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The Relationship Between Social Media Addiction and Self-Esteem in Medical Students of Diponegoro University

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ABSTRACT

Background: In the modern era, social media has become a necessity in carrying out daily activities. Playing social media too often can have negative effects. These negative effects include addiction. Social media addiction can interfere with daily activities and affect the level of self-esteem.
Objective: To prove the relationship between social media addiction and selfesteem among medical students at Universitas Diponegoro.
Methods: This research was an analytical observational investigation utilizing a cross-sectional methodology. The study was carried out over a span of one month, involving 90 participants from the medical students batch 2022 at Universitas Diponegoro. The questionnaires used were the Social Media Addiction Scale-Student Form (SMAS-SF) and Rosenberg Self Esteem Scale (RSES). The assessment of the correlation between social media addiction and self-esteem using the Spearman test.
Results: 2.2% of respondents had a very low level of social media addiction; 52.2% had a low level; 44.4% had a high level; and 1.1% had a very high level. In terms of self-esteem, the data revealed that 84.4% of respondents had a high level of self-esteem, while 15.6% had a low level. In the correlation test between demographic factors, social media addiction, and self-esteem, an insignificant relationship was found with a p-value greater than 0.05. Meanwhile, a significant relationship was found in the correlation test between social media addiction and the level of self-esteem (p=0.001, r=-0.335).
Conclusion: A significant relationship exists between social media addiction and the level of self-esteem among medical students at Diponegoro University.

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1. Introduction

Social media is a platform that facilitates user.[1] There are 191 million Indonesians who are social media active users since January 2022, according to a survey by We Are Social from a world survey institute based in England.[2] The number has increased by 12.35% compared to the previous year, which means it is now at 170 million.[2] Students are likely familiar with social media and its benefits for supporting education.[3] However, it's crucial to recognize that excessive use of social media can have a negative impact on your thoughts, feelings, and self-esteem.[4]

Self-esteem refers to the positive or negative feelings resulting from self-evaluation.[5] Social media users often feel happy about others' achievements but also realize their shortcomings, leading to decreased self-esteem.[6] The reciprocal process can increase self-esteem, such as receiving positive responses to uploaded content.[7]

Using social media routinely can lead to addiction and negatively impact in psychological condition.[8] Each time a person uses their preferred social media application, it triggers a surge of dopamine signals in the brain.[9] The increase in dopamine caused by social media addiction can damage the prefrontal cortex and impact an addict's quality of life.[10] Research showed a level of self-esteem affects how much it fluctuates based on success or failure.[11] The issues mentioned frequently arise from social media addiction and comparison to others.[6]

Those who use social media for 5-6 hours a day are considered addicted.[12] Social media addiction can negatively affect emotional and cognitive functions, potentially leading to low self-esteem.[13–15] When someone's emotional and cognitive states are disrupted, it can negatively impact their self-esteem and potentially lead to additional mental health issues.[16]

It can be said that social media addiction and self-esteem have a relationship with each other.[17] Furthermore, there remains a significant prevalence of social media addiction among university students. Advancements in technology, lack of self-discipline, and inadequate stress management

can exacerbate the situation if not effectively addressed.[6] Therefore, the author is interested in examining the relationship between social media addiction.

2. Methods

This research was an analytical observational investigation using a cross-sectional methodology conducted from April until May 2023. Ethical clearance for this study was obtained from the Health Research Ethics Commission of the Faculty of Medicine Diponegoro University

This study included 2022 students who met the inclusion and exclusion criteria. The inclusion criteria are active students, willing to be as a research subject, willing to sign a letter of consent, using smartphones, and at least have one active social media account. The exclusion criteria used were diagnosed mental disorders. The sampling method used was simple random sampling. Then 90 samples were obtained.

SMAS-SF (Social Media Addiction Scale-Student Form) was used as a scoring level of social media addiction. RSES (Rosenberg Self Esteem Scale) was used to measure the level of self-esteem. Questionnaires were spread through Google Forms, then descriptive analysis and correlation tests were conducted. Correlation test using Spearman test.

3. Result

Based on the data obtained, the majority of respondents are 19year-old female. The male respondents were only 20% of the participant. The status of residence shows that the majority of respondents live in boarding houses with a percentage of 85.6%. Most of the respondents (48.9%) had a very satisfying GPA.

Table 1. Characteristics of respondents

Variable	n	%
Age		
17	2	2.2%
18	34	37.8%
19	48	53.3%
20	6	6.7%
Gender		
Male	18	20%
Female	72	80%
Residence		
Boarding house	77	85.6%
Home (with parents)	13	14.4%
GPA		
Good	3	3.3%
Satisfying	14	15.6%
Very satisfying	44	48.8%
Cumlaude	29	32.2%

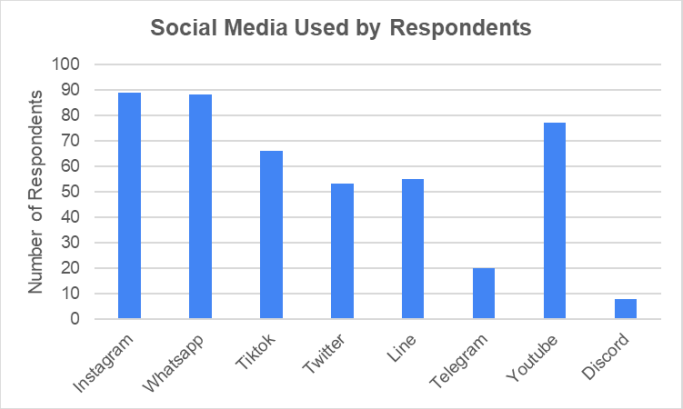

Figure 1. Data of social media used by respondents

From the results of this study, the most common application used by respondents was Instagram® as many as 89 respondents. Whatsapp® users were 88 respondents. YouTube® users were 77 respondents. Tiktok® users were 66 respondents. Twitter users were 53 respondents. Line® users were 55 respondents. Telegram® users were 20 respondents. Discord® users were 8 respondents.

Table 2. Respondent's social media addiction level

Social Media Addiction Level	n	%
Very low	2	2.2%
Low	47	52.2%
High	40	44.4%
Very high	1	1.1%
Total	90	100%

Table 2 shows that the social media addiction level of most respondents is low with a percentage of 52.2%. There were 44.4% of respondents with high levels of social media addiction, 2.2% of respondents had very low levels of social media addiction, and 1.1% of respondents had very high levels.

Table 3. Respondent's self-esteem level

Self-esteem Level	n	%
Low self-esteem	14	15.6%
High self-esteem	76	84.4%
Total	90	100%

The majority of respondents had high self-esteem. There were 84.4% of respondents had a high level of self-esteem, and 15.6% of respondents had a low level of self-esteem.

Table 4. Overview of the distribution demographic factors on the level of self-esteem

Components	n	%	Low Self-esteem		High Self-esteem	
			n	%	n	%
Gender						
Male	18	100%	0	0%	18	100%
Female	72	100%	14	19.4%	58	72.3%
GPA						
Good	3	100%	1	33%	2	66.7%
Satisfying	14	100%	2	14.3%	12	85.7%
Very satisfying	44	100%	5	11.3%	39	88.7%
Cumlaude	29	100%	5	17.2%	24	82.8%
Residence						
Boarding house	77	100%	13	16.8%	64	83.2%
Home (with parents)	13	100%	1	7.7%	12	83.3%

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Table 5. Overview of the distribution demographic factors on the level of social media addiction

Components	n	%	Very low		Low		High		Very high	
			n	%	n	%	n	%	n	%
Gender										
Male	18	100%	0	0%	13	72,3%	5	27,7%	0	0%
Female	72	100%	2	2,6%	35	48,7%	35	48,7%	0	0%
GPA										
Good	3	100%	0	0%	1	33,3%	2	66,7%	0	0%
Satisfying	14	100%	0	0%	7	50 %	7	50 %	0	0%
Very satisfying	44	100%	1	2,3%	22	50 %	21	47,7%	0	0%
Cumlaude	29	100%	1	3,5%	17	58,6%	10	34,4%	1	3,5 %
Residence										
Boarding house	77	100%	0	0%	9	69,3%	4	30,7%	0	0%
Home (with parents)	13	100%	2	2,6%	38	49,4%	36	46,7%	1	1,3 %

In Table 4 and Table 5, we can see the distribution of demographic factors on the level of self-esteem and the level of social media addiction.

Table 6. The relationship between social media addiction and self-esteem

Social Media Addiction Level	Self-esteem Level		p	r
	Low	High		
Very low	0	2	0.001	-0.335
Low	2	45		
High	12	28		
Very high	0	1		

Based on the Spearman test analysis in Table 6, the p-value was found to be 0.001. This value shows that a significant relationship. The correlation coefficient value is -0.335, which means that the level of correlation between addiction of social media and the level of self-esteem is weak. The correlation coefficient in the above results is negative, so the relationship between the two variables is opposite. Therefore, it can be interpreted that the higher the level of social media addiction, the more their self-esteem is likely to be decreased.

Table 7. Components of social media addiction

Components	n	%	Low		High	
			n	%	n	%
Virtual tolerance	2	2.2%	0	0%	2	2.2%
Virtual communication	37	41.1%	9	10%	28	31.1%
Virtual problem	24	26.7%	3	3.3%	21	23.3%
Virtual information	27	30%	2	2.2%	25	27.8%
Total	90	100%	14	15.6%	76	84.4%

Based on Table 7, the highest average component of social media addiction is virtual communication, which is 41.1%. Meanwhile, the lowest component of social media addiction is virtual tolerance. The component of social media addiction most experienced by respondents with low self-esteem and high self-esteem levels is virtual communication.

Table 8. The relationship between each component of social media addiction and self-esteem

Components of social media addiction	Self-esteem Level		p	r
	Low	High		
Virtual tolerance	0	2	0.013	-0.260
Virtual communication	9	28	0.001	-0.352
Virtual problem	3	21	0.081	-0.185
Virtual information	2	25	0.384	-0.093

From the four aspects, the aspects that have a significant relationship with the level of self-esteem are virtual tolerance with a p-value=0.013 and virtual communication with a p-value=0.001. On the other hand, the two other factors, virtual issues and virtual information, did not show a significant correlation with self-esteem as indicated by a p-value greater than 0.05

4. Discussion

In this study, 2.2% of respondents were found to have a very low level of social media addiction, 52.2% had a low level of social media addiction, 44.4 % had a high level of social media addiction, and 1.1% had a very high level of social media addiction. Social media addiction cannot be separated from the many types of social media with various features and functions.[18,19] The results of this study also obtained data on the applications most used by respondents. The data can be seen in Figure 1. In addition, several factors can affect social media addiction, like gender, psychological conditions, goals, and time.[20] Social media addiction is also associated with gaming addiction, where open-world games are also included in one type of social media.[14,18]

This study also obtained the average components of social media addiction that affect self-esteem. The data can be seen in Table 7. The highest aspect of social media addiction is virtual communication, which is 41.1%. It happens because interaction through social media is more preferred than direct interaction. The lowest aspect is virtual tolerance, which means that individuals find it difficult not to connect with social media to achieve satisfaction.[21]

Meanwhile, data on the level of self-esteem as many as 15.6% had a low level of self-esteem and 84.4% had a significant parental involvement; and subject characteristics consist of physical conditions, general abilities level of self-esteem. The level of self-esteem can be affected by many factors, including social background, parenting, and subject characteristics. Social history consists of social class, religion, and parents' occupation; parenting patterns consist of parenting values, parents' marital history, parenting

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behavior, and attitudes, health conditions, self-worth, social relationships, cognitive and experience.[22] As individuals progress through early adulthood, their self-esteem typically grows, as they gain the ability to manage both themselves and their surroundings. During this stage, confidence increases through their actions, leading them to perceive themselves as valuable.[11]

The only demographic factor that has a significant relationship with the level of self-esteem is gender. Meanwhile, other factors didn't have a significant relationship with social media addiction level and self-esteem level. These results are similar to the results of previous research conducted by Handikasari, et al. which states that there is no significant relationship between gender and GPA with the intensity of social media use.[13] Moreover, adolescents often find pleasure and satisfaction in using social media platforms due to the acknowledgment they receive from others.[23]

The study of Andreassen CS, et al. stated that academic grades are not related to self-esteem level.[8] A person's level of education also cannot be said to affect the level of self-esteem because self-esteem arises from feelings and thoughts within oneself.[8] Meanwhile, in this study, it was found that there was a relationship between gender and the level of self-esteem. It is different from previous studies that have existed. The researcher predicted this could happen because there were more female students than male students and the gender distribution of the sample was unequal.

Relationship between social media addiction and self-esteem shows a significant relationship. The result of the correlation test, the p-value is 0.001, that means there is a significant relationship. The correlation coefficient value obtained is -0.335, which means it shows a negative correlation where a higher level of social media addiction will result in a decrease in the level of self-esteem.

The results of this study also found a relationship between aspects of social media addiction and self-esteem. Aspects that have a significant relationship with self-esteem level are virtual tolerance with a p-value = 0.013 and virtual communication with a p-value = 0.001.

The existence of a significant relationship between the use of social media and the level of self-esteem is consistent with previous research by Ardiany M.F. and Ardi R. (2022). According to this study, individuals typically experience happiness initially when engaging with social media by viewing posts from other users. However, if they use the social media for a long time, they will evaluate themselves and realize that there are shortcomings in themselves that cause low self-esteem.[17] Similar research conducted by Alfasi Y also states that the use of social media also affects self-esteem levels.[24]

As it is said in theory, social media addiction can affect the release of dopamine which stimulates the desire to continue playing and stay awake as a form of reward system.[25,26] This reward system pathway consists of a serial circuit connecting the ventral tegmental area, nucleus accumbens, and ventral pallidum via the mid-forebrain bundle.[27] Cells that are located in the VTA will send stimuli rostrally to limbic and cortical areas through the medial forebrain bundle, at the level of the NAc, the fibers diverge to reach their terminal targets, then this innervation will be divided into two, namely mesolimbic dopamine neurotransmitters going in a more dorsal direction to the striatum and mesocortical dopamine neurotransmitters going to the prefrontal cortex.[27] Dopamine travel to the prefrontal cortex can influence emotions and thoughts.[28] The mesolimbic pathway of dopamine that goes to the striatum also plays a role in the processing and regulating of emotions.[26,27,29] Meanwhile, the state of wakefulness in people who are addicted to social media is caused by the release of norepinephrine at the RAS (Reticular Activating System) in the mesencephalon.[26,29]

Thus, similar to the results of this study, the longer playing social media will cause negative feelings that can result in low self-esteem.

The limitation of this study is that there was no monitoring of the subject's daily activities, which could be a confounding variable that could increase the bias of the study results.

5. Conclusion

A significant relationship exists between social media addiction and the level of self-esteem among medical students at Diponegoro University.

Ethical Approval

An ethical clearance was obtained from the Health Research Ethics Commission (KEPK) Faculty of Medicine Diponegoro University with No.112/EC/KEPK/FK-Diponegoro University/IV/2023.

Conflicts of Interest

The authors confirmed that there was no conflict of interest in this study.

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Author Contributions

Conceptualization, Difa Maulana Subiyakto, Tanjung Ayu Sumekar; methodology, Difa Maulana Subiyakto, Fanti Saktini, Tanjung Ayu Sumekar; data analysis, Difa Maulana Subiyakto; data collection, Difa Maulana Subiyakto; source of funds, Difa Maulana Subiyakto; wrote the original draft, Difa Maulana Subiyakto; review and edit, Difa Maulana Subiyakto, Fanti Saktini, Tanjung Ayu Sumekar; supervision, Difa Maulana Subiyakto, Fanti Saktini, Tanjung Ayu Sumekar.

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