


# Developing a Predictive Model of Antisocial Personality Traits Based on Social Media Addiction Considering the Mediating Role of Psychological Flexibility Among Students

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## ABSTRACT

**Objective:** The aim of the present study was to develop a predictive model of antisocial personality traits based on social media addiction, considering the mediating role of psychological flexibility among students in Shahrekord.

**Methods and Materials:** The research method was correlational, using structural equation modeling, and the study was applied in terms of its objective. The statistical population included students from Shahrekord Islamic Azad University (7,787), Shahrekord University of Medical Sciences (2,385), and Shahrekord Public University (8,200), amounting to a total of 18,372 individuals. A sample size of 384 participants was determined based on the research objectives, variables, and Cochran's formula, using a multi-stage cluster sampling method. The research instruments included the Antisocial Behavior Questionnaire by Robinson and O'Leary-Kelly (1998), the Social Media Usage Questionnaire by Rasoolabadi (2015), and the Psychological Flexibility Questionnaire by Dennis and Vander Wal (2010). To test the research model, the two-step approach proposed by Anderson and Gerbing (1988) was employed, and the study's model was developed accordingly. All analyses were performed using AMOS 24 for structural equation modeling. Descriptive statistics (mean, standard deviation, and frequency) and inferential statistics (correlation matrix, regression, and fit indices) were utilized.

**Findings:** The findings indicated that model validation was assessed using goodness-of-fit indices. Results from the fit indices demonstrated that the measured model exhibited an acceptable level of fit.

**Conclusion:** It can be concluded that the predictive model of antisocial personality traits based on social media addiction, considering the mediating role of psychological flexibility among students in Shahrekord, has a satisfactory fit.

**Keywords:** Antisocial personality traits, social media addiction, psychological flexibility.

## 1. Introduction

An individual's personality can be described as a set of characteristics that shape their behavior across various situations. Typically, these behaviors are repeated in similar circumstances. Understanding a person's personality enables us to predict their reactions in comparable situations. Recognizing personality traits can help identify individuals' potential needs and allow intelligent systems to adapt to those needs. Moreover, understanding personality facilitates the development of adaptive systems for various purposes, including commercial and political goals (Khosravi & Abdolhosseini, 2022).

Most individuals tend to respond to phenomena in a relatively predictable and unique manner. At the same time, they possess a degree of adaptive flexibility. This capacity for learning and adaptation is often lacking in individuals with personality disorders. These individuals are rarely psychotic as they usually maintain good control over reality. Personality disorders comprise a group of disorders characterized by rigid personality traits and an inability to adapt to the cultural norms of the society in which one lives (Soraya et al., 2017). Globally, personality disorders affect 1.6% of the general population (Sadeghian-Lemraski et al., 2024; Veenstra-Spruit et al., 2024; Weatherford et al., 2024).

Antisocial personality disorder (ASPD) is marked by antisocial behavior and an inability to conform to societal norms, particularly in adolescents and young adults. Individuals with ASPD often appear normal, warm, and even charming. However, lying, truancy, running away from home, theft, fighting, substance abuse, and illegal activities are typical experiences in their early childhood (Asgarizadeh & Ghanbari, 2022). These individuals do not exhibit delusions or other signs of irrational thinking. Patients with ASPD display abnormal patterns of thought, emotion, and behavior, leading to mental or functional impairments (Wojciechowski, 2023).

Individuals with ASPD show a consistent disregard for and violation of others' rights in almost all aspects of life. They often exhibit irresponsibility through repeated law-breaking or failure to meet financial obligations (Salahian et al., 2021). Laghmannia and Rahimi (2019) and Rafezi and Shojaei (2018) found a significant relationship between personality traits and the use of virtual social networks (Loghmannia & Rahimi, 2019; Rafezi & Shojaei, 2018).

Kalidari (2022) selected 110 virtual space users as participants in a study (55 who posted images of themselves and 55 who did not) and concluded that social media could

influence individuals' personality traits (Kalidari, 2022). Similarly, Faramarzi (2023) conducted a library-based study and found that internet usage, including social media, could be beneficial or lead to internet addiction. Psychological factors play a significant role in internet appeal. Internet addiction, like substance addiction, is associated with symptoms such as anxiety, depression, irritability, restlessness, obsessive thoughts, withdrawal, emotional disturbances, and disrupted social relationships (Faramarzi, 2023).

While virtual interactions increase, especially among adolescents and young adults, real-world social relationships often decline, potentially impacting their academic performance. Consequently, social media addiction could be considered a contributing factor to antisocial personality traits. Today, social media networks play a vital role in global interactions. The World Health Organization (WHO) has noted that social media has become an inseparable part of most people's lives, with over 45% of individuals regularly using social media platforms and 97% of students utilizing at least one platform, such as YouTube, Facebook, Instagram, or Snapchat (Neverkovich et al., 2018).

Chóliz and Marco (2012) observed that social media tools are primarily used by adolescents and young adults to expand their social circles and share experiences and information, making social media a powerful tool (Chóliz & Marco, 2012). The ability of virtual social networks to create new forms of human communities has attracted the attention of numerous researchers to study various social topics related to these platforms (Haeri et al., 2021; Noghani & Charkhzarin, 2013).

Social media addiction is considered a subset of internet addiction and falls under the category of behavioral addictions. Today, addiction is not limited to substance use but can also include habitual engagement in certain activities (Kahouei et al., 2020). Social media addiction prevents individuals from controlling or stopping their device usage, leading them to constantly send messages or remain online in all circumstances (Barnes et al., 2019). Amina and Ebtisam (2023) showed that individuals who exhibit aggressive behavior on social media are more likely to develop antisocial behaviors (Amina & Ibtissam, 2023). Similarly, Shaeri and Mashayekh (2020) demonstrated a positive and significant relationship between all dimensions of antisocial personality and virtual space addiction (Shaeri & Mashayekh, 2020). The mediator variable in this study is a factor that can influence the relationship between variables and overall research outcomes. In examining the relationship

between antisocial personality traits, social media addiction, and loneliness, several individual factors may act as mediators. One such variable is psychological flexibility.

Psychological flexibility refers to the ability to rearrange different elements of knowledge adaptively to meet specific needs for problem-solving or understanding a situation (Uddin, 2021). It includes the capacity to adopt or process cognitive changes to cope with new or unexpected environmental conditions. This characteristic involves learning, memory adaptation, and cognitive behavioral adjustment to environmental changes (Maramis et al., 2021). Cognitive flexibility plays a vital role in adapting to constantly changing environments and is associated with behaviors such as creativity, problem-solving, and decision-making (Ionescu, 2012). Research evaluating the effects of stress on cognitive flexibility has primarily relied on neuropsychological or behavioral assessments (Gabrys et al., 2018; Goldfarb et al., 2017). Cognitive flexibility is a dynamic process that leads to positive adaptation to changing environments, helping individuals understand difficult conditions, cope with and accept new situations, embrace diverse perspectives, and respond logically (Pineda-Alhucema et al., 2018). Research evidence suggests that cognitive flexibility is related to a wide range of psychological disorders (Morris & Mansell, 2018).

Fatemi Nia et al. (2022) found a significant relationship between cognitive flexibility and borderline personality disorder traits (Fatemi Nia et al., 2022). Considering the limited research on psychological flexibility as a mediator in predicting antisocial personality traits based on social media addiction, the present study aims to address the question: Does psychological flexibility mediate the relationship between antisocial personality traits and social media addiction among students in Shahrekord?

## 2. Methods and Materials

### 2.1. Study Design and Participants

The research method is correlational in nature, employing structural equation modeling (SEM), and is applied in terms of its objective. (Structural equation modeling is a method for examining relationships among latent variables, simultaneously considering observable variables. Latent variables represent the main factors depicted in a conceptual model, while observable variables are the items or questions designed to measure these main factors).

The statistical population consisted of students from Shahrekord Islamic Azad University (7,787), Shahrekord

University of Medical Sciences (2,385), and Shahrekord Public University (8,200), amounting to a total of 18,372 individuals. A sample size of 384 participants was determined based on the research objectives, variables, and using the Cochran formula with a multi-stage cluster sampling method.

One of the primary components of any research is data collection. If performed systematically and accurately, data analysis and deriving conclusions can be conducted efficiently and precisely. To confirm or reject hypotheses, the researcher must gather the necessary data and analyze it to derive conclusions after hypothesis testing. The choice of data collection tools depends on the research method or approach.

### 2.2. Measures

#### 2.2.1. Antisocial Behavior

The Antisocial Behavior Questionnaire was designed by Robinson and O'Leary-Kelly in 1998 to assess antisocial behavior. The questionnaire consists of 9 items measured on a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), with questions such as "I have damaged property that belongs to my organization or employer." Scores for each subscale are calculated by summing the relevant items, while the total score is obtained by summing all questionnaire items. The score range is between 9 and 45, with higher scores indicating greater antisocial behavior. In the study by Zahiri Hersini (2012), the content, face, and criterion validity of this questionnaire were evaluated as satisfactory. Reliability refers to the degree of consistency in the measurement results under the same conditions (Sarmad et al., 2011). The Cronbach's alpha coefficient calculated in Zahiri Hersini's (2012) study for this questionnaire was estimated to be above 0.7 (Amina & Ibtissam, 2023; Asgarizadeh & Ghanbari, 2022; Shaeri & Mashayekh, 2020).

#### 2.2.2. Social Media Addiction

The Social Media Usage Questionnaire developed by Rasoolabadi (2015) consists of 13 closed-ended items rated on a five-point Likert scale. The questionnaire measures five dimensions: commitment and enjoyment, social pressure, substitute engagement, opportunities for participation, and personal investment. The Likert scale ranges from 1 (never) to 5 (always), with scores ranging from a minimum of 13 to a maximum of 65. A score between 13 and 21 indicates low

social media usage, 22 to 44 reflects moderate usage, and scores above 44 signify high usage. In Rasoolabadi's (2015) study, the Cronbach's alpha test results indicated that both the total score ( $\alpha = 0.783$ ) and the scores of individual items exceeded the standard threshold of acceptability. Therefore, the questionnaire demonstrated reliability. For validity, expert opinions, including those of academic supervisors and specialists, were sought regarding the relevance, clarity, and comprehensibility of the questions, and the questionnaire was approved (Faramarzi, 2023; Haeri et al., 2021; Kahouei et al., 2020).

### 2.2.3. Psychological Flexibility

The Psychological Flexibility Questionnaire was introduced by Dennis and Vander Wal in 2010 as a brief, self-report tool consisting of 20 items. It measures a type of flexibility necessary for replacing dysfunctional thoughts with more functional ones, assessing progress in clinical and non-clinical work, including cognitive-behavioral therapy for depression and other mental disorders. The questionnaire evaluates three dimensions of cognitive flexibility: a) Willingness to perceive challenging situations as understandable (perceived controllability: items 1, 2, 4, 7, 9, 11, 15, 17). b) Ability to understand multiple alternative explanations for life events and human behavior (perceived explanation: items 8, 10). c) Ability to generate multiple alternative solutions to difficult situations (perceived options: items 3, 5, 6, 12, 13, 14, 16, 18, 19, 20). The questionnaire employs a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree), with items 2, 4, 7, 9, 11, and 17 reverse scored. Total scores range from 20 to 140. In Dennis and Vander Wal's (2010) study, concurrent validity with the Beck Depression Inventory was

reported as -0.39, and convergent validity with the Martin and Rubin Cognitive Flexibility Scale was 0.75. Reliability was assessed using Cronbach's alpha (overall scale = 0.91, perceived controllability = 0.84, perceived options = 0.91) and test-retest methods (overall scale = 0.81, perceived controllability = 0.77, perceived options = 0.75). In Iran, Shara et al. (2013) reported a test-retest reliability of 0.71 and Cronbach's alpha coefficients of 0.90 for the overall scale and 0.87, 0.89, and 0.55 for the subscales. Fazeli et al. (2014) reported a Cronbach's alpha of 0.75 for the questionnaire (Fatemi Nia et al., 2022; Shabannejad et al., 2021).

### 2.3. Data Analysis

The two-step method proposed by Anderson and Gerbing (1988) was utilized to examine the research model. Subsequently, the present research model was developed accordingly. All analyses were conducted using version 24 of the AMOS structural equation modeling software. Descriptive statistics (mean, standard deviation, frequency) and inferential statistics (correlation matrix, regression, fit indices) were employed.

## 3. Findings and Results

Male respondents accounted for 58% (224 individuals), and female respondents accounted for 42% (160 individuals). Respondents aged 38 to 46 years had the lowest frequency (4%, 16 individuals), while those aged 20 to 28 years had the highest frequency (85%, 325 individuals). Respondents pursuing an associate degree had the lowest frequency (9%, 33 individuals), while those pursuing a bachelor's degree had the highest frequency (80%, 306 individuals).

**Table 1**

*Mean, Standard Deviation, Skewness, and Kurtosis of Research Variables*

Variable	Mean	SD	Skewness	Kurtosis
Social media addiction	54.38	5.243	0.058	-0.538
Emotional loneliness	68.29	4.974	-0.003	-0.482
Social loneliness	58.17	3.386	-0.076	-0.581
Total loneliness score	26.47	7.070	0.053	-0.568
Perceived controllability	99.30	5.971	0.124	-0.446
Perceived behavior explanation	14.08	2.239	-0.127	-0.515
Perceived alternative solutions	58.39	6.288	0.046	-0.504
Total psychological flexibility	71.78	12.010	0.115	-0.415
Antisocial personality	55.26	3.961	-0.093	-0.487

The findings indicate that the variable "total psychological flexibility" had the highest mean, while "perceived behavior explanation" had the lowest mean. The normality of variables was assessed at a 0.05 significance

level and with 95% confidence. According to statistical standards, skewness values within  $\pm 3$  and kurtosis values below 10 indicate normal distributions. Therefore, the variables in this study follow a normal distribution (Table 1).

**Table 2**

*Structural Model of the Relationship Between Social Media Addiction and Antisocial Personality Traits*

Variables	Unstandardized Coefficient	SE	Standardized Coefficient	Critical Ratio	Significance Level
Social media addiction → Antisocial personality	0.175	0.034	0.24	5.128	0.001

The results in Table 2 show the standardized coefficients and critical values. A positive relationship ( $\beta = 0.24$ ) was found between social media addiction and antisocial

personality traits, which is significant at the 0.01 level. This indicates that as social media addiction increases among students, their antisocial personality traits also increase.

**Table 3**

*Indirect Effects of Social Media Addiction Mediated by Psychological Flexibility on Antisocial Personality Traits Using Bootstrap Test*

Independent Variable	Mediating Variable	Dependent Variable	Direct Effect	Indirect Effect	Total	Lower CI	Upper CI	Significance Level
Social media addiction	Psychological flexibility	Antisocial personality	0.24	0.11	0.35	0.068	0.163	0.001

The results in Table 3 demonstrate the indirect effects of the independent variable on the dependent variable through the mediating variable. The confidence interval (CI) ranges from 0.068 to 0.163, with a 95% confidence level and 1,000 bootstrap samples. Since zero is not included in this interval, the relationship is significant ( $p = 0.001$ ).

Based on the bootstrap test results, social media addiction affects antisocial personality traits both directly ( $\beta = 0.24$ )

and indirectly through psychological flexibility ( $\beta = 0.11$ ), both positively and significantly at the 0.01 level. Comparing coefficients (0.24 reduced to 0.11) indicates that psychological flexibility strengthens its mediating role in the relationship between social media addiction and antisocial personality traits among students, effectively reducing the impact of social media addiction.

**Table 4**

*Fit Indices for the Research Model*

Row	Fit Index	Threshold	Achieved Value
1	Chi-square test ( $X^2$ )	<1	22.172
2	Significance level (p-value)	$p > 0.05$	0.023
3	Chi-square/DF ( $X^2/df$ )	1–5	2.016
4	Goodness of Fit Index (GFI)	>0.90	0.984
5	Adjusted GFI (AGFI)	>0.90	0.959
6	Normed Fit Index (NFI)	>0.90	0.961
7	Comparative Fit Index (CFI)	>0.90	0.979
8	Incremental Fit Index (IFI)	>0.90	0.980
9	Parsimonious CFI (PCFI)	>0.50	0.513
10	Parsimonious NFI (PNFI)	>0.50	0.503
11	Root Mean Square Error of Approximation (RMSEA)	<0.08	0.051

Fit indices were used to assess the model's validity. Acceptable thresholds for Comparative Fit Index (CFI), Goodness of Fit Index (GFI), Adjusted GFI (AGFI), Normed

Fit Index (NFI), and Incremental Fit Index (IFI) are above 0.90, while Parsimonious CFI (PCFI) and Parsimonious NFI (PNFI) should exceed 0.50. Although the chi-square test



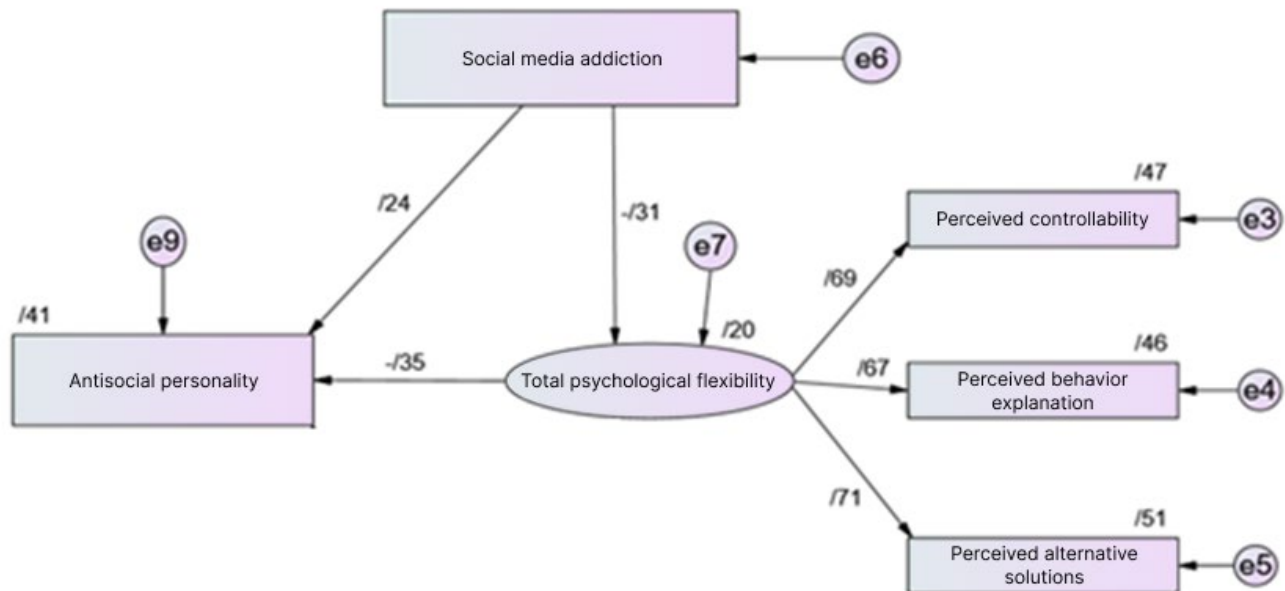
( $X^2$ ) is commonly used, its sensitivity to sample size often leads to rejection. Therefore, indices such as Root Mean Square Error of Approximation (RMSEA) and Chi-square/DF (CMIN/DF) are more commonly used. RMSEA

values below 0.08 and CMIN/DF values below 3 indicate a good model fit (Table 4).

The results of the fit indices indicate that the measured model has an acceptable fit.

Figure 1

*The Model of Relationships Between Research Variables*



#### 4. Discussion and Conclusion

This study investigated the development of a predictive model for antisocial personality traits based on social media addiction, considering the mediating role of psychological flexibility among students in Shahrekord. The results showed that the model had an acceptable fit, as evidenced by goodness-of-fit indices. These findings align with the results of prior studies (Amina & Ibtissam, 2023; Asgarizadeh & Ghanbari, 2022; Dehghani & Kazemi AliAbad, 2019; Dodangeh et al., 2021; Faramarzi, 2023; Fatemi Nia et al., 2022; Haeri et al., 2021; Kahouei et al., 2020; Kalidari, 2022; Khosravi & Abdolhosseini, 2022; Loghmannia & Rahimi, 2019; Maramis et al., 2021; Salahian et al., 2021; Shabannejad et al., 2021; Shaeri & Mashayekh, 2020; Touhidifar et al., 2021; Uddin, 2021; Wojciechowski, 2023; Zhou & Shen, 2024).

Psychological flexibility encompasses six processes: acceptance, cognitive defusion, being present, self-as-context, values, and committed action. Individuals with flexible thinking use alternative justifications, positively restructure their mindset, and accept challenging situations

or stressful events. These individuals demonstrate greater psychological resilience compared to those lacking flexibility. They can examine difficult and distressing situations from multiple perspectives, tolerate conflicts, and generate alternative options and ideas under such circumstances.

In contrast, individuals with lower psychological flexibility struggle to let go of painful past experiences, persistently focus on negative events, and find it challenging to adapt to new conditions. This leads to intensified negative emotions, reduced willingness to form warm and intimate interpersonal relationships, and feelings of loneliness and isolation (Dodangeh et al., 2021).

Individuals with high psychological flexibility can confront distressing situations without suppressing negative emotions, accept reality, and seek practical solutions to overcome challenges. This approach enhances interpersonal relationships and reduces loneliness (Touhidifar et al., 2021). On the other hand, individuals with low psychological flexibility often resort to experiential avoidance, attempting to control or minimize the impact of distressing experiences. While this may provide immediate

relief, it can exacerbate negative emotions and maladaptive emotion regulation strategies in the long term, interfering with daily functioning and personal goals, resulting in feelings of loneliness, hopelessness, and helplessness.

Psychological flexibility enables individuals to focus on the present and utilize opportunities to progress toward intrinsic goals and values, despite the presence of challenging or unwanted psychological events. This process strengthens an individual's ability to overcome difficulties and the negative emotions associated with them, thereby promoting mental health and constructive interpersonal relationships (Shabannejad et al., 2021).

Individuals with antisocial personality traits often exhibit emotional instability. These characteristics may hinder their ability to cope with everyday challenges, prompting them to turn to social media for stress relief. Antisocial behavior includes actions that violate others' rights and social norms, such as violence, theft, deceit, and vandalism. People inclined toward such behaviors typically lack empathy and a sense of responsibility. Factors such as social environment, family upbringing, and psychological issues contribute to the development of these behaviors. Consequently, these individuals are more likely to become dependent on social media (Shaeri & Mashayekh, 2020).

Individuals with antisocial personality traits may turn to the internet to satisfy their confrontational tendencies. Furthermore, due to their lack of social skills, they may prefer indirect or negative social interactions (Khatib Zanjani & Agha Harris, 2015). These individuals are often drawn to the negative aspects of social and mental health, leading them to retreat into the virtual world. This environment minimizes external threats, allowing them to create idealized or false personas without the effort required to improve real-life relationships.

Individuals with antisocial personality traits often exhibit higher impulsivity, irritability, and lower emotional stability. They are pessimistic, disagreeable, confrontational, narcissistic, suspicious of others' intentions, and competitive. Low scores in agreeableness are linked to narcissistic, antisocial, and psychopathic personality disorders. Therefore, addiction tendencies in individuals with low agreeableness can be well-explained (Shafiei & Ghamisi, 2017).

## 5. Limitations & Suggestions

This study used self-report measures to collect data, which could partially influence the validity of the findings.

Additionally, the descriptive and correlational nature of the study necessitates caution when making causal inferences. It is recommended to replicate this study among students from other universities. This is particularly important for generalizing the findings to other educational levels, as cognitive capacities may vary among younger learners.

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## Declaration of Interest

The authors of this article declared no conflict of interest.

## Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

## Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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