The Impact of Time Spent on Social Media on the Occurrence of Anxiety in Youth: A Cross-Sectional Study in Surakarta, Indonesia

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ABSTRACT

Background: In the era of technology and globalization, social media with youth is something that cannot be separated. However, the surge of information shared easily and sometimes unverified through social media can triggers anxiety, especially among teenager who spent overwhelmingly hours with social media.

Purpose: This study aimed to investigate the impact of time spent on social media on the occurrence of anxiety in youth.

Methods: This cross-sectional study at the School of Health in Surakarta, Indonesia, examined into the association between social media usage and the levels of anxiety in college students. The method of simple random sampling from 300 student population was used to select the 213 students who comprised the samples. We used a questionnaire to gathering data from respondents then analyzed it using linear regression analysis for determining the correlation between variables.

Results: The results of analysis showed that spending more than two hours a day on social media has a statistically significant effect on anxiety levels ($\beta = 1.75$; 95% CI = -0.31-3.19; $p = 0.017$).

Conclusion: These results offer valuable insights for encouraging students to be aware of how their use of social media may affect their mental well-being. Implementing strategies such as establishing time limits on social media, incorporating breaks, and participating in activities that foster mental health, like exercise, hobbies, or offline social interactions, can prove advantageous.

Keywords: anxiety, social media, time spent, youth

BACKGROUND

The World Health Organization (WHO) estimates that one in four people worldwide suffers from a mental illness (Kakaei et al., 2023), with rising prevalence negatively impacting communities and economies (Kaligis et al., 2021a). University students, particularly in Asia, are vulnerable to mental health disorders such as depression and anxiety (Kaligis et al., 2021b). In Indonesia, 6.1% of individuals aged 15 and older approximately 16 million people experience depressive disorders (Jamila et al., 2021).

While internet accessibility has transformed communication, education, and business, it has also contributed to rising internet addiction (Griffiths et al., 2014). Social media platforms such as Facebook, Instagram, WhatsApp, and Twitter have revolutionized global connectivity by enabling instant communication, information sharing, and online networking (Anderson & Jiang, 2018; Nakaya, 2015a). These platforms are especially popular among younger generations, offering diverse spaces for interaction (Nakaya, 2015b).

However, excessive social media use is linked to negative psychological outcomes, including reduced productivity, increased laziness, and diminished face-to-face social skills (Watkins, 2009; Wilson & Stock, 2021). Cross-national studies report a significant association between problematic SMU and depressive symptoms (Brailovskaia et al., 2019; Lin et al., 2021). For instance, a Norwegian study found compulsive social media use correlated with anxiety and depression (Andreassen et al., 2016). Iranian students exhibited worsening mental health due to SMU (Lebni et al., 2020b). In Turkey, individuals with anxiety/depression showed higher social media addiction rates, with certain personality traits increasing susceptibility (Şentürk et al., 2021).

Indonesia ranks fourth globally in internet usage, with 196.7 million users (73.7% of the population) as of 2020 (APJII, 2017; IWS, 2020). Indonesians spend an average of 9 hours daily on smartphones (Putri et al., 2022), highlighting the pervasive role of digital platforms. Given these trends, regional studies are crucial to understanding the mental health impacts of social media use, particularly among adolescents.

This study investigates the relationship between time spent on social media and anxiety levels among Indonesian youth, addressing a critical gap in localized research on digital behavior and mental well-being.

METHODS

This study was a quantitative study with an observational cross-sectional method focused on college-aged youth, specifically those in the 18-23 age range, residing in Surakarta City, Indonesia. Data for the research were gathered through an online questionnaire administered between November and December 2022.

This study used a cross-sectional design and included college students from various academic levels at the School of Health in Surakarta. We used the simple random sampling method from 300 student population, with two hundred and thirteen youths who met the inclusion criteria were chosen as participants. The inclusion requirements were being a student at Mamba'ul Ulum's School of Health and agreeing to participate in the study. The online questionnaire link circulated on social media across educational and intellectual groups.

The research instrument was a questionnaire, divided into two parts as follows:
Part 1: General information, including gender, age, preferred social media platforms, and duration of social media use.
Part 2: Anxiety level, measured using a 7-item Generalized Anxiety Disorder scale (GAD-7) with response options identical to the PHQ-9. The GAD-7 can be scored as a continuous variable from 0 to 21, with higher scores indicating more severe anxiety. For analytical

purposes, the mean scores were categorized into two levels:

A score of 0–15 indicates a low level of anxiety. A score of 16–21 indicates a moderate to high level of anxiety. The anxiety level questionnaire was assessed for content validity by three clinical trials. The results showed strong convergent validity (most correlations in the 0.7–0.8 range) and construct validity (most correlations in the 0.4–0.6 range) when examining its association with other mental health, quality of life, and disability measures. The reliability of the entire questionnaire was tested using Cronbach's alpha coefficient, with values ranging from 0.8 to 0.9.

Linear regression was used to analyze the relationships between duration of using media social, duration of gaming, gender, and age towards the depression and anxiety levels. For statistical tests, the significance level was set at 0.05

This study approved by the Ethics Committee Institute of Health Science Strada with number: 2145/KEPK/IX/2022.

RESULTS

General information

The study involved 213 students between 18 and 23 who enrolled at the School of Health Mamba'ul 'Ulum in Surakarta. With a mean age of 19 (SD= 1.18), women accounted for most of them (85.92%). TikTok comprises 33.80% of all social media platforms used. Most of them (67.61%) were using social media for a time exceeding two hours (Table 1).

Table 1. Demographic variables of participants (n=213)

Demographic variables	Category	n (%)
Gender	Male	30 (14.08)
	Female	183 (85.92)
Age (years) [Mean±SD]	18-23	19.69±1.18
Preferred social media platforms	Not using any	3 (1.41)
	Facebook	9 (4.23)
	Instagram	93 (43.66)
	TikTok	72 (33.80)
	All of the above	36 (16.90)
Time spent on social media	≤ 2 hours	69 (32.39)
	> 2 hours	144 (67.61)

Participants' level of depression and anxiety

The average score for participants was 24.04 (SD = 4.75), indicating that most of them experienced elevated symptoms of depression. Similarly, most participants reported feeling anxious, with an average score of 16.85 (SD = 4.53). Table 2 shows how additional factors, like gender, the length of time spent on social media, and the preferred social media platform, affect anxiety and depression. Notably, greater levels of both disorders were experienced by a higher number of females (67.00% for depression and 61.97% for anxiety). More than two hours on social media was associated with greater rates of anxiety (46.47%) and depression (53.52%) among the respondents. Moreover, the most significant percentages of anxiety (28.16%) and depression (35.21%) were reported among TikTok users.

Table 2. Level of anxiety in participants (n=213)

Independent Variables	Category	Score of Depression			
		Low		High	
		n	%	n	%
Gender	Male	21	9.85	9	4.22
	Female	51	23.94	132	61.97
Time spent on using media social	≤2 hours	27	12.67	42	19.71
	>2 hours	45	21.12	99	46.47
Type social media platform	Not using any	0	0	3	1.40
	Facebook	0	0	9	4.22
	Instagram	33	15.49	60	28.16
	TikTok	27	12.67	45	21.12
	All of the above	12	5.63	24	11.26

The relationship between times spent on social media with anxiety level

The linear regression analysis was used to investigate how the impact of times spent on social media with anxiety level. In bivariate analysis, there is a correlation between anxiety level and the amount of time spent on social media (β = 1.97; 95% CI = 0.69-3.26; p = 0.003), and in multivariate linear regression analysis, there is a statistically significant correlation (β = 1.75; 95% CI = -0.31-3.19; p = 0.017) between the amount of time spent on social media and anxiety (Table 4). Table 4 additionally demonstrated the statistical significance ($p < 0.05$) of other characteristics such as age, gender, and social media platform preference with anxiety levels.

Table 3. Linear regression on anxiety level

Model	Factor	Coefficients (β)	Standar Error	95% CI	p-Value
Bivariate	Time spent	1.97	0.65	0.69-3.26	0.003
Multivariate	Time Spent on Social Media	1.75	0.72	0.31-3.19	0.017
	Gender	2.52	0.98	0.57-4.47	0.011
	Age (years)	-0.79	0.26	-1.32-0.27	0.003
	Preterntion of social media platform	-0.69	0.34	-1.38-0.01	0.047

DISCUSSION

The average anxiety score of 16.85 (SD = 4.53) for the participants showed that most of them experienced elevated anxiety symptoms. Anxiety level and social media usage are correlated in bivariate analysis, and there is a statistically significant correlation between social media usage and anxiety in multivariate linear regression analysis. This results was simmilar with a study by Jamila et al., (2020) which stated that there is no significant between the amount of social media use (p=0.109; r=0.136) and depressed symptoms, although there is a significant correlation with anxious symptoms (p=0.013; r=0.241) (Jamila et al., 2021). The length and frequency of use determine the intensity of social media use, with longer frequency and duration being associated with higher intensity. When people use social media excessively, it might cause mood swings and anxiety when they take a break from it (Zubair et al., 2023). This is brought on by the anxiety of falling behind social media trends and activities, commonly

known as FOMO, or "Fear of Missing Out" (Liu et al., 2023; Gupta & Sharma, 2021). Social media users are compelled to stay connected as much as possible by this anxious sense (Zanon et al., 2021).

Interestingly more women suffered from higher degrees of anxiety (61.97%) and it was found that anxiety levels are significantly correlated with gender. It was supported by Gao et al., (2019) which stated that the most common and significant problem among college students, particularly female students, was anxiety, while male students were increasingly more likely to experience depression during their time in school (Gao et al., 2020). This could be explained by the idea that physiological differences between the sexes, such as genetic vulnerability, hormone and cortisol levels, etc., may reflect behavioral and emotional disparities between them. For example, men and women responded differently to stress because of their differences in sensitivity to events. Women were more prone than men to stress and pain, which may have contributed to their higher levels of anxiety and depression (Afifi, 2007; Chaplin et al., 2008; Hankin & Abramson, 1999).

In addition, the survey discovered that the greatest percentages of worry (28.16%) and melancholy (35.21%) were reported by TikTok users. An important relationship between anxiety levels and the favored social media platform was found via multivariate analysis. It's interesting to note that TikTok's user base increased significantly; in 2022, 500 million people downloaded the app worldwide, with 11% of downloads coming from Indonesia. More information was revealed by Permana's poll from 2022, which showed that an astounding 96.4% of respondents use TikTok on a daily basis. Alarming data was also revealed by the survey: 96.5% of the content was stressful; 78.2% of pupils lost focus; 69.1% of students lost self-control; and 43.6% of respondents felt nervous if they didn't use TikTok every day. These findings collectively underscore the notable impact of TikTok on mental well-being, emphasizing the need for further exploration and awareness in this regard (Permana, 2022).

This research has certain strengths and limitations that are worth evaluating. The strengths of this study, the high sample size and recent data collection support the analysis' ability to draw conclusions. The limitations of this study are that it is not obvious what social media content are linked to anxiety. Furthermore, social media includes more than simply Facebook, Instagram, and TikTok. While we only examined these three platforms, participants might choose to use Twitter, Pinterest, Tumblr, Snapchat, and so on. Social media use demonstrated to be of utility, however an excessive or non-correct use may be a risk factor for mental health, including depression, anxiety, and addiction (Bozzola et al, 2022).

CONCLUSION

The study's findings suggest that measures be put in place to help those who are feeling elevated anxiety use social media less; in particular, a daily exposure restriction of less than two hours should be encouraged. It is imperative to advise people to self-regulate their use of social media in order to raise awareness of the possible detrimental effects of excessive use on anxiety. Responsible social media use can also be promoted by supporting the creation and application of rules by authorities or social media companies, such as suggested daily usage caps. In order to evaluate the efficacy and sustainability of therapies, investigate moderating factors impacting the influence on mental health, such as content type and individual user behavior, and comprehend the long-term consequences of social media on anxiety. Further research should focus on longitudinal studies to understand the long-term effects of social media on anxiety, assess the effectiveness and sustainability of interventions, and explore moderating factors influencing mental health impact, such as content type and individual coping mechanisms.

Declaration of interest statement

The authors declare no conflict of interest.

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