behaviors.

The current study examined the relationship between SMIM as a personality trait and FoMO. Nevertheless, FoMO can also manifest as situational, which is characterized by time, circumstances, or the desire to watch an episode of a television show (Maxwell et al., 2022). To address this limitation, it is suggested that future studies test whether the SMIM can also capture state FoMO.

The mean age of the sample in Study 3 is higher than in the first two studies because the aim was to test the generalizability of the valid and reliable structure to other social media engagement styles and not to limit it to young samples. If this is considered a potential limitation in terms of comparability and generalizability, future studies should examine data collected from university students and the general population separately and make comparisons between these groups. In addition, it is recommended that the SMIMS be tested in the adolescent population, which is an intensive user of the Internet and social media. This will provide an idea of the effects of motivation to receive interactions in adolescent groups at a relatively early developmental stage.

In line with current research, training can be prepared to inform parents about the SMIM. This can ensure that they understand the importance of their children's social media interaction. It is also possible to develop parental attitudes that will contribute to their children's behavior of using social media within healthy limits. The current results may serve as a resource for professionals working in the field of mental health to prepare psychological counseling sessions and psychoeducational programs for healthy social media participation among college students. In addition, the results may provide insight to educational policymakers and school administrators in preparing a school environment and providing the necessary opportunities to guide university students in their use of social media.

In the current study, the self-report-based examination of SMIM and related social media engagement behaviors brings some methodological limitations. Under certain conditions, especially social desirability, participants may provide different answers than they actually do in order to make a better impression. In addition, the possibility of not obtaining results free from random error and the inability to draw conclusive causal inferences are considered other limitations of the study based on a cross-sectional correlational survey design.

In contrast to the potentially positive aspects of SMIM in the literature, it presents a structure that is not very clear – for the time being – with the negative aspects identified in the current study. In this situation, there is a need to investigate the relationship between the concept and different variables. In this way, it may be possible to develop strategies to create a healthy balance between online interaction

behaviors and real-life connections. It is also known that there are many different aspects of social media interaction than those measured in this study. The questions in the developed measurement tool cover behaviors that are more acceptable to the respondents. However, it is observed that even criminal behaviors that go far beyond social norms are displayed in order to receive interaction (e.g., humiliation, violence, spreading fake news, etc.). Although the main purpose of this study is to measure relatively acceptable interaction motivation based on social norms, it is recommended that future studies also examine these extreme behaviors.

Given that the social media interaction motivation examined is positively correlated with unhealthy online behaviors such as SMD, FoMO, and phubbing, it can be concluded that this behavior is a risk factor for users. Yet, it seems both ambitious and premature to make such inferences at this stage, and it is suggested that future research should examine relationships with potential predictors of this motivation, such as need satisfaction, self-regulation, and self-esteem.

## 5. Conclusion

This study was conducted to determine the motivation to receive interaction (SMIM) level of individuals on social media, and to develop a measurement tool to identify the behaviors they engage in to receive interaction on social media. The study also aimed to examine the relationship between SMIM and SMD, phubbing, and FoMO. Five key findings emerged from the research.

First, SMIM is a valid and reliable tool for identifying and measuring motivation to receive interaction on social media. Second, SMIM predicts online engagement behaviors related to problematic social media use such as SMD, phubbing, and FoMO. Third, gender is not a variable that makes a difference in these behaviors. Fourth, the time users spend on platforms increases with the average of SMIM, FoMO, phubbing and SMD. The last one is that the effect of SMIM on phubbing is mediated by FoMO.

The SMIMS developed in this study not only measures motivations related to social media use, but also makes it possible to understand the effects of these motivations on people's digital behavior. The results of the study offer several practical contributions. First, mental health professionals working with issues such as FoMO, phubbing, and SMD, which are common problems in the digital age, can use this scale to assess individuals' motivational tendencies to interact. As a result, personalized intervention plans can be developed that focus not only on the symptoms, but also on the psychological needs underlying these behaviors. In the field of education, counseling services working with young adults can use these findings to develop and implement digital literacy programs that help individuals express their need for visibility and social approval in healthier ways on social media. Finally, social media platforms can design their algorithms based on a more ethical structure that does the opposite of feeding users' motivation to interact through likes and share notifications.

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## Ethical approval

The ethical approval of the study was obtained with the decision of the Ethics Committee of Bayburt University dated 23/07/2024 and number 214. All participants were informed about the research by face-to-face contact, and the consent of the volunteers was obtained online.

## Disclosure statement

No potential conflict of interest was reported by the author(s).

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## Data availability statement

Data from the study are available <https://doi.org/10.6084/m9.figshare.28603172>.

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