



Original Article

Risk Factors And Prevalence Of Internet Addiction Among Adolescents: The Role Of Parental Supervision And Psychosocial Influences

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ABSTRACT

Background: The rapid development of internet technology presents both opportunities and challenges, particularly internet addiction among adolescents, which impacts health, education, and social stability. In Indonesia, over 90% of adolescents are internet users, raising significant concerns. This study aims to determine the prevalence of internet addiction and identify contributing sociodemographic, behavioral, and psychosocial factors.

Methods: A cross-sectional study was conducted involving 143 students from SMA Islam Al Azhar 8 Bekasi, selected through convenience sampling. Data were collected using a validated Internet Addiction Questionnaire and analyzed with bivariate and multivariate methods.

Results: The prevalence of internet addiction was 34.27%. Significant factors included frequent violations of parental internet usage limits (OR=6.70; CI 95%: 1.76–25.56; p=0.005) and lack of participation in religious activities (OR=3.31; CI 95%: 1.09–10.04; p=0.034), indicating that weak parental control and low religious involvement increase the risk of internet addiction.

Conclusion: Parental supervision, family support, and adolescent engagement in religious and social activities are crucial preventive measures. Interventions focusing on self-regulation, parental monitoring, and balanced internet use are recommended to reduce addiction risks.

INTRODUCTION

The development of information and communication technology has brought significant changes to daily life, especially among adolescents.¹ Easy internet access through various digital devices, such as

computers and smartphones, provides vast opportunities for communication, information acquisition, and social interaction. However, this convenience also poses new challenges, one of which is the phenomenon of internet addiction.^{2,3} Internet addiction presents a

challenge that may hinder the achievement of the Sustainable Development Goals (SDGs) promoted by the WHO. Excessive internet use can have negative impacts on mental health, disrupt educational quality, decrease work productivity, and exacerbate social inequality and societal instability. Internet addiction leads to mental health issues such as anxiety and depression,^{4,5} which contradict SDG 3 focused on health and well-being. Individuals experiencing internet addiction tend to have disrupted learning processes,⁶ which diminishes academic performance (SDG 4). In the workplace, internet addiction results in decreased performance and productivity,^{7,8} impacting SDG 8 on decent work and economic growth. Inequitable access to and usage of the internet, along with its uneven impacts, can worsen social inequality,^{9,10} related to SDG 10 on reducing inequalities. Additionally, internet addiction can facilitate the spread of misinformation and negative behaviors that undermine peace and social trust,¹¹⁻¹³ aligning with SDG 16.

Internet addiction has become an increasing issue among adolescents globally.¹⁴⁻¹⁶ In Indonesia, internet use among adolescents is rapidly growing. According to data from the Indonesian Internet Service Providers Association (APJII), the percentage of adolescent internet users has reached over 90% of the total adolescent population.¹⁷ This high rate raises concerns about the potential for internet addiction. Previous studies have also shown that the prevalence of internet addiction is quite high,¹⁸ making it a matter of concern. However, there is still limited research in Indonesia exploring the combined role of sociodemographic, behavioral, and psychosocial factors in adolescent internet addiction, especially using school-based samples. This creates an important research gap, as understanding these factors is crucial to developing tailored interventions. Moreover, given the rising number of adolescent internet users, the urgency of addressing this issue is stronger than ever.

This study aims to determine the prevalence of internet addiction and analyze

the relationship between sociodemographic factors, internet usage behaviors, and the influence of psychosocial factors such as parental supervision, bullying experiences, and involvement in religious activities on internet addiction status among high school students. By gaining a deeper understanding of these risk and protective factors, effective intervention strategies can be developed to prevent and reduce the risk of internet addiction among adolescents, particularly in the high school environment in Indonesia.

METHOD

This study employed a cross-sectional design to investigate the relationship between sociodemographic factors, internet usage behaviors, psychosocial factors, and internet addiction among high school students. The study was conducted at SMA Islam Al Azhar 8 Bekasi. The study population comprised high school students at SMA Islam Al Azhar 8 Bekasi, with a sample selected using a convenience sampling method. Inclusion criteria were students actively enrolled in grades X, XI, or XII with regular internet access. No exclusion criteria were applied. Based on the minimum sample size calculation using a proportion estimation formula,¹⁹ with a 5% significance level, a population proportion of 23.2% from previous studies,¹⁸ and an absolute precision of 10%, the minimum required sample size to represent internet addiction was 69 participants. The main variables in this study included internet addiction as the dependent variable, with independent variables such as parental supervision of internet usage time, internet access frequency, exposure to pornographic content, bullying experiences, emotional closeness with parents, and involvement in religious activities.

The instrument used was the Internet Addiction Diagnostic Questionnaire,²⁰ consisting of 44 items with a Cronbach's Alpha reliability coefficient of 0.942, indicating high reliability. The questionnaire was distributed online via Google Forms, with a link shared by homeroom teachers to students

one week before the study. The questionnaire covered several sections:

1. Demographic Information: This section collected participant characteristics such as gender, grade level, and parents' technology skills.
2. Parental Supervision of Internet Usage: This section inquired about whether parents set time limits for internet access and the frequency of violations, if any.
3. Internet Usage Behavior: This section captured the average daily internet usage duration, with time categories ranging from less than 4 hours to more than 12 hours.
4. Exposure to Pornographic Content: This section determined whether students had accessed pornographic content and assessed the frequency of access.
5. Bullying Experiences: Participants were asked about their experiences as either victims or perpetrators of bullying.
6. Psychosocial Factors: This section included questions on emotional closeness with parents (categorized as "very close," "difficult to define," or "not close") and participation in religious and extracurricular activities.
7. Educational Activity Outcome: The results of the questionnaire were presented to participants attending an educational session as part of a counseling program on healthy internet use.

The questionnaire was distributed online via Google Forms, with the link shared by homeroom teachers. Students willing to participate completed the questionnaire independently on their personal devices. The collected data were analyzed using SPSS version 25 software, with bivariate and multivariate analyses performed to assess the relationship between independent variables and internet addiction status. Bivariate analysis involved calculating odds ratios (OR) and 95% confidence intervals (CI) to identify significant relationships, while multivariate logistic regression analysis was conducted to control for potential confounding factors. The

significance level was set at $p < 0.05$ for all tests.

This study was conducted in accordance with ethical principles outlined in the Declaration of Helsinki. Ethical approval was obtained from the Health Research Ethics Committee of the Faculty of Medicine and Health Sciences, Universitas Jambi, under approval number: 1612/UN21.8/PT.01.04/2024.

RESULTS AND DISCUSSION

A total of 143 students consented to complete the Internet Addiction Questionnaire. In this study, the characteristics of participants, outlined in Table 1, show a balanced gender composition, with 51.75% male and 48.25% female participants. Based on grade level, most participants were from Grade XI (45.45%), followed by Grade X (41.26%) and Grade XII (13.29%).

In terms of parents' technological skills, the majority (52.4%) were proficient with digital devices, while the remainder (47.6%) were less skilled. Regarding parental time limits on internet access, most participants (53.15%) reported that their parents did not impose time restrictions, while 46.85% experienced such limits. Interestingly, despite these restrictions, approximately 24.5% of participants frequently violated these limits, while the majority rarely or never did so.

Daily internet access duration showed that most participants spent between 4 and less than 12 hours per day online, with 39.86% accessing for 4-8 hours and 38.46% accessing for 8-12 hours. Only a few participants (7.69%) accessed the internet for less than 4 hours, while 13.99% spent more than 12 hours daily browsing the internet.

In the context of exposure to pornographic content, the majority of participants (75.5%) reported never accessing it, while 24.5% admitted to having accessed it. Among those who had accessed it, most did so "occasionally" (17.5%), with only a very small portion reporting frequent access, i.e., more than three times a month (3.5%).

Experiences of being bullied or bullying others were relatively low, with only 13.3% having been bullied and 6.3% admitting to bullying others. Emotional closeness with parents was relatively high, with 65.7% of participants feeling very close to their parents; however, 32.9% found it difficult to define this closeness.

Regarding extracurricular activities, the majority of participants were not involved in religious activities (71.3%), and over half (57.3%) did not participate in organizational activities or competitions. Regarding internet addiction, 34.27% of participants reported experiencing addiction, while the remaining 65.73% did not show signs of internet addiction.

Table 1. Respondent Characteristics

Variable	n = 143	Percentage (%)
Gender		
Male	74	51.75
Female	69	48.25
Grade Level		
Grade X	59	41.26
Grade XI	65	45.45
Grade XII	19	13.29
Parents' Technology Skills		
Parents not proficient with devices	68	47.6
Parents proficient with devices	75	52.4
Parental Time Limit on Internet Access		
Time limit imposed	67	46.85
No time limit imposed	76	53.15
Violations of Internet Access Limits		
Frequently	35	24.5
Rarely	66	46.2
Never	42	29.4
Daily Internet Access Time		
2 - < 4 hours	11	7.69
≥ 4 - < 8 hours	57	39.86
≥ 8 - < 12 hours	55	38.46
≥ 12 hours	20	13.99
Access to Pornographic Content		
Yes	35	24.5
No	108	75.5
Frequency of Accessing Pornographic Content		
>3 times per month	5	3.5
2-3 times per month	2	1.4
Once per month	1	0.7
Occasionally (very rarely), only out of curiosity	25	17.5
Never accessed pornographic content	110	76.9
Experience of Being Bullied		
Yes	19	13.3
No	124	86.7
Experience of Bullying Others		
Yes	9	6.3
No	134	93.7
Emotional Closeness with Parents		
Not close	2	1.4
Very close to parents	94	65.7
Difficult to define	47	32.9
Participation in Religious Activities		
No	102	71.3
Yes	41	28.7
Participation in Organizational or Competition Activities		
No	82	57.3
Yes	61	42.7
Internet Addiction		
Yes	49	34.27
No	94	65.73

The bivariate analysis shown in Table 2 indicates several factors significantly associated with internet addiction status among participants. Violating internet access time limits was identified as a strong risk factor, with participants who frequently violated these limits having a higher likelihood of experiencing internet addiction compared to those who never violated them, with an odds ratio (OR) of 7.192 (95% CI: 2.57–20.17; $p < 0.0001$). Access to pornographic content also showed a significant association, where participants who had accessed such content were more likely to experience internet addiction than those who had not, with an OR of 2.63 (95% CI: 1.20–5.76; $p = 0.014$). Additionally, accessing pornographic content more than three times per month significantly increased the risk of addiction, although the wide

confidence interval suggests caution in interpretation (OR = 9.75 (95% CI: 1.05–90.64; $p = 0.045$).

Experiences of being bullied were also associated with an increased risk of internet addiction, with participants who had been bullied having an OR of 3.11 (95% CI: 1.16–8.35; $p = 0.020$). Another significant factor was emotional closeness with parents; participants who found it difficult to define their emotional closeness with their parents had a higher risk of internet addiction, with an OR of 2.18 (95% CI: 1.06–4.52; $p = 0.035$). Participation in religious activities also showed a significant association, where inactive participants had an OR of 2.77 (95% CI: 1.16–6.60; $p = 0.018$), indicating that inactivity in these activities was associated with an increased risk of internet addiction.

Table 2. Bivariate Analysis

Variable	Internet Addiction Status n (%)		p-value	OR	95% Confidence Interval
	Addiction	Non-addiction			
Gender					
Male	25 (33.8)	49 (66.2)	0.900	0.96	0.48 – 1.91
Female	24 (34.8)	45 (65.2)			
Parents' Technology Skills					
Not proficient with devices	25 (36.8)	43 (63.2)	0.549	1.24	0.62 – 2.47
Proficient with devices	24 (32)	51 (68)			
Parental Time Limit on Internet Access					
Time limit imposed	28 (41.8)	39 (58.2)	0.075	0.53	0.26 – 1.07
No time limit imposed	21 (27.6)	55 (72.4)			
Violations of Internet Access Limits					
Frequently	22 (62.9)	13 (37.1)	<0.0001	7.192	2.57 – 20.17
Rarely	19 (28.8)	47 (71.2)			
Never	8 (19.0)	34 (81)			
Daily Internet Access Duration					
2 - < 4 hours	1 (9.1)	10 (90.9)	0.159	4.62	0.55 – 38.84
≥ 4 - < 8 hours	18 (31.6)	39 (68.4)			
≥ 8 - < 12 hours	22 (40)	23 (60)			
≥ 12 hours	8 (40)	12 (60)			
Access to Pornographic Content					
Yes	18 (51.4)	17 (48.6)	0.014	2.63	1.20 – 5.76
No	31 (28.7)	77 (71.3)			
Frequency of Accessing Pornographic Content					
>3 times per month	4 (80)	1 (20)	0.045	9.75	1.05 – 90.64
2-3 times per month	2 (100)	0 (0)	0.999	39377199 29.450	(unmeasurable)
Once per month	0 (0)	1 (100)	1	0	(unmeasurable)
Occasionally (very	11 (44)	14 (56)	0.153	1.92	0.79 – 4.67

Variable	Internet Addiction Status n (%)		p-value	OR	95% Confidence Interval
	Addiction	Non-addiction			
rarely) Never accessed	32 (29.1)	78 (70.9)			
Experience of Being Bullied			0.020	3.11	1.16 – 8.35
Yes	11 (57.9)	8 (42.1)			
No	38 (30.6)	86 (69.4)			
Experience of Bullying Others			0.493	1.58	0.41 – 6.18
Yes	4 (44.4)	5 (55.6)			
No	45 (33.6)	89 (66.4)			
Emotional Closeness with Parents			0.999	0	(unmeasurable)
Not close	0 (0)	2 (100)			
Difficult to define	22 (46.8)	25 (53.2)	0.035	2.184	1.06 – 4.52
Very close	Addiction: 27 (28.7)	67 (71.3)			
Participation in Religious Activities			0.018	2.77	1.16 – 6.60
No	41 (40.2)	61 (59.8)			
Yes	8 (19.5)	33 (80.5)			
Participation in Organizational or Competition Activities			0.498	1.28	0.63 – 2.58
No	30 (36.6)	52 (63.4)			
Yes	19 (31.1)	42 (68.9)			

The multivariate analysis shown in Table 3 identifies several factors significantly associated with the risk of internet addiction. Violating internet access limits emerged as a significant predictor, with individuals who frequently violated these limits having an odds ratio (OR) of 6.703 (95% CI: 1.76–25.56; $p = 0.005$), indicating a much higher risk of internet addiction compared to those

who never violated the limits. Additionally, inactivity in religious activities was significantly associated with an increased risk of addiction, with inactive individuals having an OR of 3.313 (95% CI: 1.09–10.04; $p = 0.034$), suggesting that participation in religious activities may have a protective effect against internet addiction..

Table 3. Multivariate Analysis of Risk Factors for Internet Addiction

Variable	OR	95% CI	p-value
Parental Time Limit on Internet Access	0.73	0.27 – 1.99	0.540
Violations of Internet Access Limits			
Frequently	6.70	1.76 – 25.56	0.005
Rarely	1.57	0.51 – 4.79	0.430
Daily Internet Access Duration			
≥ 4 - < 8 hours	5.35	0.47 - 61.70	0.178
≥ 8 - < 12 hours	8.52	0.73 – 99.94	0.088
≥ 12 hours	7.49	0.54 – 103.38	0.133
Access to Pornographic Content	0.99	0.14 – 7.02	0.992
Frequency of Accessing Pornographic Content			
>3 times per month	18.49	0.50 – 682.06	0.113
Occasionally (very rarely), only out of curiosity	1.58	0.20 - 12.42	0.666
Experience of Being Bullied	3.17	0.87 – 11.55	0.081
Emotional Closeness with Parents			
Difficult to define	0.91	0.36 – 2.32	0.837
Participation in Religious Activities	3.31	1.09 – 10.04	0.034

The findings of this study reveal that several factors are closely associated with internet addiction among high school students, including violations of internet access time limits, access to pornographic content, experiences of being bullied, emotional closeness with parents, and participation in religious activities. Violations of internet access time limits proved to be a strong predictor of internet addiction. Noncompliance with these rules may reflect low self-control, which contributes to excessive and addictive internet use patterns. Violations of internet access time limits by students showed a significant association with the risk of internet addiction, consistent with findings that effective parental control can reduce the risk of such dependence. Martins et al. found that students whose internet access time was monitored by parents were less likely to experience addiction.²¹ Those who reported parental supervision or time restrictions showed a reduced tendency for excessive internet use. Noncompliance with internet usage rules often reflects low self-control in students, which may lead to addictive internet usage patterns. Zhu et al. also showed that parental behavioral control, such as limiting internet access time, negatively correlates with internet addiction, particularly among students with strong parental relationships.²² This indicates that parental monitoring approaches not only have a direct effect but also play a role in enhancing students' self-control. Furthermore, research by Tom et al. indicated that lack of parental attention and supervision increases the risk of internet addiction among adolescents, especially when children's self-control is low.²³ This study supports the idea that students' noncompliance with internet rules may signal poor self-control, which worsens the addiction tendency.

Exposure to pornographic content has shown a significant association with internet addiction, particularly as it can trigger impulsive behavior and disrupt self-control. Some studies suggest that individuals with

excessive online pornography consumption often experience diminished self-control, which in turn exacerbates internet dependency patterns. Sirianni et al. state that online pornography use is often driven by unmet emotional needs and lack of self-regulation, leading to uncontrollable consumption patterns.²⁴ Additionally, research by Brand et al. supports these findings, showing that ventral striatum activity—a brain region related to reward and anticipation—increases when individuals watch preferred pornographic content.²⁵ This activation correlates with increased symptoms of internet pornography addiction, suggesting that continuous access to such content creates a strong emotional attachment, thereby increasing the repeated desire to access it.

Bullying experiences are also closely linked to internet addiction, as bullying victims often use the internet as a coping mechanism to avoid socially stressful or challenging real-life interactions. Studies indicate that bullying victims, especially those struggling with social relationships, are more likely to use the internet excessively as a form of compensation. Ding et al. found that internet addiction and social withdrawal act as mediators in the relationship between bullying and reduced quality of life among adolescents.²⁶ These findings suggest that internet addiction can become a harmful escape to address the emotional impacts of bullying. Moreover, research by Lo et al. indicated that family support can reduce the risk of internet addiction in children who are bullying victims, providing them with valuable emotional security.²⁷ This helps victims feel accepted and supported, which in turn reduces their need to escape to the online world.

Emotional closeness with parents is a crucial factor in preventing internet addiction among adolescents. Students who feel a lack of closeness or have difficulty forming strong emotional bonds with their parents tend to have a higher risk of internet addiction. Research by Karaer et al. shows

that low emotional availability from parents, particularly in terms of acceptance and involvement, contributes to emotional regulation difficulties among adolescents, which in turn increases the risk of internet addiction. This emotional support helps adolescents manage emotions and develop self-control, reducing dependence on online activities as an escape from stress or boredom²⁸.

Participation in religious activities appears to have a significant relationship with the risk of internet addiction. Adolescents who are less involved in social and spiritual activities tend to be more vulnerable to seeking escape in the online world. Studies show that regular involvement in spiritual or religious activities is associated with reduced time spent on excessive internet use and gaming. Adolescents engaged in spiritual or religious activities show a lower tendency to overuse technology, indicating the positive role of spiritual activities in promoting healthy internet use patterns²⁹. Dossi et al. found that religiosity tends to act as a protective factor against internet addiction, especially among adolescents and young adults who frequently participate in religious activities.³⁰

The findings of this study suggest that internet addiction among adolescents is influenced not only by individual factors such as self-control but also by environmental and psychosocial factors, including parental roles

and engagement in social activities. Several factors, such as violations of internet time limits and access to pornographic content, show a strong association with internet addiction, indicating the need for further parental supervision and support. Intervention approaches involving self-control education for students, parental training for supervising adolescents' online activities, and increasing student engagement in social or spiritual activities may reduce the risk of internet addiction. This aligns with previous research recommendations emphasizing the importance of social support and positive engagement in preventing internet addiction among adolescents.

CONCLUSIONS

This study shows that internet addiction among adolescents is associated with sociodemographic factors, internet usage behaviors, and psychosocial factors, such as violations of internet time limits, access to pornographic content, and involvement in religious activities. These results highlight the importance of parental supervision and family support, and adolescent participation in social or religious activities to reduce the risk of internet addiction. These strategies may serve as effective preventive measures for promoting healthier internet use among adolescents.

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