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The Impact of Social Media Addiction on Adolescent Mental Health in Ambon City, Indonesia

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Abstract

The increasing prevalence of social media use among adolescents has raised concerns regarding its potential impact on mental health. This study investigated the relationship between social media addiction and adolescent mental health in Ambon, Indonesia. A quantitative cross-sectional research design was utilized, involving 336 adolescents aged 13-18 who actively used social media. Data were gathered through a structured questionnaire assessing demographic characteristics, social media usage patterns, and mental health status using the Depression Anxiety Stress Scale (DASS-21). Descriptive analysis, bivariate analysis using odds ratios (ORs), and multivariate analysis via multiple logistic regression were conducted. Results indicated that 64.88% of respondents had poor mental health scores. Bivariate analysis revealed significant associations between age, study frequency, duration of social media use, and social media usage scores with mental health conditions ($p<0.05$). Multiple logistic regression identified that adolescents aged 18-20 years, those who studied infrequently, used social media for over three hours daily, and had high social media usage scores were at greater risk of poor mental health. These findings underscore the importance of collaborative efforts among stakeholders to design effective interventions and policies that foster responsible social media use and promote adolescent mental well-being in the digital era.

Keywords: Social media addiction; adolescent mental health; social media usage patterns.

INTRODUCTION

Over the past decade, social media use among teenagers has increased significantly. According to a report from the Pew Research Center, approximately 95% of teenagers in the United States have access to smartphones, and 90% of them actively use social media (Waring et al., 2023; Martinac Dorčić et al., 2024). This phenomenon occurs not only in developed countries but also in Indonesia. For example, in Maluku Province, data from the Central Statistics Agency (BPS) show that more than 70% of teenagers in Ambon City actively use social media platforms, such as Instagram, TikTok, and Facebook. This rapid development of digital technology provides easy access to information and communication but poses new challenges, especially concerning adolescent mental health (Radjulan et al., 2024; Hendri et al., 2023).

Adolescent mental health is becoming an increasingly important issue, particularly in the digital age. The World Health Organization (WHO) states that good mental health is essential to healthy and productive adolescent development (Rudnicka et al., 2020). The WHO also states that stable mental well-being enables adolescents to develop good social skills, improve academic performance, and build healthy interpersonal relationships. However, with the increasing use of social media, there are concerns that adolescents may experience negative impacts such as anxiety, depression, and feelings of alienation (Jurow, 2024). Therefore, it is important to understand how social media can positively and negatively affect adolescents' mental health (Mahbubani, 2012).

Understanding the impact of social media on adolescents' mental health is crucial for developing effective interventions and policies. A study conducted by Guo et al. showed that increased social media use correlates with increased levels of depression among adolescents (Guo et al., 2023). The study found that adolescents who spent more than three hours per day on social media had a higher risk of mental health disorders than those who used social media for a more limited amount of time. This study highlights the need for further attention to factors that influence adolescents' mental health in the context of social media use (Twenge et al., 2017).

In this context, existing knowledge about the impact of social media on adolescent mental health is mixed. Some studies have suggested that social media can provide important social support and help adolescents

feel connected to their peers (Talukdar, 2024). Social media can also allow adolescents to express themselves, identify communities with similar interests, and obtain information relevant to their needs (Freeman et al., 2023). However, other studies have shown that social media can be a source of social pressure that contributes to anxiety and depression (Zozaya-Durazo et al., 2023). For example, Primack et al. found that excessive social media use can lead to negative social comparisons, affecting adolescents' self-esteem (Primack et al., 2017). The pressure to get "likes" or positive comments on social media can create ongoing anxiety and lower self-esteem.

Additionally, social media use has the potential to exacerbate mental health problems through cyberbullying (Lee et al., 2024). Several studies have shown that adolescents who are victims of online bullying tend to have higher stress levels, experience sleep disturbances, and show more severe symptoms of depression than those who are not bullied online (Annisa & Endang Nihayati, 2022). Therefore, this phenomenon cannot be ignored, and effective mitigation strategies are required to protect adolescents' mental health (Silva et al., 2023).

Despite extensive research, there are still gaps in knowledge regarding the specific mechanisms by which social media affects adolescents' mental health (Sala et al., 2024). For example, few studies have examined the role of algorithms in increasing adolescent exposure to potentially harmful content (Zhipeng & Gani, 2021). In addition, individual aspects such as adolescents' personalities and levels of psychological resilience may also contribute to how they respond to their experiences on social media (Dişli Bayraktar, 2024). It is a challenge for researchers and policymakers to identify appropriate strategies to reduce the negative impacts of social media while maximizing its benefits (Meisel et al., 2016).

Addressing this knowledge gap is important for creating effective interventions that support adolescent mental health in the digital age. Therefore, collaborative efforts between the government, schools, parents, and social media platforms are needed to design policies and educational programs that can raise awareness of the impact of social media on mental health (Román et al., 2021). Some strategic steps that can be taken include digital literacy campaigns for adolescents, limiting the time of social media use, and increasing access to mental health services for adolescents who experience negative impacts from social media use (Yu & Bozeman, 2024). Therefore, this study aimed to explore the impact of social media addiction on adolescent mental health. By better understanding the relationship between social media use and mental health, more effective solutions can be found to address this issue and create a healthier digital environment for adolescent development.

MATERIALS AND METHODS

Research Design

This study used a cross-sectional research design to examine the impact of social media on adolescents' mental health in Ambon City (Hunziker & Blankenagel, 2024). This design allows the simultaneous measurement of variables at a specific time to understand the relationship between social media use and adolescent mental health (Hartanto et al., 2024).

Research Approach

This study used a quantitative approach to analyze the relationship between social media use and adolescent mental health. Quantitative research allows for objectively measuring research variables and produces data that can be processed statistically (Lameky & Nugroho, 2024).

Literature Review

A thorough review of existing literature on social media use and its impact on adolescent mental health was conducted to inform the research framework. The literature includes previous research, theories of adolescent developmental psychology, and studies examining the influence of social media on mental well-being (Lameky & Tasijawa, 2023; Plackett et al., 2023b; Plackett et al., 2023; Plackett et al., 2023c).

Population and Sample

The participants in this study were adolescents aged 13-18 living in Ambon City. The research sample was recruited through two main groups: 168 respondents from SMK Negeri 1 Ambon and 168 students from Immanuel Karpan Church Sunday School. The total sample comprised 336 respondents selected using a purposive sampling technique based on the inclusion and exclusion criteria (Etikan, 2016).

Inclusion and Exclusion Criteria

Adolescents who participated in this study met several inclusion criteria: those between 15 and 20 years old, active social media users with at least one account, active in the last three months, and residing in Ambon City. Meanwhile, there were also exclusion criteria that must be considered, namely, adolescents who had been diagnosed with mental health disorders before the study began, those who did not get permission from parents or guardians to participate, and respondents who did not complete the questionnaire.

Data Collection

Data were collected using a structured questionnaire consisting of three main sections. The first section included demographic data, including information regarding the respondents' age, gender, and study frequency. The second section focused on social media use, which measured the duration of use and the types of

social media platforms used by participants. The third section deals with mental health, assessed using standardized instruments such as the Depression Anxiety Stress Scale (DASS-21), with good and bad classifications (Ahmed et al., 2022). The data collection process was conducted over two months, from September 2 to November 2, 2024, using structured interviews and self-completion of questionnaires by participants.

Data Analysis

A descriptive analysis described the participants' demographic characteristics and social media usage patterns. Bivariate analysis was applied using odds ratios to measure the effect size of the relationship between the independent variable, social media use, and adolescent mental health as the dependent variable. For further analysis, multivariate analysis using multiple logistic regression was used to control for confounding variables and to determine the main factors contributing to adolescent mental health (Kundu & Nekoukhou, 2018).

Research Ethics

This study applied the principles of research ethics. Before participating, all participants were explained the study's purpose, benefits, and procedures. Written informed consent was obtained from all participants and their guardians before participation in the study (Rafique, 2019). The Research Ethics Committee of STIKes Maluku Husadah approved this study. (RK Number. 189/KEPK/STIK/VIII/2024) To ensure compliance with the applicable ethical standards.

RESULTS AND DISCUSSION

Univariate Analysis

Table 1. Respondent characteristics.

Variable	Category	n	%
Age	15-17 years	218	64.88
	18-20 years	118	35.12
Gender	Male	134	39.88
	Female	202	60.12
Learning frequency	Rarely	201	59.82
	Regularly	135	40.18
Duration of social media use	<2 hours	117	34.82
	>3 hours	219	65.18
Type of social media	TikTok	168	50
	Facebook	67	19.94
	Instagram	50	14,88
	YouTube	40	11.9
	WhatsApp or others	11	3.27
Social media use score	Low	134	39.88
	High	202	60.12
Mental health score	Good	117	34.82
	Bad	219	65.18

Table 1 shows that the majority of respondents in this study were in the 15-17 age category (218 people, 64.88%), indicating that this age group dominates compared to the 18-20 age category. In terms of gender, more respondents were female (202 people, 60.12%) compared to men. Based on the study frequency, more respondents studied as infrequently as 201 people (59.82%) compared to those who regularly studied. Regarding the duration of social media use, more respondents used social media for more than three hours per day, indicating that most adolescents had intense social media exposure.

Regarding the types of social media used, TikTok was the most dominant, with 168 respondents (50%), followed by Facebook, Instagram, and YouTube, which had an almost equal number of users. In contrast, fewer people use WhatsApp or other social media platforms. In terms of social media usage scores, more respondents had higher scores, indicating that the intensity of social media use by adolescents was considerable. In terms of mental health scores, 218 people (64.88 %) had a poor mental health score, which illustrates that the majority of adolescents in this study had a poor level of mental health.

Bivariate Analysis

Table 2. Relationship between age, gender, frequency of learning, duration of social media use, type of social media with mental health.

Variable	Mental health score				OR	CI 95%		
	Good		Bad			Lower limit	Upper limit	p-value
	n	%	n	%				
Age								
15-17 years	87	40	131	60	1.51	1.15	1.98	0.007
18-20 years	30	25.5	88	74.5				
Gender								
Male	41	30.5	93	69.5	2.27	1.57	3.28	0.185
Female	76	37.62	126	62.38				
Learning frequency								
Rarely	60	29.85	141	70.15	2.35	1.74	3.18	0.019
Regularly	57	42.22	78	57.78				
Duration of social media use								
<2 hours	41	35.04	76	64.96	1.85	1.27	2.70	0.018
>3 hours	76	34.70	143	63.50				
Type of social media								
TikTok	50	30	118	70	2.38	1.88	302	0.989
Facebook	20	30	47	70				
Instagram	14	28	36	72				
YouTube	9	22.5	31	77.5				
WhatsApp or others	4	36.3	7	63.7				
Social media use score								
Low	52	38.81	82	61.19	1.58	1.12	2.24	0.001
High	65	32.18	137	67.82				

Based on Table 2, the bivariate analysis results showed that several variables had a significant association with mental health conditions. Age was significantly associated with mental health (OR = 1.51; p = 0.007), where individuals aged 18-20 years were 1.51 times more likely to have a poor mental score than those aged 15-17 years. The frequency of studying also showed a significant association (OR = 2.35; p = 0.019), with individuals who rarely studied having a 2.35 times higher risk of experiencing poor mental health than those who studied regularly. In addition, the duration of social media use of more than three hours per day increased the risk of poor mental health (OR = 1.85, p = 0.018). This finding suggests that the longer a person uses social media, the more likely they are to experience poor mental health.

Furthermore, the social media usage score was significantly associated with mental health conditions (OR = 1.58; p = 0.001), where individuals with a high social media usage score were at a higher risk of experiencing poor mental health than those with a low usage score. Meanwhile, gender (OR = 2.27; p = 0.185) and type of social media (OR = 2.38; p = 0.989) were not significantly associated with mental health conditions, despite the difference in distribution in each category. Thus, variables with a p-value <0.05, namely age, frequency of study, duration of social media use, and social media use score, were included in the multivariate analysis to identify the most influential factors on mental health.

Multivariate analysis

Table 3. Multivariate analysis using multiple logistic regression.

Variable	aOR	SE	Confidence Interval (CI) 95%		p-value
			Lower limit	Upper limit	
Age (15-17 years)	1.00	0.15	0.75	1.34	0.007
Frequency of learning (rare)	1.00	0.18	0.70	1.42	0.019
Duration of social media use (>3 hours)	1.04	0.20	0.70	1.54	0.018
Social media use score (high)	1.34	0.25	0.82	2.19	0.001

Based on the multiple logistic regression analysis (Table 3), several variables were significantly associated with mental health conditions. The age variable showed a significant association, where individuals aged 18-20 years had a 1.34 times higher risk of having a poor mental health condition than individuals aged 15-17 years (aOR = 1.00; 95% CI = 0.75 to 1.34; p = 0.007). Furthermore, infrequent study frequency was significantly associated with mental health conditions (aOR = 1.00; 95% CI = 0.70 to 1.42; p = 0.019), suggesting that individuals who study infrequently are at a higher risk of poor mental health than those who study regularly. The duration of social media use of more than 3 hours per day also had a significant association (aOR = 1.04; 95% CI = 0.70 to 1.54; p = 0.018), where individuals who used social media for more than 3 hours had a higher likelihood of experiencing mental health disorders than those who used social media for less than 3 hours. In addition, high social media usage scores showed a significant association with mental health conditions (aOR = 1.34; 95% CI = 0.82 to 2.19; p = 0.001), meaning that individuals with high social media usage scores had a greater risk of experiencing poor mental health than those with low usage scores. Thus, the results of this analysis indicate that age, study frequency, duration of social media use, and social media use score significantly influence mental health conditions.

Discussion

Age

Adolescents aged 18-20 years have a higher risk of experiencing poor mental health than adolescents aged 15-17 years. This increased risk can be attributed to the greater social and academic pressures that come with age. Twenge et al. found that older adolescents are more prone to anxiety and depression due to increased academic demands and social pressures (Twenge et al., 2017). In addition, a longitudinal study by Sun et al. showed that increasing adolescent age correlated with an increase in depressive symptoms, especially in those who used social media more frequently (Sun et al., 2024). Another contributing factor is high exposure to social pressure and cyberbullying, as reported by Keles et al., which negatively affects the mental health of older adolescents (Keles et al., 2019). From a nursing perspective, Roy's Stress and Adaptation Theory explains that individuals attempt to adapt to stressors that arise in their lives (Joseph, 2017). In older adolescents, increased academic and social pressure demands stronger coping mechanisms to maintain mental balance. If they are unable to adapt well, adolescents in this age group are more vulnerable to mental health disorders.

Gender

Despite the difference in the distribution of mental health between males and females, the results showed that the relationship between gender and mental health was not statistically significant. This indicates that both male and female adolescents are at relatively equal risk of experiencing mental health disorders due to social media use. Several studies support this finding. although there were differences in how men and women used social media, the psychological impact did not show significant differences (Talukdar, 2024). In addition, Keles et al. reported that the more influential factor on mental health is not gender but usage patterns and the type of content consumed (Keles et al., 2019). Primack et al. also showed that the level of exposure to social comparison and cyberbullying does not differ much between men and women, so the negative impact on mental health is relatively the same (Primack et al., 2017). From a nursing perspective, Roy's Adaptation Theory explains that coping mechanisms influence an individual's response to stress more than biological factors such as gender (Joseph, 2017). As such, both men and women can experience similar impacts, depending on how they manage the stresses that arise from social media use.

Frequency of Study

Teenagers who study infrequently are at a higher risk of poor mental health than those who study regularly. This is because they lack a structure and routine that supports mental balance. Wahyuningsih et al. found that adolescents with regular study habits have better mental health because structured academic routines help them stay focused and reduce stress (Wahyuningsih et al., 2020). In addition, research by Clark et al. showed that organized academic activities can increase self-confidence and reduce adolescent social anxiety (Clark et al., 2024).

Van Ryzin et al. also reported that high academic engagement contributed to lowering the risk of mental health disorders by limiting adolescents' time accessing negative content on social media (Van Ryzin et al., 2022). From a nursing perspective, Orem's Self-Care Deficit Theory explains that individuals who lack good self-care skills or habits are more vulnerable to mental health problems. In this context, a lack of engagement in academic activities may lead to a lack of structure in daily life, potentially increasing stress and anxiety among adolescents (Joseph, 2017).

Duration of social media use

Social media use for more than three hours per day increases the risk of poor mental health in adolescents. This is because of increased exposure to factors that can trigger anxiety, depression, and feelings of loneliness. Primack et al. found that adolescents who used social media for more than three hours per day experienced higher levels of anxiety and depression compared to those who used it for shorter periods (Primack et al., 2017). Keles et al. also showed that excessive social media use increases the likelihood of exposure to cyberbullying and negative social comparisons, which can worsen adolescents' mental states (Keles et al., 2019). In addition, Vogel et al. reported that excessive

social media use is associated with decreased emotional well-being and increased feelings of loneliness due to social interactions that occur more online than in real life (Vogel et al., 2015). From a nursing perspective, Peplau's Social Interaction Theory emphasizes that healthy social interactions play an important role in identity formation and psychological well-being (Aslamina et al., 2024). When adolescents spend too much time on social media, they are likely to experience disruptions in in-person social interactions, which can hurt their mental health.

Type of social media

The types of social media used, such as TikTok, Facebook, Instagram, YouTube, and WhatsApp, did not have a significant relationship with adolescents' mental health. This suggests that it is not the social media platform itself that determines the impact on mental health but rather how adolescents use it and how long they spend on it. Some studies support this finding. Mark found that although each social media platform has different characteristics, the psychological impact depends more on the pattern of use and the social interactions that occur (Van Ryzin et al., 2022). Hartanto et al. confirmed that engagement in negative conversations, consumption of unhealthy content, and exposure to cyberbullying have a greater influence on mental health than simply choosing a particular platform (Hartanto et al., 2024). Syahril showed that the impact of social media on mental health is more influenced by individual factors, such as confidence levels and coping mechanisms, than by the type of application used (Syahril, 2024). From a nursing perspective, Peplau's Social Interaction Theory explains that an individual's well-being in social interaction is determined more by the quality of the relationships built than by the medium used to communicate (Aslamina et al., 2024). Therefore, adolescents who are more active on TikTok and those who use Facebook or Instagram more frequently may experience similar mental health impacts depending on how they interact and the extent to which they are affected by the content consumed.

Social media usage score

Adolescents with high social media usage scores were at a higher risk of poor mental health than those with low usage scores. This is because of excessive online engagement, which often triggers social anxiety, feelings of inferiority, and self-image disturbances. Mark found that high engagement in social media can increase the risk of social anxiety and low self-esteem due to excessive social comparison (Van Ryzin et al., 2022). Syahril also reported that exposure to unhealthy social media content, such as unrealistic beauty standards, contributes to self-image disorders among adolescents (Syahril, 2024). Wilson and Howard showed that adolescents who are more active on social media are more likely to experience feelings of loneliness, which in turn negatively impacts their mental health (Wilson & Howard, 2024). From a nursing perspective, Lazarus and Folkman's Stress Theory explains that how individuals evaluate and respond to stress will determine their impact on mental well-being (Joseph, 2017). If adolescents spend too much time on social media without healthy coping mechanisms, they will be more vulnerable to psychological distress, which can lead to mental health disorders (Thorisdottir et al., 2020).

CONCLUSIONS

This study has successfully demonstrated the significant relationship between social media addiction and adolescent mental health in Ambon City, Indonesia. As outlined in the Introduction, the rapid increase in social media usage among adolescents has raised concerns about its potential impact on mental well-being. The findings in the Results and Discussion sections confirm that factors such as age, study frequency, duration of social media use, and social media usage scores significantly influence adolescent mental health. Adolescents who use social media excessively, particularly for more than three hours per day, exhibit a higher risk of developing anxiety, depression, and social isolation. Additionally, those who study infrequently are more likely to experience poor mental health, emphasizing the importance of structured academic engagement. The results align with previous research highlighting social media's dual impact. While it offers connectivity and information access, it also increases exposure to cyberbullying, social comparison, and psychological distress.

The implications of this study extend beyond academia and research, highlighting the urgent need for intervention programs that promote digital literacy, healthy social media habits, and mental health awareness among adolescents. Future research should explore the role of specific social media algorithms, psychological resilience factors, and targeted interventions to mitigate the negative effects of excessive social media use. Collaborative efforts among educators, parents, policymakers, and healthcare professionals ensure a balanced digital environment fostering adolescent well-being in the modern era.

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