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The predictive roles of Dark Triad, Big Five personality traits, loneliness, and attachment to caregivers in social media addiction: A cross-national study in Türkiye and Kyrgyzstan

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ABSTRACT

Social media addiction (SMA) is a form of behavioral addiction that can impact individuals' social, mental, and physical well-being. Although many studies have examined the effects of SMA, its individual antecedents have been relatively underexplored from a cross-national perspective. Therefore, the present study aimed to compare the predictors of SMA, including the Dark Triad, Big Five personality traits, loneliness, and attachment styles stemming from early experiences with caregivers (anxious and avoidant attachment). The sample comprised 604 university students (369 from Türkiye and 235 from Kyrgyzstan). Data were collected through standardized self-report scales, and descriptive statistics, correlation analyses, group comparisons, and hierarchical multiple regression analyses were conducted. Hierarchical regression analyses showed that conscientiousness was the strongest negative predictor of social media addiction (SMA) in both samples. Additionally, neuroticism positively predicted SMA in both countries. Anxious attachment emerged as a significant positive predictor in the Turkish sample, whereas loneliness, extraversion, Machiavellianism, and psychopathy were significant predictors of SMA in the Kyrgyz sample. Females reported higher levels of SMA among both samples. Although the antecedents of SMA appear to vary across cultural contexts, specific personality traits (i.e., low conscientiousness and high neuroticism), consistently emerged as stronger risk factors across both samples.

Introduction

Social media addiction (SMA) has been defined as an uncontrollable urge for individuals to engage in social media use and spending excessive time and effort on social media platforms to the neglect of other important areas of life (Andreassen & Pallesen, 2014). Studies investigating SMA have consistently demonstrated its negative impact on both the mental and physical health of individuals (Coyne et al., 2019). Although there are numerous studies investigating the antecedents of SMA, particularly in the context of personality traits (Huang, 2022; Kircaburun et al., 2018), only a few studies have examined these antecedents in

conjunction with childhood experiences (Worsley et al., 2018) and within a cross-national comparative framework.

Although research examining individual determinants of SMA has incorporated models such as the Big Five personality traits (Blackwell et al., 2017) and maladaptive personality dimensions including the Dark Triad (Siah et al., 2021; Kircaburun et al., 2018), findings have been inconsistent and often confined to single-country samples (Blackwell et al., 2017; Lee, 2019; Siah et al., 2021). In addition, early attachment experiences, which shape individuals' personality development (Shaver & Brennan, 1992), may play a significant role as antecedents of SMA. Although many studies have investigated the relationship between attachment styles and SMA (e.g., Hart et al., 2015; Oldmeadow et al., 2013), empirical findings on this topic remain inconsistent (Blackwell et al., 2017; Hart et al., 2015; Monacis et al., 2017; Oldmeadow et al., 2013).

One notable limitation of SMA research is the scarcity of cross-cultural studies. Few investigations have addressed the sociological, cultural, and economic factors that may influence SMA (Cheng et al., 2023). This gap is particularly pronounced in developing countries, where social media use is rapidly increasing. For instance, in Kyrgyzstan, the number of social media users increased by 28.3% in 2024, reaching 2.95 million, which accounts for 43.5% of the national population (Kemp, 2024). Despite this significant growth, empirical studies on SMA within the country remain limited (Muhametjanova et al., 2023; Zhorobekova et al., 2017), making it challenging to understand the unique dynamics of social media use in Kyrgyzstan.

In light of these considerations, the present study aimed to comparatively examine the individual antecedents of SMA, namely the Dark Triad personality traits, Big Five personality dimensions, attachment styles, and loneliness, among individuals from Turkey and Kyrgyzstan. Social media and internet usage are highly prevalent in Turkey. As of 2025, the number of

internet users was 77.3 million, accounting for 88.3% of the total population (We Are Social & Meltwater, 2025). This widespread use of the internet makes Turkey a meaningful sample for examining the influence of individual differences on SMA. Although Turkey and Kyrgyzstan share specific sociocultural characteristics, they differ significantly in terms of their economic and sociological contexts. These differences provide an opportunity to compare the individual antecedents of SMA cross-culturally. In turn, the findings may offer novel insights that contribute to a deeper understanding of the underlying causes of SMA.

The potential individual antecedents of SMA in the present study can be explained within the framework of self-regulation theory. Self-regulation is defined as the capacity of individuals to direct their behavior toward long-term goals, control their impulses, and exhibit behaviors to reach these goals (Baumeister & Heatherton, 1996). Deficiencies in self-regulatory capacity may lead individuals to exhibit tendencies toward excessive and uncontrolled social media use. In this context, low conscientiousness (poor task and time management), and high neuroticism (emotional instability), may predict SMA through low self-regulation. Moreover, high extraversion and openness to experience (with the tendency to seek social interaction in online platforms), and low agreeableness (difficulties in establishing balance in interpersonal relationships), may also contribute to SMA through low self-regulation. Dark personality traits, may increase SMA through self-regulatory deficiencies stemming from impulsivity and manipulative tendencies. Anxious attachment, with its search for emotional security, may be associated with (with what?). Avoidant attachment may be associated with self-regulation problems related to an excessive need for autonomy. On the other hand, loneliness may lead an individual to view social media use as a compensatory behavior due to their inability to regulate their social and emotional needs. Therefore, these individual variables offer common psychological mechanisms for explaining individual antecedents of SMA through general self-regulatory deficits.

Hypothesis development

The present study is the first to investigate the individual antecedents of SMA within samples from Turkey and Kyrgyzstan. While both countries share strong historical and cultural ties and collectivist values (Hofstede Insights, 2025), they differ significantly in terms of economic and digital indicators that can influence online behavior. Kyrgyzstan has higher levels of collectivism and lower power distance than Turkey (Najimudinova, 2013; Mambaeva, 2022). In contrast, Turkey has a higher power distance and uncertainty avoidance (Hofstede Insights, 2023). Economically, Turkey's per capita gross domestic product (approximately \$15,461 in 2024) is higher than Kyrgyzstan's (approximately \$2,419 in 2024) (World Bank, 2024; Federal Reserve Bank of St. Louis, 2025). Although internet penetration rates are similar in both countries (approximately 88%), the rate of active social media users is significantly higher in Turkey (66.7%) than in Kyrgyzstan (45.6%) (DataReportal, 2025a; 2025b). These indicators indicate that digital access opportunities and motivations for online interaction differ between the two countries. Therefore, it was anticipated that factors such as collectivist cultural values (Cheng et al., 2021), lifestyle patterns (Günüç & Doğan, 2013), and internet accessibility (Koçak et al., 2021; Muhametjanova et al., 2023) may indirectly contribute to the development of SMA. In this context, it was assumed that SMA levels in Turkey and Kyrgyzstan would be broadly similar; therefore, no significant differences were expected between the countries in terms of mean scores on the scale used. Accordingly, the hypotheses were developed without emphasizing country-based distinctions. Ultimately, the study examines the individual predictors of SMA, specifically the Dark Triad traits, Big Five personality dimensions, attachment styles, and loneliness through comparative analyses among Turkish and Kyrgyz samples. In doing so, the study sought to provide new empirical evidence and theoretical insights regarding the cross-national validity of these relationships.

Narcissism and social media addiction

Individuals with higher levels of narcissism tend to value power and success and exhibit a strong desire for self-promotion (Paulhus & Williams, 2002). Social media provides these individuals with an ideal platform to showcase their achievements, highlight their status, and attract attention (Siah et al., 2021). In particular, the desire for admiration and social approval (Choi, 2018) motivates narcissistic individuals to share eye-catching content and use attractive profile pictures (Buffardi & Campbell, 2008; Siah et al., 2021). Showcasing their positive attributes on social media can enhance their perceived social standing and subjective well-being (Kuss & Griffiths, 2011). Therefore, social media may provide sufficient opportunities for narcissistic individuals to reach broad audiences, seek validation, and reinforce feelings of superiority. Therefore, it was hypothesized that narcissism would positively predict SMA (H_1).

Machiavellianism and social media addiction

Individuals with high levels of Machiavellianism tend to engage in manipulative behaviors and deliberate strategies to achieve power and personal gain (Paulhus & Williams, 2002). These individuals may use social media platforms to manipulate others or disseminate information that serves their interests, often while concealing their identities or constructing a favorable image (Kircaburun et al., 2018; Siah et al., 2021). Moreover, they may use social media as a tool to increase their follower count and reach a wider audience, thereby enhancing their social status. To do this, they may carefully curate their posts to craft a positive reputation and frequently check their profiles to monitor others' reactions (Abell & Brewer, 2014). Additionally, they may take pleasure in following others on social media to gather private information or gossip that could later be used for personal gain (Stiff, 2019). Therefore, it was hypothesized that Machiavellianism would positively predict SMA (H_2).

Psychopathy and social media addiction

Psychopathy is characterized by low self-control, irresponsibility, and a lack of empathy and remorse (Paulhus & Williams, 2002). Individuals with high levels of psychopathy may lie

for immediate gratification, disregard the rights of others, and display aggressive behaviors (Paulhus et al., 2021; Paulhus & Williams, 2002). Their impulsive tendencies may lead them to create provocative and rule-breaking posts, and their lack of guilt and empathy may result in selfish, offensive, and hostile comments, contributing to chaotic online environments (Stiff, 2019). These individuals often prefer anonymity in online settings, which may facilitate problematic behaviors such as cyberbullying, harassment, and trolling (Kircaburun et al., 2018). Therefore, it was hypothesized that psychopathy would positively predict SMA (H₃).

Openness to experience and social media addiction

Openness to experience reflects receptiveness to new ideas, emotions, and experiences, as well as emotional awareness, intellectual curiosity, imagination, aesthetic appreciation, and creative thinking (McCrae & Costa, 1999). Individuals high in openness are curious about a variety of topics. They may use social media platforms to satisfy their curiosity, share knowledge, and interact (Ross et al., 2009). Additionally, they may actively use social media for diverse purposes, such as status updates, story sharing, and group interactions (Ross et al., 2009). Moreover, they often follow current events, political developments, and artistic activities, which may contribute to frequent social media use (Marshall et al., 2015). Therefore, it was hypothesized that openness to experience would positively predict SMA (H₄).

Conscientiousness and social media addiction

Conscientious individuals tend to be competent, achievement-oriented, and highly emphasize performance and time management (Landers & Lounsbury, 2006; McCrae & Costa, 1999). Given their disciplined nature and preference for efficient time use, excessive social media use would not be typically expected (Landers & Lounsbury, 2006; Ross et al., 2009). In contrast, individuals with low conscientiousness may use social media excessively to procrastinate, avoid work-related obligations, or satisfy immediate urges (Buckner et al., 2012). Due to their lower levels of self-discipline, they are more likely to engage in impulsive and

uncontrolled use of social media, which offers immediate gratification (Kuss & Griffiths, 2011). Therefore, it was hypothesized that conscientiousness would negatively predict SMA (H₅).

Extraversion and social media addiction

Individuals with high levels of extraversion tend to be energetic, socially engaged, assertive, and responsive to external stimuli (McCrae & Costa, 1999). They usually feel comfortable in social relationships and often maintain large social networks (Ross et al., 2009). Consequently, they are more likely to share their social activities and friendships on social media (Akbari et al., 2023). Moreover, they may actively use social media to expand their social circles (Kuss & Griffiths, 2011). These individuals spend significant time on social media, regularly produce content, and interact through various applications, groups, or live broadcasts (Bowden-Green et al., 2020). They may also share attention-grabbing posts to express their views and join popular trends to build new connections. Therefore, it was hypothesized that extraversion would positively predict SMA (H₆).

Agreeableness and social media addiction

Highly agreeable individuals are typically modest, empathetic, and cooperative, which supports their success in interpersonal relationships (McCrae & Costa, 1999). They often use social media to communicate rather than to seek attention or create a particular image. As a result, their social media use does not generally reach addictive levels (Marshall et al., 2015). In contrast, individuals with low agreeableness tend to be argumentative, hostile, and less cooperative (Jensen-Campbell & Graziano, 2001). They may also use social media to engage in conflicts or harass others (Buckner et al., 2012). Such individuals may prefer online interactions to avoid face-to-face social challenges, seeking connections in less demanding virtual environments (Landers & Lounsbury, 2006). On the other hand, individuals with high agreeableness may be more inclined to avoid superficial online relationships and limit their use

of social media. Therefore, it was hypothesized that agreeableness would negatively predict SMA (H₇).

Neuroticism and social media addiction

Individuals with high levels of neuroticism are characterized by high levels of anger, anxiety, stress, and emotional instability (Buckner et al., 2012; McCrae & Costa, 1999). To manage these negative emotions and feel a sense of belonging to a social group (Akbari et al., 2023; Buckner et al., 2012), they may frequently share photos on social media in search of approval. Their emotional fluctuations may make them use social media more intensively as a temporary relief or distraction. Receiving ‘likes’ and comments can make them feel safer and happier (Amichai-Hamburger & Vinitzky, 2010), and therefore, their use frequency may increase. Additionally, while seeking attention and connection (Marshall et al., 2015), the positive feedback they receive on social media may temporarily alleviate negative emotions. Therefore, it was hypothesized that neuroticism would positively predict SMA (H₈).

Loneliness and social media addiction

Individuals experiencing loneliness often seek to fill the void created by insufficient social interaction and alleviate the negative emotions of being alone (Luo & Hu, 2022). In this context, social media use may facilitate social engagement and help reduce feelings of loneliness. Such platforms can increase perceived social support, therefore mitigating loneliness (Ryan et al., 2017). Consequently, individuals who feel lonely are expected to spend more time on social media (Morahan-Martin & Schumacher, 2003). Moreover, loneliness is associated with heightened anxiety and a stronger fear of missing out (Ebesutani et al., 2015), which may drive individuals to engage with social media more frequently. Therefore, it was hypothesized that loneliness would positively predict SMA (H₉).

Avoidant attachment to caregivers and social media addiction

Negative experiences with caregivers during childhood can adversely affect psychological and behavioral development and lead to attachment issues (Ainsworth et al., 2015; Bowlby, 1969). These attachment styles may manifest as secure, anxious, avoidant, or disorganized patterns (Ainsworth et al., 2015). Individuals with avoidant attachment styles, often shaped by emotionally distant and neglectful caregivers during childhood, tend to view others as unreliable, feel discomfort with emotional closeness, and suppress their emotional needs (Fraley et al., 2000). Given that social media fosters interpersonal connections and provides social support (D'Arienzo et al., 2019), individuals with avoidant tendencies may be less inclined to develop secure attachment due to their general reluctance to form close relationships (Bartholomew & Horowitz, 1991; Kim et al., 2021). Their preference for privacy, self-reliance, and negative perceptions of others may further reduce their motivation to engage with social media (Oldmeadow et al., 2013). Therefore, it was hypothesized that avoidant attachment to caregivers would negatively predict SMA (H_{10}).

Anxious attachment to caregivers and social media addiction

Inconsistent caregiving often leads individuals with anxious attachments to seek intense attention, approval, and emotional reassurance to cope with their insecurity (Bartholomew & Horowitz, 1991; Cassidy & Berlin, 1994). This insecurity could trigger fears of abandonment, foster dependency in relationships, and increase the reliance on external sources for validation (MacNeill & DiTommaso, 2022). The desire to please others and seek feedback (Brumbaugh & Fraley, 2010) may lead these individuals to engage excessively with social media (Blackwell et al., 2017; Oldmeadow et al., 2013). Because they may fear rejection while desiring closeness, they often prefer to present themselves in controlled ways through texts, images, and other social media features (Oldmeadow et al., 2013). Moreover, the instant gratification and reassurance of 'likes', comments, and messages (Forchuk et al., 2021) may encourage

prolonged online engagement (Blackwell et al., 2017). Therefore, it was hypothesized that anxious attachment to caregivers would positively predict SMA (H₁₁).

Demographic variables and social media addiction

Demographic variables may play a critical role in shaping the level of social media use (Andreassen et al., 2017; Stănculescu & Griffiths, 2022). More specifically, factors such as age and gender may play a decisive role in determining the frequency of social media use and tendencies toward addiction. For instance, younger individuals may spend more time on social media due to higher levels of digital literacy, a greater need for social interaction and relationship formation, the desire for entertainment and leisure, identity development processes, and the pursuit of social approval. Moreover, females may use social media more intensively than males because they tend to place greater importance on social relationships and may have a higher need for social validation (Twenge & Martin, 2020). However, empirical findings on this issue remain inconsistent (Stănculescu & Griffiths, 2022). Therefore, no specific hypothesis regarding gender differences was proposed in the present study.

Methods

Participants and procedure

The sample comprised 604 university students from Turkey (n = 369) and Kyrgyzstan (n = 235). Among the total sample, 75.8% were female, 37.6% were first-year students, and 79.5% reported being raised by both parents. The participants had a mean age of 20.44 years (SD = 2.41; range, 18–38 years) and a mean grade point average (GPA) of 60.08 (SD = 17.96; range, 18.75–100).

In the Turkish sample, 72.1% were female, 41.5% were first-year students, and 86.4% reported being raised by both parents. The mean age of the participants was 20.69 years (SD = 2.35; range, 18–38 years), and their mean GPA was 63.02 (SD = 15.44; range, 18.75–100). In the Kyrgyz sample, 81.7% were female, 31.5% were first-year students, and 68.5% reported

being raised by both parents. The participants had a mean age of 20.03 years ($SD = 2.45$; range, 18–32 years) and a mean GPA of 53.25 ($SD = 21.31$; range, 20–100).

Data were collected through an online survey distributed to university students enrolled at state universities in Turkey and Kyrgyzstan. Students from various departments and academic levels were invited to participate in the event. Initially, a total of 790 students completed the survey. However, after excluding incomplete and carelessly completed surveys, the final sample comprised 604 participants. Two attention check items were included in the survey to identify inattentive responses (e.g., “*If you are reading this, please select 58*”). Participants who failed either item were considered to have completed the survey carelessly and were excluded from the analyses.

The survey included measures related to the Dark Triad personality traits, Big Five personality traits, loneliness, attachment styles, and demographic information. Participation was voluntary, and all respondents provided informed consent before participating in the study. The study was conducted following the principles outlined in the Declaration of Helsinki, and ethical approval was obtained from the ethics board of the corresponding author’s institution (Ethics approval number: E-61923333-050.99-347499).

Measures

Short Dark Tetrad (SD4). The SD4 (Paulhus et al., 2021; Turkish version: Aytaç, 2022; Russian version: Корниенко et al., 2022) comprises 28 items assessing four dimensions: Machiavellianism (e.g., “*Avoid direct conflict with others because they may be useful in the future*”), narcissism (e.g., “*I have some exceptional qualities*”), psychopathy (e.g., “*I sometimes get into dangerous situations*”), and sadism. Sadism was not assessed. However, the SD4 was selected because validated Turkish and Russian versions are available. Participants rate the items on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores indicate greater levels of dark Triad personality traits.

Bergen Social Media Addiction Scale (BSMAS). The BSMAS (Andreassen et al., 2016; Turkish version: Demirci, 2019) comprises six items (e.g., “*You have tried to cut down on the use of social media without success*”) and assesses SMA as a single dimension. Participants rate the items on a 5-point Likert scale ranging from 1 (*very rarely*) to 5 (*often*). Higher scores reflect greater levels of social media use.

Revised UCLA Loneliness Scale (RULS-6). The RULS-6 (Wongpakaran et al., 2020) comprises six items (e.g., “*How often do you feel alone?*”) and assesses loneliness as a single factor. Participants rate the items on a 4-point Likert scale ranging from 1 (*never*) to 4 (*always*). Higher scores indicate greater loneliness.

Close Relationship Scale-Short Form (ECR-S). The ECR-RS (Wei et al., 2007) comprises 12 items (e.g., “*I need a lot of reassurance that caregiver loves me*”) and assesses two dimensions: avoidance and anxious attachment. Although initially designed to assess romantic relationships, the present study was adapted to evaluate participants’ attachment to primary caregivers during childhood. The scale can be used not only to assess attachment within a current romantic relationship but also to evaluate general adult attachment patterns (Brennan et al., 1998; Fraley et al., 2000). Moreover, Bowlby’s (1969) attachment theory emphasizes the continuity of attachment throughout the lifespan, suggesting that attachment styles developed in early relationships with caregivers may generalize to other types of relationships later in life (Mikulincer & Shaver, 2003). Participants rate the items on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores indicate higher levels of anxious or avoidant attachment.

Mini-International Personality Item Pool (Mini-IPIP). The Mini-IPIP (Donnellan et al., 2006) comprises 20 items assessing five personality dimensions: openness to experience (four items, e.g., “*Have a vivid imagination*”), conscientiousness (four items, e.g., “*Get chores done right away*”), extraversion (four items, e.g., “*Talk to a lot of different people at parties*”),

agreeableness (four items, e.g., “*Sympathize with others’ feelings*”), and neuroticism (four items, e.g., “*Get upset easily*”). Participants rate items on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores indicate higher levels of personality traits.

Demographics. To assess demographic characteristics, participants reported their gender (1 = female, 2 = male, 3 = prefer not to say, 4 = other), age (open-ended), academic year (open-ended), grade point average (open-ended), and primary caregiver during childhood (1 = mother and father, 2 = only mother, 3 = only father, 4 = grandparents, 5 = other family members, 6 = other/prefer not to say).

The items without existing adaptations were translated into Turkish by the researchers and then back-translated into English by a bilingual academic who was unfamiliar with the original items. After verifying semantic equivalence and making minor adjustments, the final Turkish version was produced. The Russian version was translated by an academic fluent in both Russian and Kyrgyz, and back-translated into English by another multilingual expert. The researchers reviewed all back-translations, and minor revisions were made to ensure conceptual and linguistic equivalence.

Data analysis

Descriptive statistics (means and standard deviations), reliability analyses (Cronbach’s alpha, McDonald’s omega, and composite reliability) (Table 2), correlation analyses (Table 3), and hierarchical multiple regression analyses (Table 4) were conducted to examine the relationships between the study variables. Additionally, group comparisons based on demographic variables were performed using independent samples *t*-tests and ANOVAs (Table 1). Statistical analyses were carried out using SPSS software (Version 24).

Results

Detailed demographic characteristics of the participants are presented in Table 1. Descriptive statistics, including means, standard deviations, and internal consistency coefficients (Cronbach's alpha, McDonald's omega, and composite reliability), for the study variables are presented in Table 2. The internal consistency values indicating acceptable to excellent reliability across all measures. No significant differences in BSMAS scores (i.e., SMA levels) were found between the Turkish and Kyrgyz samples.

Findings showed that females reported significantly higher BSMAS scores than males across the total sample and the Turkish subsample (Table 2). However, overall, no significant differences in BSMAS scores were observed between the Turkish and Kyrgyz samples (Table 3).

Significant differences were found between the Turkish and Kyrgyz samples in terms of gender distribution and primary caregiver during childhood. The Kyrgyz sample included a higher proportion of female participants and more diverse caregiving arrangements. In addition, Turkish students reported significantly higher scores in both age and GPA.

Table 1. *Demographic statistics and difference tests findings*

Total Sample						
	Variables	Category	N	%	Mean	t (or F)
	Gender	Female	458	75.8	3.27	5.88**
		Male	141	23.3	3.02	
		Did not want to specify	4	0.8	2.63	
	Grade	English preparation	69	11.4	3.26	2.39
		1st grade	227	37.6	3.28	
		2nd grade	154	25.5	3.14	
		3rd grade	70	11.6	3.33	
		4th grade	72	11.9	2.98	
	Primary caregiver	Mother and father	480	79.5	3.20	0.34
		Only mother	77	12.7	3.21	
		Only father	9	1.5	3.41	
		Only grandparents	28	4.6	3.22	
		Other family members	6	1.0	2.94	
		Other/Did not want to specify	4	0.7	3.54	
Turkish Sample						
	Gender	Female	266	72.1	3.25	2.22*
		Male	98	26.6	2.99	
		Did not want to specify	5	1.4	2.63	
	Grade	English preparation	4	1.1	3.33	2.04
		1st grade	153	41.5	3.27	
		2nd grade	123	33.3	3.09	
		3rd grade	45	12.2	3.34	
		4th grade	44	11.9	2.88	
	Primary caregiver	Mother and father	319	86.4	3.20	0.79
		Only mother	39	10.6	3.11	
		Only father	2	0.5	2.92	
		Only grandparents	9	2.4	2.74	
		Other family members	-	-	-	
		Other/Did not want to specify	-	-	-	
Kyrgyz Sample						
	Gender	Female	192	81.7	3.30	1.94
		Male	43	18.3	3.09	
		Did not want to specify	-	-	-	
		English preparation	65	27.7	3.26	

Grade	1st grade	74	31.5	3.30	0.43
	2nd grade	31	13.2	3.32	
	3rd grade	25	10.6	3.32	
	4th grade	28	11.9	3.13	
Primary caregiver	Mother and father	161	68.5	3.22	1.14
	Only mother	38	16.2	3.31	
	Only father	7	3.0	3.55	
	Only grandparents	19	8.1	3.45	
	Other family members	6	2.6	2.94	
	Other/Did not want to specify	4	1.7	3.54	

Note. ** $p < .01$, * $p < .05$.

Table 2. Descriptive statistics and internal consistency scores, independent sample t-test and Hedge's g for country comparison

Variables	Total					Turkey					Kyrgyzstan					t-test and Hedge's g test	
	M	SD	(α)	(ω)	CR	M	SD	(α)	(ω)	CR	M	SD	(α)	(ω)	CR	t	g
<i>Social media addiction</i>	3.21	0.85	.77	.77	.84	3.17	0.95	.80	.80	.86	3.26	0.67	.75	.77	.83	-1.22	0.11
<i>Dark Triad personality traits</i>																	
Narcissism	3.03	0.69	.76	.76	.83	3.04	0.78	.78	.78	.84	3.02	0.52	.66	.70	.79	0.42	0.03
Machiavellianism	3.18	0.66	.69	.70	.79	3.26	0.73	.70	.70	.80	3.06	0.50	.69	.67	.78	3.61***	0.31
Psychopathy	2.09	0.66	.72	.72	.81	1.97	0.72	.75	.75	.83	2.29	0.50	.63	.64	.76	-5.87***	0.50
<i>Big Five personality traits</i>																	
Openness to experience	3.74	0.72	.72	.72	.83	3.83	0.77	.71	.71	.82	3.60	0.61	.74	.74	.84	3.92***	0.32
Conscientiousness	3.60	0.79	.73	.73	.83	3.68	0.86	.74	.74	.84	3.47	0.63	.70	.70	.82	3.21**	0.27
Extraversion	3.11	0.85	.75	.76	.84	3.28	0.92	.77	.77	.85	2.85	0.65	.68	.69	.81	6.30***	0.52
Agreeableness	3.87	0.63	.74	.74	.84	3.99	0.67	.72	.72	.83	3.68	0.52	.73	.73	.83	6.13***	0.50
Neuroticism	3.33	0.78	.71	.71	.82	3.39	0.84	.71	.72	.82	3.22	0.67	.68	.68	.80	2.61**	0.22
Loneliness	2.61	0.81	.86	.86	.90	2.65	0.93	.89	.89	.91	2.53	0.58	.79	.79	.85	1.78	0.15
Avoidant attachment	2.42	0.79	.76	.76	.83	2.26	0.85	.76	.77	.84	2.66	0.62	.70	.70	.80	-6.29***	0.52
Anxious attachment	2.46	0.75	.71	.70	.81	2.44	0.82	.71	.70	.81	2.50	0.61	.72	.72	.81	-0.91	0.08

Note. M = mean, SD = standard deviation, α = Cronbach's alpha, ω = McDonald's omega, CR = composite reliability, g = Hedges' g.

SMA was positively and significantly correlated with neuroticism (Turkey: $r = .22$, Kyrgyzstan: $r = .19$), loneliness (Turkey: $r = .13$, Kyrgyzstan: $r = .39$), and anxious attachment (Turkey: $r = .26$, Kyrgyzstan: $r = .25$) in both samples. It was also negatively associated with conscientiousness in both samples (Turkey: $r = -.21$, Kyrgyzstan: $r = -.32$). In the Turkish sample, SMA was positively correlated with narcissism ($r = .13$) and Machiavellianism ($r = .11$), and negatively correlated with age ($r = -.14$), gender ($r = -.14$), and GPA ($r = -.23$). In contrast, in the Kyrgyz sample, SMA was positively associated with psychopathy ($r = .14$) and avoidant attachment ($r = .20$), and negatively associated with extraversion ($r = -.14$) (see Table 3). However, as can be seen, some of these associations were weak (i.e., below .15)

Table 3. *Correlation matrix of study variables*

Turkish Sample															
Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Social media addiction	-														
<i>Dark Triad</i>															
2. Narcissism	.13*	-													
3. Machiavellianism	.11*	.32***	-												
4. Psychopathy	.10	.33***	.27***	-											
<i>Big Five personality traits</i>															
5. Openness to experience	-.04	.14**	.05	-.09	-										
6. Conscientiousness	-.21***	.00	-.16**	-.24***	-.06	-									
7. Extraversion	.08	.34***	-.07	.05	.15**	-.02	-								
8. Agreeableness	.06	.01	-.08	-.24***	.29***	.06	.22***	-							
9. Neuroticism	.22***	-.10	-.07	.01	-.07	-.10	-.10	.13*	-						
10. Loneliness	.13*	-.02	.18**	.24***	-.10*	-.15**	-.38***	-.24***	.30***	-					
<i>Close relationship</i>															
11. Avoidance attachment	.02	.01	.08	.32***	-.07	-.09	-.12*	-.27***	.08	.36***	-				
12. Anxiety attachment	.26***	.10	.08	.29***	-.18**	-.11*	-.08	-.18**	.26***	.40***	.48***	-			
<i>Demographic</i>															
13. Age	-.14**	-.10	.03	-.02	.00	-.01	-.14**	.00	-.10	.04	.05	.01	-		
14. Gender	-.14**	.03	.17**	.17**	.01	-.08	-.03	-.18**	-.30***	-.07	.03	-.08	.08	-	
15. Grade point average	-.23***	-.03	.03	-.22***	.10	.14*	-.06	.08	-.02	.01	-.15**	-.09	.14**	-.06	-
Kyrgyz Sample (N = 235)															
1. Social media addiction	-														
<i>Dark Triad personality traits</i>															
2. Narcissism	.03	-													
3. Machiavellianism	.12	.20**	-												
4. Psychopathy	.14*	.35***	.24***	-											
<i>Big Five personality traits</i>															
5. Openness to experience	-.07	.16*	-.02	.11	-										
6. Conscientiousness	-.32***	.07	-.11	-.04	.00	-									
7. Extraversion	-.14*	.57***	.03	.20**	.24***	.06	-								
8. Agreeableness	-.11	.04	-.26***	-.13*	.21**	.06	.18**	-							
9. Neuroticism	.19**	-.01	-.13*	-.03	-.03	-.06	.00	.05	-						
10. Loneliness	.39***	-.06	.08	.10	-.10	-.26***	-.22**	-.05	.30***	-					
<i>Close relationship</i>															
11. Avoidant attachment	.20**	-.04	.15*	.12	-.10	-.01	-.14*	-.13*	-.00	.24***	-				
12. Anxiety attachment	.25***	-.06	.03	.13*	-.05	-.06	-.04	-.04	.11	.26***	.40***	-			
<i>Demographic</i>															
13. Age	-.05	-.08	-.06	.00	.03	.13	-.01	.14*	.00	-.03	.04	-.004	-		
14. Gender	-.12	-.02	.24***	.28***	.01	.03	-.01	-.04	-.32***	-.08	.09	-.10	.05	-	
15. Grade point average	-.06	.03	-.07	.02	-.08	.05	-.04	.07	-.05	-.01	-.13	-.08	-.01	-.06	-

Note. *** $p < .001$, ** $p < .01$, * $p < .05$. Gender (1 = male, 2 = female).

A four-step hierarchical multiple regression analysis was conducted to identify predictors of SMA, incorporating demographic variables, Dark Triad traits, Big Five personality dimensions, and factors such as attachment styles and loneliness. Across both samples, conscientiousness was the strongest negative predictor of SMA ($\beta = -.18$ in Turkey; $\beta = -.23$ in Kyrgyzstan). Among the Turkish sample, anxious attachment ($\beta = .24$) and neuroticism ($\beta = .11$) significantly predicted SMA in the final model. Among the Kyrgyz sample, loneliness ($\beta = .21$) was the only significant predictor in the final model. Neuroticism showed a positive association in Step 3 ($\beta = .15$), but it did not remain significant in the final model. Extraversion was significant in Step 3 ($\beta = -.19$) but not in Step 4. Gender significantly predicted SMA in both samples, but its effect size diminished in later steps. While none of the Dark Triad traits predicted SMA in the Turkish sample, Machiavellianism ($\beta = .14$) and psychopathy ($\beta = .19$) significantly predicted SMA in the Kyrgyz sample at Step 2. Psychopathy remained significant in Step 3 ($\beta = .16$), but its effect size diminished in the final model. The adjusted R^2 values were .15 for Turkey and .23 for Kyrgyzstan. Based on the findings of the regression analyses, H₅ and H₈ were fully supported, H₂, H₃, H₆, and H₉ were partially supported, while H₁, H₄, H₇, and H₁₀ were not supported.

Table 4. *Regression analysis (standardized coefficients) of demographic variables, Dark Triad traits, Big Five personality traits, loneliness, and attachment styles on social media addiction*

Dependent variable	Social media addiction			
<i>Turkish sample</i>				
Independent variables	Step 1 [CI]	Step 2 [CI]	Step 3 [CI]	Step 4 [CI]
Constant	4.60*** [3.73, 5.47]	3.77*** [2.77, 4.77]	3.61*** [2.16, 5.06]	3.20*** [1.73, 4.67]
<i>Personal/demographic variables</i>				
1. Age	-.13* [-.09,-.01]	-.13* [-.09, -.01]	-.11 [-.08, -.01]	-.11 [-.08, -.01]
2. Gender	-.13* [-.44,-.05]	-.16** [-.51, -.11]	-.10* [-.41, .00]	-.09 [-.37, .03]
<i>Dark Triad personality traits</i>				
3. Narcissism		.06 [-.06, .21]	.09 [-.03, .25]	.06 [-.06, .22]
4. Machiavellianism		.10 [-.01, .27]	.09 [-.02, .26]	.09 [-.03, .25]
5. Psychopathy		.08 [-.04, .24]	.02 [-.13, .17]	-.01 [-.16, .14]
<i>Big five personality traits</i>				
7. Openness to experience			-.07 [-.21, .04]	-.05 [-.18, .08]
8. Conscientiousness			-.19** [-.32, -.10]	-.18** [-.30, -.08]
9. Extraversion			.04 [-.07, .16]	.06 [-.05, .18]
10. Agreeableness			.05 [.09, .22]	.06 [-.07, .24]
11. Neuroticism			.17** [.07, .31]	.11* [.00, .25]
<i>Other variables</i>				
12. Loneliness				.04 [.09, .16]

13. Avoidant attachment				-.11 [-.26, .00]
14. Anxiety attachment				.24*** [.14, .4]
R ² (adjusted)	.03	.05	.11	.15
F for R ²	6.87**	5.14***	5.71***	5.95***
ΔR ²		.03	.07	.04
F for ΔR ²		3.87**	5.94***	5.97***
Dependent variable	Social media addiction			
<i>Kyrgyz sample</i>				
Independent variables	Step 1 [CI]	Step 2 [CI]	Step 3 [CI]	Step 4 [CI]
Constant	3.75*** [3.01, 4.49]	2.04*** [2.04, -4.05]	3.75** [2.43, 5.07]	2.71*** [1.35, 4.05]
<i>Personal/demographic variables</i>				
1. Age	-.04 [-.09, .02]	-.00 [-.09, .02]	.01 [-.03, .03]	.00 [-.03, .03]
2. Gender	-.13* [-.43, .01]	-.21** [-.59, .13]	-.14* [-.46, -.00]	-.12 [-.43, .02]
<i>Dark Triad personality traits</i>				
3. Narcissism		-.08 [-.27, .08]	.09 [-.09, .31]	.07 [-.10, .29]
4. Machiavellianism		.14* [.00, .36]	.09 [-.06, .29]	.06 [-.09, .25]
5. Psychopathy		.19* [.06, .44]	.16* [.03, .39]	.10 [-.04, .32]
<i>Big five personality traits</i>				
7. Openness to experience			-.05 [-.19, .09]	-.03 [-.16, .10]
8. Conscientiousness			-.28*** [-.43, -.17]	-.23*** [-.38, .12]
9. Extraversion			-.19* [-.35, -.05]	-.12 [-.27, .03]
10. Agreeableness			-.02 [-.19, .14]	-.02 [-.19, .13]
11. Neuroticism			.15* [.02, .27]	.08 [-.05, .20]
<i>Other variables</i>				
12. Loneliness				.21** [.09, .40]
13. Avoidant attachment				.08 [-0.5, .23]
14. Anxiety attachment				.11 [-.03, .25]
R ² (adjusted)	.01	.06	.16	.23
F for R ²	2.03	3.30**	5.51***	6.24***
ΔR ²		.05	.10	.07
F for ΔR ²		3.30**	6.51***	6.24***

Note. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, Gender (1 = female, 2 = male). CI = Confidence interval based on unstandardized coefficients (B).

Discussion

The present study examined potential individual determinants of SMA, including the Dark Triad and Big Five personality traits, loneliness, and attachment styles developed with caregivers during childhood. The research was conducted comparatively in Turkey and Kyrgyzstan, with the latter country having received limited attention in previous studies regarding the relationship between these variables and SMA. The study's primary goal was to identify which variables exert a more substantial influence on SMA. Of the 11 hypotheses developed, two were fully supported (H₅ and H₈), four were partially supported (H₂, H₃, and H₆, H₉), and the remaining hypotheses were rejected.

Narcissism was not a significant predictor of SMA in either sample. Therefore, H₁ was not supported. This finding contradicts some previous studies (Siah et al., 2021; Choi, 2018).

However, narcissistic tendencies may not necessarily predict SMA due to various reasons. From the perspective of social media use patterns, individuals with high levels of narcissism typically engage in frequent sharing of self-enhancing content and regular profile updates (Buffardi & Campbell, 2008). Such behaviors are often strategic, and therefore, the key components of addiction—such as loss of control, salience, and tolerance (Griffiths, 2005)—may not be present. Moreover, narcissistic individuals may also use social media to maintain relationships with family members and their social circles (Kircaburun et al., 2018), which may not necessarily reflect addictive patterns of use.

Machiavellianism was a significant predictor of SMA only in the Kyrgyz sample. Therefore, H₂ was only partially supported. Individuals high in Machiavellianism tend to manipulate others to serve their interests (Paulhus & Williams, 2002). Accordingly, Machiavellian individuals may use social media primarily to manipulate or collect information (Abell & Brewer, 2014; Kircaburun et al., 2018). Given the strategic and goal-oriented nature of such use (Siah et al., 2021), these individuals may engage with social media in a more controlled and limited way. Additionally, because they value power and status, they may carefully manage their online presence to maintain a positive image, further discouraging problematic or compulsive use. These tendencies may help explain why the hypothesis was only partially supported.

Psychopathy was only a significant predictor of SMA in Kyrgyz. Therefore, H₃ was only partially supported. Previous studies have suggested that psychopathy is significantly associated with problematic online behaviors, such as cyberbullying and online aggression (Goodboy & Martin, 2015), trolling (Buckels et al., 2014) and other deviant behaviors in digital environments (Moor & Anderson, 2019). These behaviors are often attributed to the impulsive nature of these traits, combined with the anonymity of online platforms. However, impulsivity does not always lead to compulsive and uncontrollable use indicative of addiction (Siah et al.,

2021). Rather, such tendencies may be more reactive and sporadic in nature. Moreover, individuals high in psychopathy may use online platforms mainly for manipulative or aggressive purposes, which may result in more purposeful and less frequent engagement with social media.

Openness to experience did not significantly predict SMA in either sample. Therefore, H₄ was not supported. Although individuals high in openness often use social media to satisfy diverse personal interests (Gil De Zúñiga et al., 2017), the widespread and routine nature of social media platforms in contemporary society may have reduced their novelty, leading to diminished interest among such individuals (Ross, 2023). Moreover, even when they do engage with social media for artistic, informational, or curiosity-driven purposes, their use may be more selective, controlled and content-oriented rather than excessive or addictive.

Conscientiousness was found to predict SMA negatively in both samples (supporting H₅). These findings underscore the protective role of conscientiousness and self-regulation abilities in controlling problematic social media use (Akbari et al., 2023). Consistent with previous research (Buckner et al., 2012; Landers & Lounsbury, 2006), individuals with lower levels of conscientiousness appear to be more susceptible to SMA. In contrast, highly conscientious and diligent individuals are more likely to engage in limited and purposeful social media use, often for educational rather than entertainment purposes (Akbari et al., 2023; Landers & Lounsbury, 2006). Individuals with high levels of conscientiousness tend to fulfill their duties and responsibilities in a timely and organized manner, which reflects stronger self-regulatory abilities. Their strong and negative prediction of SMA therefore supports the self-regulation theory.

Extraversion was found to be a weak significant predictor of SMA in Kirghizstan, and therefore, H₆ was only partly supported. Although individuals high in extraversion often have a greater need for socialization, which may manifest in maintaining larger social networks on

social media (Ross et al., 2009), and their use patterns appear to be more goal-directed and controlled rather than excessive or addictive. Therefore, extraversion may facilitate social interaction without necessarily leading to problematic behavior.

Agreeableness did not significantly predict SMA in either sample. Therefore, H₇ was not supported. Individuals with high agreeableness tend to use social media primarily for communication purposes rather than for self-promotion or aggressive behaviors (Landers & Lounsbury, 2006). Consistent with previous findings (Ross et al., 2009), agreeable individuals may avoid superficial or conflict-laden online interactions, which could explain the lack of association between agreeableness and SMA.

Neuroticism positively predicted SMA in both Turkish and Kyrgyz samples (supporting H₈). Individuals high in neuroticism often experience emotional distress and may use social media excessively as a coping mechanism to alleviate negative emotions and escape from daily stress (Akbari et al., 2023; Dong et al., 2012). This tendency may increase their susceptibility to problematic social media use in specific cultural contexts. Moreover, emotional instability may impair individuals' attention, behavioral, and impulse control capacities, reflecting deficits in self-regulation (Auerbach et al., 2007), which in turn may trigger problematic social media use. This finding supports the self-regulation theory perspective.

Loneliness only predicted SMA in the Kyrgyz sample (partially supporting H₉). Feelings of loneliness often result from a lack of emotional and social support (Luo & Hu, 2022), leading individuals to seek connections through social media platforms (Boursier et al., 2020). Moreover, negative mood states and psychological distress associated with loneliness, such as depression and anxiety (Moeller & Seehuus, 2019), may be temporarily alleviated through social media engagement (Luo & Hu, 2022). In the Kyrgyz context, social media may have served as a coping mechanism for loneliness (Kassim & Badayai, 2023).

In the Turkish sample, caregiver-related anxious attachment significantly and positively predicted SMA, whereas avoidant attachment did not. In contrast, neither anxious nor avoidant attachment predicted SMA in the Kyrgyz sample. Therefore, H_{10} was not supported, and H_{11} received partial support. Consistent with previous research (Blackwell et al., 2017; Hart et al., 2015), individuals with higher levels of caregiver-related anxious attachment tend to experience fears of rejection, abandonment concerns, low self-esteem, and a heightened need for approval. These characteristics may lead such individuals to seek validation and emotional reassurance through ‘likes’ and comments on social media (Lin, 2015; Reiner et al., 2017), thereby increasing their susceptibility to SMA.

Irrespective of culture, gender emerged as a significant predictor of SMA, and it was observed that females used social media more frequently than males. Similar trends have been frequently reported in the literature (Andreassen et al., 2017; Monacis et al., 2017). However, the substantially higher proportion of female participants compared to males in both countries may also have contributed to this result. Despite this gender imbalance in the sample, several factors may lead females to spend more time on social media platforms. Females may use social media more for communication and social interaction than males. Additionally, it is noteworthy that females may share more of their appearance and lifestyle and curate photos, especially on visual platforms such as *Instagram* (Baker et al., 2019). Additionally, females may use social media channels more actively than males to raise social awareness and participate in social responsibility initiatives, such as online campaigns against gender-based violence (Mendes & Ringrose, 2019), or community fundraising efforts (Saxton & Wang, 2014).

In the Kyrgyz sample, the Cronbach’s alpha coefficients for the Dark Triad, extraversion, and neuroticism variables were slightly below 0.70. However, the composite reliability coefficients exceeded 0.70. These values are within the acceptable limits for social science research (Hair et al., 2019). Although minor measurement error cannot be ruled out, it

is unlikely to have significantly affected the results. Another issue that needs to be noted is that although the R^2 values were relatively modest, this was expected given that SMA is influenced by a wide range of psychological and situational factors. Therefore, even small effect sizes can be meaningful. Nevertheless, the relatively strong effect of conscientiousness underscores the protective role of self-regulation in preventing problematic social media use.

Country-specific variations in the findings

The findings indicated that conscientiousness and neuroticism were negatively and positively predicted by SMA, demonstrating consistency across cultural contexts. Moreover, BSMAS scores (i.e., level of SMA) did not significantly differ between Turkey and Kyrgyzstan. Extraversion, loneliness, Machiavellianism, psychopathy, and attachment styles exhibited culturally specific predictive patterns, but these differences reflected small effect sizes.

Overall, Turkey and Kyrgyzstan shared cultural similarities, both characterized by high power distance and collectivist tendencies (Hofstede Insights, 2025; Najimudinova, 2013). These parallels are rooted in historical ties, linguistic commonalities, and geographical proximity. Moreover, both countries display similarities in communication styles, social norms, and family structures. High proportions of young populations and comparable educational systems further reinforce this parallelism. The coexistence of traditional values and modern lifestyles also represents a shared societal feature. Collectively, these elements form the cultural and social foundation of the similarities between Turkey and Kyrgyzstan (Akıncı & Akzholova, 2020; Derviş, 2017).

The fact that Machiavellianism predicted SMA among the Kyrgyz sample, but not among the Turkish sample, may be explained by Kyrgyzstan's higher level of community-based relationship norms (Najimudinova, 2013). This is because when community-based norms are very high, individuals may prefer to engage in more limited communication in face-to-face interactions, depending on the other party's social standing, and prefer to communicate through

indirect means or channels (Mambaeva, 2022). Therefore, individuals with high Machiavellian tendencies may utilize online social media platforms as a means to indirectly manage the flow of power and information, particularly when establishing tactical or strategic relationships. Similarly, psychopathy predicted SMA only in the Kyrgyz sample. Kyrgyzstan has a cultural structure that places great emphasis on social roles within the framework of social values and traditions (Mambaeva, 2022). In such cultures, individuals' impulsive behaviors may be limited to face-to-face interactions to avoid distorting personal perceptions and social ostracism. However, indirect expression of anger and a quest for power and control may be more likely in online environments such as social media platforms. This may lead individuals with psychopathy to use social media for manipulation or provocation.

In Kyrgyzstan, the motivation to share information and maintain community relationships was found to be high in online interactions (Kurambayev, 2018). Therefore, individuals high in extraversion may also fulfill their need for interaction with others on social media platforms. On the other hand, the differential predictive effects of loneliness on SMA across countries may be associated with cultural variations and national dynamics. There may be several reasons why loneliness was found to be a significant predictor of SMA in Kyrgyzstan. Although Turkey embodies a collectivist culture, Kyrgyzstan is also considered a highly collectivist society, possibly higher than Turkey (Özdil et al., 2014; Najimudinova, 2013). Research suggests that higher levels of collectivism are associated with a greater susceptibility to SMA (Cheng et al., 2021). This cultural orientation may increase the need for close and deep face-to-face relationships. The growing prevalence of digital technologies in Kyrgyzstan (Kemp, 2024) and the increasing trend of individualization among younger generations in Kyrgyzstan (Yılmaz, 2019) may have facilitated the fulfillment of socialization needs through online platforms.

Irrespective of cultural context, the non-significant association between avoidant attachment and SMA may be explained by the tendency of individuals with this attachment style to use social media in a more passive and observational manner, avoiding emotional involvement and social interaction (Hart et al., 2015). Individuals with high levels of avoidant attachment tend to distance themselves from close relationships, prioritize independence, and often lack trust in others. These characteristics may reduce their likelihood of engaging in problematic social media use (Bartholomew & Horowitz, 1991).

Limitations and future research directions

The present study has several limitations that should be acknowledged. First, the data were collected exclusively from university students using a convenience sampling method without consideration of program diversity, and the mean age of participants was approximately 20 years, which limits the generalizability of the findings to the broader populations of Turkey and Kyrgyzstan. Additionally, the study employed a cross-sectional design, which restricts the ability to infer causal relationships between the variables examined. Another limitation was the use of self-report measures, which are susceptible to various biases, such as social desirability, limited self-awareness, and memory distortions. Moreover, the predominance of female participants in the study sample limits the generalizability of the findings. Therefore, future studies should include a more balanced gender distribution.

Although cultural differences were considered in the study design, culture is a complex and multi-layered construct. Therefore, macro-level indicators such as those proposed by Hofstede Insights (2023, 2025) may not fully capture the nuances of individual experiences and cultural expressions within each society. Future research should address these limitations by investigating the individual antecedents of SMA across a more diverse range of age groups and occupational categories. Cross-cultural comparative studies involving different sociocultural contexts could further enrich the literature. In addition, complementing self-report measures

with objective behavioral data—such as app use statistics and social media interaction metrics—would enhance the validity of future findings. Moreover, studies using samples from cultures with varying degrees of individualism and collectivism are recommended. These could explore multi-level predictors of SMA, including individual-level factors (e.g., personality traits, upbringing, parental styles), familial factors (e.g., parent-child communication, marital satisfaction), and social factors (e.g., friendship quality, social satisfaction).

Conclusion

The findings of the present study showed that SMA is associated with only specific individual factors. Low conscientiousness emerged as the most consistent and strongest negative predictor of SMA in both country samples. Additionally, neuroticism positively predicted SMA in both Turkey and Kyrgyzstan. Anxious attachment was a significant positive predictor only in the Turkish sample, while loneliness was uniquely predictive of SMA in the Kyrgyz sample. In contrast, narcissism did not significantly predict SMA in either sample. These results suggest that deficits in self-regulation and emotional vulnerability play a crucial role in the development of SMA. In contrast, individuals with narcissistic tendencies may engage with social media in a more goal-directed and functional manner rather than in an addictive way. In sum, both universal and culturally sensitive approaches should be developed when addressing SMA. While self-regulatory deficits appear to be a universally prevalent mechanism in predicting SMA, culture-specific dynamics, such as early attachment experiences and social relationships, should also be taken into consideration. Considering both culture-specific and universal dynamics can help develop more effective prevention and intervention strategies for SMA.

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