



ORIGINAL ARTICLE

SOCIAL MEDIA USE INTENSITY AND ADOLESCENT ANTISOCIAL BEHAVIOR: A CROSS-SECTIONAL STUDY IN SIDOARJO

Intensitas Penggunaan Media Sosial dan Perilaku Anti Sosial Remaja: Studi Cross Sectional di Kabupaten Sidoarjo

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ABSTRACT

Background: Social media usage is rapidly increasing and has become integral to everyone. The increased use of social media among adolescents has generated substantial concerns regarding its potential effects on mental health disorders. **Purpose:** This study investigates how the intensity of social media use influences antisocial behavior. **Methods:** The research was conducted in Sidoarjo Regency, held from March to April 2025, as an analytical observational method with a cross-sectional design. The population consisted of adolescents aged 17 to 25, with a total sample of 384 respondents selected through simple random sampling based on defined inclusion and exclusion criteria. Variables assessed included social media usage intensity, sleep disorder, self-confidence, anxiety regarding the future, and antisocial behavior. Data were collected using a self-reporting questionnaire and path analysis. **Results:** Findings indicated that 21.40% of respondents had low social media usage intensity, 7.00% experienced low sleep disorder, 24.20% had high self-confidence, and 18.20% did not experience anxiety about the future. Antisocial behavior was predominantly low among respondents (69.50%). The intensity of social media use was found to influence antisocial behavior directly and indirectly. **Conclusion:** Adolescents in Sidoarjo Regency displayed mental health disorder symptoms such as sleep disorder, reduced self-confidence, anxiety about the future, and

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antisocial tendencies. These findings highlight the importance of responsible social media use education, digital literacy programs, stress management initiatives, and increased involvement from families and educational institutions to create supportive environments promoting adolescent emotional stability.

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ABSTRAK

Latar Belakang: Media sosial berkembang pesat dan termasuk sebagai sarana pendukung kehidupan. Peningkatan penggunaan media sosial di kalangan remaja menimbulkan kekhawatiran yang signifikan pada dampak potensi gangguan kesehatan mental. **Tujuan:** menganalisis mekanisme jalur intensitas penggunaan media sosial terhadap perilaku antisosial. **Metode:** Penelitian observasional analitik dengan desain cross sectional. Penelitian dilakukan di Kabupaten Sidoarjo pada Maret-April tahun 2025. Populasi penelitian mencakup seluruh remaja usia 17-25 dengan sampel terdiri dari sebagian populasi yang memenuhi kriteria inklusi dan eksklusi. Besar sampel diperoleh sebanyak 384 responden. Teknik pengambilan sampel dilakukan dengan simple random sampling. Variabel penelitian terdiri dari intensitas mengakses media sosial, gangguan tidur, kepercayaan diri, perasaan takut terhadap masa depan, dan perilaku antisosial. Instrumen penelitian menggunakan kuesioner yang telah dilakukan uji validitas dan reliabilitas. Data dianalisis dengan analisis jalur. **Hasil:** Proporsi responden dengan intensitas rendah mengakses media sosial sebesar 21,40%. Sebesar 7,00% responden mengalami tingkat gangguan tidur rendah. Tingkat kepercayaan diri tinggi hanya dimiliki oleh 24,20% responden. Sebesar 18,20% responden tidak mengalami ketakutan terhadap masa depan. Perilaku antisosial pada sebagian besar responden (69,50%) termasuk dalam kategori rendah. Intensitas mengakses media sosial berpengaruh secara langsung maupun tidak langsung terhadap perilaku antisosial. **Simpulan:** Remaja di Kabupaten Sidoarjo menunjukkan gejala gangguan kesehatan mental seperti gangguan tidur, kepercayaan diri rendah, kecemasan terhadap masa depan, serta kecenderungan perilaku antisosial. Gejala tersebut berkaitan erat dengan tingginya intensitas penggunaan media sosial sehingga diperlukan edukasi penggunaan media sosial dengan bijak, literasi digital, manajemen stres, serta peran aktif keluarga dan institusi pendidikan dalam mendukung stabilitas emosional remaja.

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INTRODUCTION

Alongside advancements in the digital era, social media has rapidly expanded and has become an essential component supporting daily life. Contemporary adolescents are inseparable from social media, utilizing it as a platform for self-expression, identity exploration, the development of interests and talents, and even as a starting point for career opportunities. Although social media offers numerous positive effects, excessive usage poses significant risks. Adolescents make up almost one-fifth of Indonesia's population. The rising trend of excessive social media use among adolescents has raised substantial concerns globally

regarding its potential implications for adolescent mental health disorders. Furthermore, prolonged exposure to negative content on social media can have a detrimental impact on mental and social well-being. However, relatively little is known about the prevalence of mental disorders among Indonesian adolescents despite international research indicating that mental disorders during this developmental period can have adverse outcomes throughout the life course (1).

Mental health disorders have emerged as a critical issue in tandem with the escalating use of social media platforms (2). According to the latest data from the World Health Organisation (WHO), the prevalence of social media misuse among

adolescents increased from 7% in 2018 to 11% in 2022, with this trend contributing significantly to mental health challenges among adolescents (3). In Indonesia, data from the Basic Health Research (Riset Kesehatan Dasar) indicate that more than 19 million adolescents aged over 15 years are affected by mental and emotional disorders (4). The latest Indonesian Health Survey in 2023 reported that the prevalence of depression in Indonesia was 1.40%, with the highest prevalence found among adolescents aged 15–24 years, at 2% (5). I-NAMHS found that mental health problems are common among adolescents, with one in three adolescents (34.90%) having a mental health problem in the past 12 months. Further, one in twenty (5.50%) Indonesian adolescents met criteria for a mental disorder. Anxiety was the most prevalence mental health problem for both males (25.40%) and females (28.20%). Females (6.70%) had a higher prevalence of depression than males (4%), while males had a higher prevalence of conduct problems (3.50% vs 1.20%) and problems with inattention and/or hyperactivity (12.30% vs 8.80%) than females. Younger adolescents had a higher prevalence of problems with inattention and/or hyperactivity (13.20%) as compared to older adolescents (7.80%).

In comparison, older adolescents had a higher prevalence of depression (7.70%) as compared to younger adolescents. The findings of I-NAMHS demonstrate that mental health is a serious public health issue within this demographic. This is further supported by the finding that the vast majority of adolescents who reported a suicidal behaviour or self-harm in the past 12 months also reported having a mental health problem (29). One of the contributing factors to these disorders is the excessive use of smartphones and social media, which heightens the risk of experiencing anxiety, depression, and sleep disorders (6).

In recent years, studies have indicated that social media use, particularly among adolescents aged 17 and above, has significant implications for mental health, including identity confusion, diminished self-confidence, increased tendencies toward bullying, overthinking, antisocial behaviour, and smartphone addiction. Currently, the influence of social media is strongly evident in the shifting attitudes of adolescents, particularly in their declining concern for their immediate environment. Many adolescents tend to withdraw from their surroundings, exhibit indifference, and display a lack of awareness or interest in real-world events (7).

Currently, adolescents are deeply immersed in social media and struggle to disengage from its influence. Adolescence, which spans the age range of 10 to 24 years, represents a transitional phase between childhood and adulthood. This period encompasses both physical development and significant shifts in social roles (8). According to Erikson's psychosocial theory, adolescence is a critical stage characterized by the search for self-identity and the establishment of social roles. Social media serves as a platform through which adolescents explore and express various dimensions of their identity, including personal style, opinions, and interests. This exploration often leads to a desire for self-validation, which is often manifested in the pursuit of likes, positive comments, and followers—metrics perceived as indicators of social success in the digital realm. However, this dependency on curated online personas may result in a blurred distinction between one's authentic identity and the identity portrayed on social media. Furthermore, the predominance of virtual interactions can hinder the development of genuine interpersonal connections and disrupt the formation of healthy, meaningful relationships (9).

Dependence on social media platforms may gradually lead individuals to detach from their social environment, reduce the intensity of interpersonal interactions, and become more socially withdrawn. This condition is commonly identified as antisocial behaviour. If not given adequate attention, such behaviour can result in serious negative consequences. Individuals with antisocial tendencies often exhibit a decreased sense of responsibility, indifference toward others, and may be prone to engaging in actions that contravene social norms or legal laws (10).

The unwise dependence on social media among adolescents presents a critical issue that warrants attention, as it may contribute to the development of antisocial behaviour. The growing prevalence of mental health issues globally has made mental health disorders a priority concern to be addressed, as outlined in SDG Goal 3, namely Good Health and Well-Being. Specifically in Indonesia, the government aims to achieve a one-third reduction in premature mortality from non-communicable diseases through prevention and treatment, as well as improvements in mental health and well-being, by 2030, as stated in SDG Target 3.4 (11). This study aims to analyze the pathway mechanism by which social media use intensity affects antisocial behaviour, mediated by variables including sleep disorder, self-confidence, and feelings of fear about the future.

METHODS

Study Design

This study employed an analytical observational approach with a cross-sectional design, conducted in Sidoarjo Regency, East Java Province, in March and April 2025.

Population, Sample, Sampling Technique

The population includes all adolescents aged 17 to 25. The sample was drawn from individuals within this population who met the specified inclusion and exclusion criteria. The inclusion criteria consisted of adolescents aged 17 to 25 years who owned a smartphone with access to at least one social media platform, such as Instagram, WhatsApp, Twitter, TikTok, or Facebook, and were able to communicate effectively. Individuals were excluded from the sample if they had not used social media for a period exceeding three months. The researcher determined the three-month time frame based on the consideration that an individual can be categorized as not experiencing social media addiction if they can refrain from accessing it for more than three months (12).

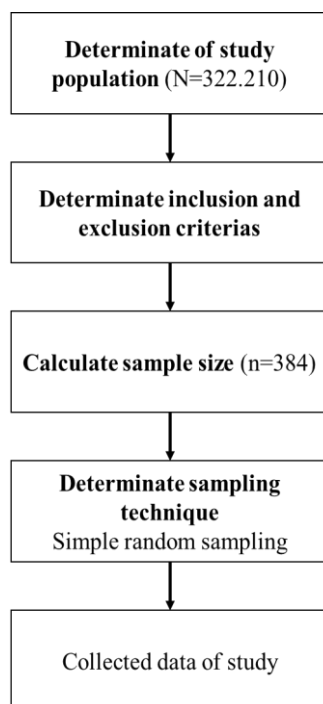


Figure 1. Procedure for Determination of Population, Sample, and Sampling Technique

The research sample was calculated using the Lemeshow sample size calculation formula. Based on the calculation results, with a total population of 322,210 adolescents aged 17-25 years, the research

sample size consisted of 384 respondents. The sampling technique used in this study was simple random sampling, in which every individual in the population had an equal chance of being selected as a research sample. The simple random sampling technique was initiated by compiling a comprehensive list of all population members across the sub-districts and villages in the Sidoarjo area. Subsequently, a lottery method was employed to select the sample.

Variable

The study variables consisted of the intensity of social media access, sleep disorder, self-confidence, feelings of fear of the future, and antisocial behaviours. The research instrument used a questionnaire that tested validity (P-value Pearson Correlation test > 0.05) and reliability (Cronbach's Alpha coefficient: 0.82). The total number of questions consisted of 46 items, comprising eight questions to assess the variable of social media use intensity, nine questions for sleep disorder, 10 questions for self-confidence, eight questions for feelings of fear about the future, and 11 questions for antisocial behaviour. Each variable in this study consisted of both positively and negatively worded items. Responses were measured using a Likert scale. For positively worded items, a score of 1 was assigned for "strongly disagree," 2 for "disagree," 3 for "agree," and 4 for "strongly agree." Conversely, for negatively worded items, the scoring was reversed: 1 for "strongly agree," 2 for "agree," 3 for "disagree," and 4 for "strongly disagree."

The categorization for the variable of social media access follows:

Low: 8–15

Moderate: 16–24

High: 25–32

The categorization for the variable of sleep disorder follows:

Low: 9–20

Moderate: 21–33

High: 33–45

The categorization for the variable of self-confidence follows:

Low: 38–50

Moderate: 24–37

High: 10–23

The categorization for the variable of feelings of fear of the future follows:

Low: 8–17

Moderate: 18–29

High: 30–40

The categorization for the variable of antisocial behaviours follows:

Low: 11–25

Moderate: 26–40

High: 41–55

Instrument and Data Analysis

Data collection was conducted using a self-report questionnaire. Data collection from respondents under 18 years of age was conducted after obtaining consent from their parents or legal guardians (aged 25 or older). It was carried out under the supervision of these individuals. Path analysis was chosen as a data analysis technique. Statistical analysis was conducted using LISREL software.

Ethical Clearance

This study has obtained ethical approval from the Health Research Ethics Committee of the Faculty of Health Sciences, Universitas Muhammadiyah Surabaya, under approval number 064/KEPK/F/VI/FIK/2025.

RESULTS

The characteristics of the study respondents, as shown in Table 1, indicate that nearly all respondents (74.74%) are female. The results showed that most respondents (53.65%) had more than three social media accounts. Additionally, nearly half of the respondents (34.64%) spent 10-30 minutes accessing social media once a day. From the study's results, it can be seen that most respondents (55.99%) upload photos/videos/other uploaded materials on social media at a frequency of once a week. The activity carried out by almost all respondents (96.61%) while accessing social media was uploading and/or viewing other people's posts.

The variable frequency distribution of the intensity of social media access, sleep disorder, self-confidence, fear of the future, and antisocial behaviour is presented in Table 2. Data analysis revealed that the proportion of respondents with low intensity who accessed social media was 21.40%. Only 7.00% of respondents experienced a low level of sleep disorder. The high level of confidence was only possessed by 24.20% of respondents. Only 18.20% of respondents reported not experiencing a fear of the future. On the other hand, antisocial behaviour in most respondents (69.50%) was classified as low.

Table 1

Characteristics of Respondents

Variable	n	%
Sex		
Man	97	25.26
Woman	287	74.74
The amount of social media owned		
< 3	116	30.21
≥3	206	53.65
≥5	62	16.15
Time spent on one-time access to social media		
<10 minutes/day	27	7.03
10-30 minutes/day	133	34.64
31-60 minutes/day	92	23.96
>60 minutes/day	132	34.38
Frequency of posting on social media		
1 time/week	215	55.99
2-3 times/week	115	29.95
Every day	29	7.55
>1 time/day	25	6.51
Activities while accessing social media		
Uploading or viewing other people's posts	371	96.61
Access for work	13	3.39

Source: Primary data, 2025

Table 2

Frequency Distribution of Social Media Access Intensity, Sleep Disorders, Self-Confidence, Fear of the Future, and Antisocial Behaviour in Respondents

Variable	n	%
Intensity of accessing social media		
Low	82	21.40
Medium	295	76.80
High	7	1.80
Sleep disorders		
Low	27	7.00
Medium	300	78.10
High	57	14.80
Confidence		
Low	21	5.50
Medium	270	70.30
High	93	24.20
Fear of the future		
Low	70	18.20
Medium	213	55.50
High	101	26.30
Antisocial behavior		
Low	267	69.50
Medium	113	29.40
High	4	1.00

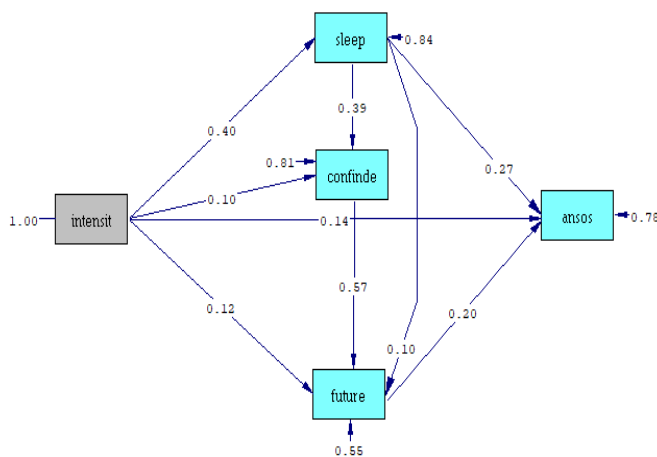
Source: Primary data, 2025

The identification mechanism of the influence of social media access intensity on antisocial behaviour was carried out through channel analysis using the LISREL application. The indicators used to identify model suitability were the Chi Square test p-value (model fit if p-value>0.05), RMSEA value (model fit if value≤0.08), sRMR value (model fit if value<0.05), GFI value (model fit if value>0.90), NFI value (model fit if value>0.90), CFI value (model fit if value>0.90), and IFI value (model fit if value>0.90).

Table 3
Goodness of Fit Test

Indicators	Fit Criteria	Result Value
Chi Square	>0,05	0,44
RMSEA	≤0,08	<0,01
sRMR	<0,05	0,01
GFI	>0,90	1,00
NFI	>0,90	1,00
CFI	>0,90	1,00
IFI	>0,90	1,00

The identification of the model's fit using several criteria of the Goodness of Fit Test, including Chi-Square, RMSEA, sRMR, GFI, NFI, CFI, and IFI, shows that the model is fit because it meets the model's fit requirements.



Chi-Square=0.44, df=1, P-value=0.50782, RMSEA=0.000

Figure 1. Diagram of the Mechanism of the Path of Social Media Use Intensity to Antisocial Behaviour

The pathway mechanism, as illustrated in Figure 1, suggests that the intensity of accessing social media can directly or indirectly influence antisocial behaviour. Four pathway mechanisms explain the

indirect influence of social media intensity on antisocial behaviour. The first mechanism shows that the intensity of accessing social media can result in a person experiencing sleep disorders, which can result in a person behaving antisocially. The second mechanism shows that the intensity of accessing social media can cause a person to experience sleep disorders, sleep disorders cause a person to be insecure, self-confidence causes a person to have a fear of the future, and fear of the future causes a person to behave antisocially. The third mechanism suggests that the intensity of accessing social media can impact a person's self-confidence, which in turn can lead to a fear of the future. This fear of the future can cause a person to behave in an antisocial manner. The fourth mechanism suggests that the intensity of accessing social media leads to a feeling of fear about the future, and this feeling of fear, in turn, results in a person behaving antisocially.

Total effects are calculated by adding up the total direct effects and total indirect effects. Total direct effects are obtained by multiplying the value of the standardized coefficient of the variables that directly influence antisocial behaviour. The results of the study indicate that the frequency of accessing social media has a direct impact on antisocial behaviour. The total indirect effect was calculated by multiplying the value of the standardized regression coefficient for each variable that indirectly influenced antisocial behaviour. The calculation of the total indirect effects on both pathways is as follows:

- Total direct effects: Intensity of social media access → antisocial behaviour = 0.14
- Pathway 1: Intensity of social media access → sleep disorders → antisocial behavior = $0.40 \times 0.27 = 0.11$
- Pathway 2: Intensity of social media access → sleep disorders → confidence → fear of the future → antisocial behaviour = $0.40 \times 0.39 \times 0.57 \times 0.20 = 0.02$
- Pathway 3: Intensity of social media access → confidence → fear of the future → antisocial behaviour = $0.10 \times 0.57 \times 0.20 = 0.01$
- Pathway 4: Intensity of social media access → fear of the future → antisocial behaviour = $0.12 \times 0.20 = 0.03$
- Total indirect effects: $0.11 + 0.02 + 0.01 + 0.03 = 0.17$
- Total effect: $0.14 + 0.11 + 0.02 + 0.01 + 0.03 = 0.31$

The total direct effect based on Figure 1 is known to be 0.14 with a positive sign, meaning that

the effects caused are directly proportional and belong to a small category so that if someone accesses social media in the high category, it will increase the risk of antisocial behavior, on the other hand, if someone accesses social media in a low category, it will reduce the risk of antisocial behavior. The total indirect effect obtained was 0.17, with a positive sign, indicating that the effects caused were directly proportional and fell within the small category. The total effect obtained is 0.31, with a positive sign, indicating that the effect is directly proportional and falls into the medium category (13).

DISCUSSION

Sleep disorders, self-confidence, and fear of the future in adolescents

Negative health conditions (psychological distress) were shown through only a small percentage of respondents with low intensity accessing social media, a small percentage of respondents experiencing low levels of sleep disorder, a small percentage of respondents having high levels of self-confidence, and only a small percentage of respondents not experiencing fear for the future due to the fact that respondents belonged to the adolescent age group. Adolescents are an age group that is vulnerable to experiencing peak emotional tension. This condition occurs because adolescents are not optimal in controlling social-emotional changes, so that they have an impact on the onset of anxiety, stress, and depression (7). Emotional instability in adolescents causes adolescents to easily experience mood swings when they receive stimuli that they perceive as bad from the environment and do not have enough ability to cope with them (14,15).

Erikson's psychosocial theory states that individuals develop their personality and identity through eight stages of development: Trust vs. Mistrust (0–1 year), Autonomy vs. Shame and Doubt (1–3 years), Initiative vs. Guilt (3–6 years), Industry vs. Inferiority (6–12 years), Identity vs. Role Confusion (12–18 years), Intimacy vs. Isolation (18–40 years), Generativity vs. Stagnation (40–65 years), and the final stage, Ego Integrity vs. Despair (above 65 years). Adolescence encompasses two stages of this developmental framework: Identity vs. Role Confusion (12–18 years) and Intimacy vs. Isolation (18–40 years)

The Identity vs. Role Confusion stage describes how adolescents strive to form a sense of self by exploring various social roles. Failure to successfully navigate this stage may lead to role

confusion, where individuals struggle to establish a clear personal identity. In the Intimacy vs. Isolation stage, adolescents and young adults begin to form deeper connections with others. If they are unsuccessful, they may experience loneliness and emotional isolation (9).

Social media in this stage is an important means for adolescents to explore roles, build self-identity, and seek recognition and feedback. The higher the intensity of social media use, the more opportunities it presents for adolescents to explore various identities and form social connections. Although it has a good impact on adolescent development, social media contributes to the high number of mental health problems. Mental health, related to psychological well-being, includes feelings of joy, interest, and the ability to enjoy the life one lives. Previous studies, such as Ginting et al. (26), also highlight the positive association between psychological well-being and mental health problems among undergraduate public health students in Medan ($p\text{-value} \leq 0.05$). The findings emphasize the crucial role of a conducive learning atmosphere in maintaining students' psychological well-being.

Additionally, the study findings indicate that high psychological well-being is associated with a lower prevalence of mental health problems. Psychological well-being, encompassing life satisfaction, happiness, and overall quality of life, is crucial in promoting positive mental health. Students with good psychological well-being tend to be more confident, have clear life goals, and build positive social relationships, reducing their risk of mental health disorders such as depression and anxiety. Higher psychological well-being is associated with lower stress levels and improved mental health. Conversely, low psychological well-being increases the risk of mental health disorders, reinforcing the importance of maintaining psychological well-being among college students. Therefore, systematic efforts should be made to enhance students' psychological well-being, enabling them to reach their optimal academic and social potential (22). Individuals with a high level of mental health are characterized by the presence of positive emotions, such as feeling calm, peaceful, cheerful, and happy, as well as having an interesting daily life and being able to appreciate what they experience (13).

Mechanism of the Intensity Pathway of Social Media Access, Sleep Disorders, Self-Confidence, and Fear of the Future Against Antisocial Behaviour

The results of the study indicate that the frequency of accessing social media can have a direct impact on antisocial behaviour. Social media facilitates the activities of many people, including adolescent groups. Through social media, teenagers can communicate, form online groups, share content, and participate in them, allowing them to spread content that is considered interesting by their peers. However, adolescents with a high intensity of accessing social media tend to have their social interactions become indirect, which reduces their socialization skills and can even eliminate social sensitivity (7). Dependence on imagery on social media can cause confusion between real self-identity and self-identity that is displayed. Additionally, the prevalence of online interaction can hinder the formation of authentic and healthy interpersonal relationships (9).

The prevalence of sleep disorders in college students worldwide was found to be higher than the prevalence in the general population (17). This condition can be caused by the high intensity of accessing social media in student groups (18). A person with a social media addiction has a higher risk of having a sleep disorder (19). Sleep disturbances may occur as a result of exposure to news content—whether intentional or unintentional—encountered while accessing social media (20). Sleep disturbances refer to a group of conditions that interfere with normal sleep patterns. These conditions include insomnia, sleep-disordered breathing, central disorders of hypersomnolence, circadian rhythm sleep-wake disorders, parasomnias, and sleep-related movement disorders (21).

The use of social media can result in changes in the pattern of time use (the time that should be used for sleep is replaced by activities in front of the screen), the emergence of psychological stimulation based on media content resulting in the feeling of wanting to keep looking at the screen, and the impact of the light emitted by the screen that affects the circadian rhythm (19). Previous research has demonstrated that sleep quality can influence the development of individual characteristics. A person with a sleep disorder has lower confidence, optimism, and self-esteem. Individuals with insomnia tend to experience a decline in quality of life (20). In general, those suffering from sleep disturbances may encounter impairments in physical, mental, social, and emotional functioning.

Sleep disorders can significantly impact overall health, safety, and quality of life (22).

Confidence is a belief that arises from within a person in their own abilities, allowing them to take every action without anxiety and feel free (23). Previous studies, such as Alkitiri et al (27), also highlight the positive association between the level of self-confidence and anxiety of adolescents toward mental health problems in Jember 2023 (p-value 0.00; OR 2.77 and p-value 0.02; OR 1.71). Anxiety arises as a result of a decrease in confidence. Anxiety causes excessive fear, including having a future without purpose (24). This anxiety can result in a person behaving antisocially (25). Antisocial behaviour is characterized by a persistent and continuous pattern of disregarding and violating the rights of others. If it does not receive serious attention, antisocial behaviour can be very detrimental to a person. Adolescents with antisocial behaviour trigger a lack of responsibility in themselves, indifference to others, and can even commit violations and criminal acts that violate the law (9). Individuals with antisocial behaviour disorders often exhibit dysfunction in interpersonal relationships and overall performance, which frequently leads to a diminished quality of life (10).

Adolescent mental health disorders require serious, large-scale, and comprehensive intervention, as they can lead to failures in identity formation and difficulties in building relationships. In this context, social support from parents and peers plays a crucial role (Krause et al., 2010). Strong social support reduces the risk of mental disorders such as depression and anxiety. Social support fosters an emotional network that enables students or adolescents to manage stress effectively in both academic and social settings (16). A study revealed that adolescents are better able to cope with problems when they receive strong social support from family members, peers, and healthcare providers (26).

Research Limitations

This study examines the internal aspects of the respondents (sleep disorder, self-confidence, fear of the future, and antisocial behaviour) as well as the external aspect, namely the intensity of accessing social media based on Erikson's theory of psychosocial development. However, the internal aspect of this study consists of only four variables. The role of other internal aspects, such as emotions and motivation, in influencing mental health has not been studied. Additionally, the study respondents' age was limited to 17-25 years old. Erikson's stage

of psychosocial development, the adolescent stage, begins at the age of 12. This is a potential material for future research.

This study may be biased regarding the variable of sleep disorders because not all respondents have witnessed sleep activities. Consequently, the answers to these variables are based solely on the subjectivity and perception of the respondents, especially those with antisocial behaviour who tend to isolate themselves from social interactions. This study employed a cross-sectional research design; therefore, further research utilizing a cohort design is necessary to confirm the mechanisms of social media intensity and its role in antisocial behaviour.

CONCLUSION

This study found that some respondents, especially adolescents, showed symptoms of mental health disorders such as sleep disorders, low confidence, anxiety about the future, and antisocial behaviour tendencies. These symptoms are closely related to the high intensity of social media use, which can impact sleep quality, emotional stability, and social interaction. Uncontrolled use of social media has the potential to reduce an individual's psychological health, either directly through sleep disorders or indirectly through decreased self-confidence and increased anxiety that can lead to socially deviant behaviour.

Promotive and preventive efforts are needed in maintaining the mental health of adolescents, especially through education on the wise use of social media. Educational institutions and families are expected to play an active role in providing support and fostering an environment that promotes the emotional well-being of adolescents. In addition, the development of digital literacy and health promotion, including responsible social media use, cyberbullying prevention, and empathy building, is crucial to support adolescent mental health and social development. Encourage healthy online habits that promote positive social skills and mental well-being, increase awareness of the link between excessive or negative social media use and antisocial behaviour, and build resilience and coping strategies to reduce the risk of isolation and aggression.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

AUTHOR CONTRIBUTIONS

TNB: develop the main concept, analyzed data, and compile articles. LA: writing manuscript and guided during revision. ND: collected the data and wrote the manuscript, and analyzed the data. NRR: collected the data and wrote the manuscript. M: Review the manuscript. RWB: Review the manuscript. DT: Review the manuscript. HTSMAA: writing and translating the manuscript.

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