

The Relationship Between Boredom Proneness and Problematic Smartphone Use Among Indonesian Adolescents

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ARTICLE INFO

Article History

Submission : 26-05-2026

Received : 27-05-2026

Revised : 14-06-2026

Accepted : 16-06-2026

Keywords

Problematic Smartphone Use;

Boredom Proneness;

Adolescents;

Smartphone

DOI:

10.59066/ijoms.v5i1.2492

ABSTRACT

Adolescents represent one of the age groups with the highest levels of smartphone use, making them particularly vulnerable to problematic smartphone use. One psychological factor that may contribute to this behavior is boredom proneness, defined as an individual's tendency to experience boredom frequently and intensely. Adolescents with higher levels of boredom proneness may use smartphones to alleviate boredom or seek stimulation, which, when excessive and uncontrolled, can negatively affect their daily functioning. This study aimed to examine the relationship between boredom proneness and problematic smartphone use among Indonesian adolescents. A quantitative correlational design was employed. The sample consisted of 280 adolescents aged 12–18 years, including 214 females and 66 males, selected using purposive sampling. Data were collected using the Short Boredom Proneness Scale (SBPS) and the Smartphone Addiction Scale–Short Version (SAS-SV). The data were analyzed using the Pearson product–moment correlation. The results revealed a significant positive relationship between boredom proneness and problematic smartphone use ($r = .693, p < .001$). These findings indicate that adolescents with higher levels of boredom proneness are more likely to exhibit higher levels of problematic smartphone use. Therefore, boredom proneness may be considered an important psychological factor associated with problematic smartphone use among Indonesian adolescents.

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Introduction

In today's digital era, smartphones have become an essential part of human life (Abbasi et al., 2021). According to Marini et al., (2024) smartphones are modern communication devices that play a significant role in everyday life and are equipped with various multifunctional capabilities. In addition to serving as communication tools, smartphones provide convenient access to the internet and a wide range of applications (Winskel et al.,

2019). Rapid technological advancements have increased smartphone capabilities, resulting in a continuous rise in smartphone usage (Wardani, 2016; Wijanarko., 2014).

According to a survey conducted by the Indonesian Internet Service Providers Association (APJII, 2025), the highest smartphone usage rate (99.16%) was found among adolescents aged 13-18 years. Furthermore, 26.62% of respondents reported using the internet for an average of 4-6 hours per day (APJII, 2025). These findings indicate that smartphones have become an inseparable part of adolescents' lives and are intensively used in their daily activities. Adolescence is a transitional period from childhood to adulthood characterized by physical, biological, and social changes (Sawyer et al., 2018). To cope with these developmental changes, adolescents often use smartphones as a means of escaping or distracting themselves from stressful situations. Smartphones can also provide emotional comfort and serve as a coping mechanism for unpleasant experiences (Aydin & Sar, 2011; Chiu, 2014; Van Deursen et al., 2015).

Smartphones offer numerous benefits by facilitating access to information, enabling communication, and providing entertainment (Canale et al., 2023; Rozgonjuk et al., 2018). Nevertheless, excessive smartphone use may lead to dependence and increase the risk of adverse physical and mental health outcomes (UNICEF, 2017). When individuals are unable to regulate their smartphone use effectively, they may develop problematic smartphone use (Billieux et al., 2015).

Problematic smartphone use refers to an individual's inability to control repetitive urges to use a smartphone, resulting in interference with daily functioning (Busch & McCarthy, 2021). This condition is characterized by symptoms such as difficulty concentrating during daily activities, failure to complete planned tasks, inability to reduce smartphone usage, and signs of dependency reflected in persistent urges to use smartphones repeatedly (Kwon et al., 2013). Excessive and uncontrolled smartphone use has the potential to develop into problematic smartphone use (Busch & McCarthy, 2021).

The phenomenon of problematic and difficult-to-control smartphone use among children and adolescents has been reported in many countries, with a global prevalence ranging from 14% to 31.2% (Sohn et al., 2021). Several studies conducted in China reported that approximately 27.6% to 29.8% of adolescents experienced problematic smartphone use (Chen et al., 2017; Jiang & Shi, 2016; Tao et al., 2017). Similarly, a national survey in South Korea found that the prevalence of problematic smartphone use among adolescents reached 29.3%, the highest among all age groups (Cho, 2020). Similar findings have also been reported in Indonesia, indicating a high prevalence of problematic smartphone use among adolescents.

In Indonesian, Nufus et al., (2020) found that 8.50% of adolescent students were classified as having problematic smartphone use, while 43.62% belonged to the at-risk group, indicating a strong tendency toward problematic smartphone use. Similarly, Marini et al., (2024) reported that 83% of Indonesian adolescents aged 12–18 years were categorized as having a moderate level of problematic smartphone use. The high prevalence of

problematic smartphone use reported across various countries, including Indonesia, suggests that this phenomenon is widespread and warrants serious attention. This issue is particularly important because problematic smartphone use has been associated with various negative consequences, including mental health problems, physical health issues, and maladaptive behaviors (Han et al., 2017; Lemola et al., 2015; Lepp et al., 2014; J. Wang et al., 2019).

Excessive smartphone use may negatively affect mental well-being, influence daily behavior, hinder academic achievement, reduce social interaction, and decrease participation in physical activities (Pereira et al., 2020). Common physical consequences include pain in the neck, shoulders, and lower back due to prolonged use in poor postural positions (Maharani et al., 2019). In addition, excessive smartphone use is often accompanied by withdrawal symptoms, such as irritability, restlessness, or anxiety when access to a smartphone is restricted, as well as difficulty independently regulating the duration of smartphone use (Wickord & Quaiser-Pohl., 2022).

One of the important psychological factors contributing to problematic smartphone use is boredom proneness. Individuals with high levels of boredom proneness tend to seek external stimulation through smartphone use to alleviate feelings of boredom (Elhai et al., 2018). Adolescents who use smartphones as a means of escaping boredom or avoiding monotonous activities are at greater risk of developing problematic smartphone use (Marini et al., 2024). Feelings of boredom resulting from an individual's inability to engage in satisfying activities are commonly referred to as boredom proneness (Mugon et al., 2020).

Vodanovich and Watt (2016), defined boredom proneness as a condition in which individuals experience low levels of engagement and satisfaction due to insufficient environmental stimulation. Consequently, individuals are more likely to experience intense boredom in situations perceived as meaningless, uninteresting, or insufficiently challenging (Struk et al., 2017). Amiro and Laka (2023), explained that boredom often involves complex emotional experiences, including feelings of emptiness, frustration, and unmet psychological needs. These conditions may encourage individuals to seek distraction, one of which is through internet use. Easy access to digital technology enables individuals to reduce the emotional discomfort associated with boredom (Orsolini et al., 2023).

Beyond being considered an unpleasant emotional experience, boredom proneness can also be explained through self-regulation theory, which refers to an individual's ability to regulate thoughts, emotions, and behaviors in accordance with desired goals (Baumeister & Vohs, 2003). Effective self-regulation enables individuals to remain focused and engaged in activities, whereas failures in self-regulation may lead to difficulties in controlling attention, emotions, and behavior effectively (Baumeister et al., 1994). Consistent with this perspective, Struk et al., (2015) argued that boredom proneness is associated with failures in goal pursuit and reflects poor self-regulatory capacity. Individuals with high boredom proneness tend to have difficulty maintaining engagement in activities, whereas those with greater self-control, cognitive flexibility, and action orientation generally exhibit lower levels of boredom proneness (Struk et al., 2015).

A study conducted by Gezin (2025), demonstrated that boredom proneness is positively correlated with problematic smartphone use, indicating that individuals with higher levels of boredom proneness are more vulnerable to problematic smartphone use. Similarly, Koç et al., (2025) found a positive relationship between boredom proneness and problematic smartphone use. These findings are further supported by previous studies reporting that higher levels of problematic smartphone use are associated with higher levels of boredom proneness (Bozaci, 2020; Li, 2021; Yang et al., 2022; Zhao et al., 2022). Conversely, individuals with lower levels of problematic smartphone use tend to exhibit lower levels of boredom proneness (Rozgonjuk et al., 2018).

Based on the literature reviewed above, numerous studies have demonstrated a relationship between boredom proneness and problematic smartphone use. However, studies specifically examining this relationship among Indonesian adolescents remain limited. Previous research has also been restricted by relatively narrow adolescent sample characteristics (Koç et al., 2025). Most prior studies have been conducted among university students or young adults outside Indonesia, leaving limited empirical evidence regarding the association between boredom proneness and problematic smartphone use among Indonesian adolescents. Therefore, the present study is expected to provide a more comprehensive understanding of the relationship between boredom proneness and problematic smartphone use among Indonesian adolescents while contributing to the psychological literature concerning the psychological factors associated with problematic smartphone use.

Method

This study employed a quantitative approach using a correlational research design to examine the relationship between boredom proneness and problematic smartphone use among adolescents. The study population consisted of adolescents in Indonesia. Participants were recruited using a purposive sampling technique, in which samples were selected based on specific criteria established by the researcher in accordance with the research objectives (Sugiyono, 2017). The inclusion criteria were adolescents aged 12–18 years who were active smartphone users. Although the duration of smartphone use was not used as an inclusion criterion, it was recorded as a demographic characteristic of the participants. Previous research has shown that smartphone use exceeding five hours per day is associated with an increased risk of problematic smartphone use and may adversely affect physical, social, and psychological well-being (Marini et al., 2025).

Based on these criteria, a total of 280 Indonesian adolescents participated in the study. Data were collected online using a Google Forms questionnaire distributed through various social media platforms, including WhatsApp, Instagram, TikTok, X, and Threads. Before completing the questionnaire, all participants were provided with an informed consent form containing information about the study objectives, research procedures, the voluntary nature of participation, and the confidentiality of their personal information. This study was conducted in accordance with the ethical principles of psychological research by ensuring

participants' anonymity, maintaining the confidentiality of their data, and emphasizing voluntary participation. Furthermore, each participant was permitted to complete the questionnaire only once to minimize the possibility of duplicate responses.

Data were collected using psychological measurement scales, as described below:

1. Independent variable: Boredom Proneness (X)

Boredom proneness was measured using the Short Boredom Proneness Scale (SBPS) developed by Struk et al., (2017). The SBPS is a unidimensional instrument consisting of eight items. The instrument was culturally adapted into the Indonesian context following the cross-cultural adaptation guidelines proposed by Beaton et al., (2000). The adaptation process included forward translation, back translation by professional translators, expert committee review, readability testing to ensure item comprehension among Indonesian adolescents, and the development of the final Indonesian version of the instrument. Permission to adapt and use the scale was obtained from the original developers. The content validity of the adapted instrument was assessed using the Content Validity Index (CVI), yielding a score of 1.00, indicating excellent content validity. All eight items met the validity criteria and were retained. Item discrimination indices ranged from 0.311 to 0.701. The instrument also demonstrated good internal consistency, with a Cronbach's alpha coefficient of $\alpha = .822$.

2. Dependent variable: Problematic smartphone use (Y)

Problematic smartphone use was measured using the Smartphone Addiction Scale–Short Version (SAS-SV) developed by Kwon et al., (2013). The scale was adopted by the researcher based on previous construct validity testing using confirmatory factor analysis (CFA) conducted by Marini et al. (2025). The instrument demonstrated good reliability, with a Cronbach's alpha coefficient of $\alpha = .820$.

Results and Discussion

Results

The characteristics of the respondents in this study were described based on gender, age group, and smartphone usage duration. The general characteristics of the respondents who participated in this study are presented below:

Table 1. Descriptive Characteristics of the Research Participants

Category	Description	Number of Participants	Percentage (%)
Gender	Female	214	76.4%
	Male	66	23.6%
	Total	280	100%
Category	Description	Number of Participants	Percentage (%)
Smartphone Usage Duration	< 5 Hours	31	11.1%
	5 Hours	37	13.2%
	6 Hours	43	15.4%

	7 Hours	48	17.1%
	8 Hours	42	15.0%
	>8 Hours	79	28.2%
	Total	280	100%
Category	Description	Number of Participants	Percentage (%)
Age	12	6	2.1%
	13	21	7.5%
	14	19	6.8%
	15	34	12.1%
	16	25	8.9%
	17	62	22.1%
	18	113	40.4%
	Total	280	100%

Based on Table 1, the respondents were predominantly female, with 214 participants (76.4%), while 66 participants (23.6%) were male. These findings indicate that female respondents substantially outnumbered male respondents in this study. Regarding smartphone usage duration, 11.1% of the participants reported using smartphones for less than 5 hours per day, 13.2% for 5 hours, 15.4% for 6 hours, 17.1% for 7 hours, 15.0% for 8 hours, and 28.2% for more than 8 hours per day. These findings suggest that most respondents exhibited relatively high levels of smartphone use. Based on age, the respondents consisted of participants aged 12 years (2.1%), 13 years (7.5%), 14 years (6.8%), 15 years (12.1%), 16 years (8.9%), 17 years (22.1%), and 18 years (40.4%).

Table 2. Categorization of Boredom Proneness and Problematic Smartphone Use

Variable	Category	Frequency	Percentage (%)
Boredom Proneness	Very Low	12	4.3%
	Low	33	11.8%
	Medium	75	26.8%
	High	85	30.4%
	Very High	75	26.8%
Total		280	100%
Variable	Category	Frequency	Percentage (%)
Problematic Smartphone Use	Very Low	11	3.9%
	Low	33	11.8%
	Medium	80	28.6%
	High	69	24.6%
	Very High	87	31.1%
Total		280	100%

Based on Table 2, descriptive data analysis was conducted using categorical analysis for the variables of boredom proneness and problematic smartphone use. The highest frequency for boredom proneness was observed in the high category (30.4%), whereas the lowest frequency was found in the very low category (4.3%). These findings indicate that

the level of boredom proneness among the participants tended to be high. For problematic smartphone use, the highest frequency was found in the very high category (31.1%), whereas the lowest frequency was observed in the very low category (3.9%). These results indicate that the participants generally exhibited a very high level of problematic smartphone use.

Table 3. Normality Test

Variable	Statistics		Interpretation
	Skewness	Kurtosis	
Boredom Proneness	-0.351	-0.279	Normal
Problematic Smartphone Use	-0.355	-0.572	Normal

Based on Table 3, the results showed that the boredom proneness variable had a skewness value of -0.351 and a kurtosis value of -0.279. Meanwhile, the problematic smartphone use variable had a skewness value of -0.355 and a kurtosis value of -0.572. According to the criterion proposed by Field (2013), data are considered normally distributed when the skewness and kurtosis values fall within the range of -1.96 to +1.96, particularly for sample sizes greater than 200. Therefore, it can be concluded that both the boredom proneness and problematic smartphone use variables were normally distributed.

Table 4. Linearity Test

Variable	Linearity	Interpretation
Boredom Proneness*	0.000	Linear
Problematic Smartphone Use		

Based on Table 4, the linearity test between boredom proneness and problematic smartphone use yielded a significance value of 0.000. This result indicates a linear relationship between the two variables, as the significance level was below 0.05 ($p < .05$).

Table 5. Hypothesis Test

Variable	Significant	Correlation	Interpretation
Boredom Proneness*	.000	.693	Significant
Problematic Smartphone Use			

Based on Table 5, the results of the hypothesis test using the Pearson Product–Moment correlation revealed a significance value of 0.000 ($p < .001$). These findings indicate a statistically significant relationship between boredom proneness and problematic smartphone use among adolescents. Furthermore, the correlation coefficient of $r=.693$ indicates a strong positive relationship between the two variables. Therefore, boredom proneness may be considered a relevant psychological factor in understanding problematic smartphone use among adolescents.

Discussion

The results of the hypothesis testing revealed a significant positive relationship between boredom proneness and problematic smartphone use among adolescents. These findings indicate that higher levels of boredom proneness are associated with a greater tendency to experience problematic smartphone use. Therefore, the research hypothesis was supported, suggesting that boredom proneness is an important psychological factor associated with problematic smartphone use in adolescents.

These findings are consistent with previous studies demonstrating a positive association between boredom proneness and problematic smartphone use (Elhai et al., 2018; Gezgin, 2025; Koç et al., 2025). Individuals with higher levels of boredom proneness are more likely to use smartphones as a means of escaping or coping with unpleasant emotional states, particularly boredom (Elhai et al., 2017; Leung, 2008; Wolniewicz et al., 2020; X. J. Yang et al., 2020). In such conditions, smartphones function as a distraction tool that provides instant stimulation to reduce the experience of boredom (Wang et al., 2020).

The observed relationship can be explained from several theoretical perspectives. One relevant framework is self-regulation theory, which proposes that individuals with poor self-regulatory abilities experience greater difficulty regulating their attention, emotions, and behavior. Consequently, they are more likely to seek external sources of stimulation, such as smartphones, when experiencing boredom (Baumeister & Vohs, 2003; Struk et al., 2015). Deficits in self-regulation may lead individuals to rely on smartphones as a coping mechanism for managing negative emotional states, including boredom and loneliness. These findings are also consistent with the Compensatory Internet Use Theory proposed by Kardefelt-Winther (2014), which suggests that individuals tend to engage in excessive internet or digital technology use to alleviate or avoid unpleasant emotional experiences.

Descriptive analysis showed that the largest proportion of participants (31.1%) fell into the very high category of problematic smartphone use. This finding suggests that many adolescents experience difficulties regulating the duration and frequency of their smartphone use, which may negatively affect their psychological well-being, social functioning, and academic performance (Canale et al., 2023; Peng et al., 2025). Symptoms associated with problematic smartphone use include difficulty concentrating during daily activities, failure to complete planned tasks, inability to reduce smartphone use, and signs of dependency characterized by persistent urges to use smartphones repeatedly (Kwon et al., 2013).

Furthermore, excessive smartphone use has been associated with poorer mental well-being, reduced participation in physical activities (Pereira et al., 2020), and physical complaints such as neck, shoulder, and lower back pain resulting from prolonged smartphone use (Maharani et al., 2019). Excessive smartphone use is also frequently accompanied by withdrawal-like symptoms, including irritability, restlessness, anxiety when access to smartphones is restricted, and difficulty independently controlling the duration of smartphone use (Wickord & Quaiser-Pohl, 2022). The high prevalence of problematic

smartphone use observed in this study suggests that smartphones may function as a coping strategy used by adolescents to manage or alleviate feelings of boredom.

The descriptive findings further indicated that boredom proneness was predominantly classified in the high category (30.4%). This result suggests that adolescents are more likely to experience boredom and may have greater difficulty sustaining attention and controlling impulsive behavior (Struk et al., 2017). Moreover, adolescence is a developmental stage characterized by an increasing need for novelty, exploration, and diverse forms of stimulation (Sawyer et al., 2018). These developmental characteristics may encourage adolescents to seek readily available external stimulation, such as smartphone use, thereby increasing their vulnerability to problematic smartphone use.

Most adolescents in the present study reported using smartphones for 5 to more than 8 hours per day. Such extensive daily use indicates that smartphones have become an integral part of adolescents' everyday lives. Previous research has shown that smartphone use exceeding five hours per day is associated with an increased risk of impaired social interaction, reduced concentration, and poorer academic performance (Danal et al., 2022). Similarly, Meherali et al., (2021) reported that adolescents may spend between 5 and 10 hours per day using smartphones, which may contribute to the development of maladaptive usage patterns and increase the risk of smartphone addiction.

Overall, the findings suggest that boredom proneness represents an important psychological factor contributing to the increased risk of problematic smartphone use among adolescents. This study contributes to the existing literature by providing additional empirical evidence regarding the relationship between boredom proneness and problematic smartphone use among Indonesian adolescents, a population that remains underrepresented in previous research. Furthermore, the present findings extend earlier studies that have predominantly focused on university students or young adults outside Indonesia. From a practical perspective, these findings underscore the importance of strengthening adolescents' self-regulation skills and promoting education on healthy smartphone use to reduce the risk of problematic smartphone use.

Conclusion

The findings of this study indicate a significant positive relationship between boredom proneness and problematic smartphone use among Indonesian adolescents. Specifically, adolescents with higher levels of boredom proneness tended to report higher levels of problematic smartphone use. These findings suggest that smartphone use among adolescents is associated not only with technological factors but also with psychological characteristics, particularly boredom proneness and self-regulation. The findings also have several practical implications for efforts to prevent problematic smartphone use among adolescents. Schools may implement educational programs that promote healthy and responsible smartphone use, while parents are encouraged to actively guide and monitor their adolescents' smartphone use. In addition, interventions aimed at strengthening adolescents' self-regulation skills and

helping them manage boredom in adaptive ways may contribute to reducing the likelihood of problematic smartphone use.

This study contributes to the growing body of literature by providing empirical evidence regarding the relationship between boredom proneness and problematic smartphone use among Indonesian adolescents. Future research is recommended to include larger and more diverse samples and to examine additional psychological, social, and environmental factors that may be associated with problematic smartphone use.

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