

## THE RELATIONSHIP BETWEEN THE INTENSITY OF SOCIAL MEDIA USE AND THE LEVEL OF ANXIETY AND DEPRESSION IN MEDICAL STUDENTS

Amanda Michelle Natasya<sup>1</sup>, Cokorda Bagus Jaya Lesmana<sup>2</sup>, Luh Nyoman Alit Aryani<sup>2</sup>,  
Ida Aju Kusuma Wardani<sup>2</sup>

<sup>1</sup>. Program Studi Pendidikan Dokter, Fakultas Kedokteran Unud

<sup>2</sup>Departement Psikiatri, Fakultas Kedokteran Unud

e-mail: amandamichelle068@student.unud.ac.id

### ABSTRACT

Technology is becoming more advanced and quick not only has a positive effect on humans but also a negative impact on humans, especially students. We conducted this study to investigate the relationship between the intensity of social media use and the level of anxiety and depression among students in the Udayana University Medical Education Study Program, Class of 2021. This correlational analytical observational study aimed to examine variable relationships using purposive sampling of 94 students from the Udayana University Medical Education Study Program, Class of 2021. Data were collected via online questionnaires assessing social media use intensity, anxiety levels, and depression levels, and analyzed using SPSS software. The results showed that the intensity of social media use with anxiety level showed  $p = 0.277$  and the intensity of social media use with depression level showed  $p = 0.227$ . The relationship between the intensity of social media use and the level of anxiety and depression in students of the 2021 Udayana University Medical Education Study Program shows that there is no statistically significant relationship. Therefore, it is vital to conduct research on additional variables that are related and can affect the level of anxiety and level of depression that have not been studied in this study and further research based on more specific types of social media.

**Keywords :** Intensity of social media use., anxiety level., depression level

### INTRODUCTION

Nowadays, social media is an inseparable thing for humans in this modern era<sup>(1)</sup>. Humans benefit from the progress and speed of technological development. As technology advances, human work becomes easier, more productive, and more efficient. Communication technology derived from the internet, also known as social media, is currently undergoing significant development<sup>(2)</sup>. The term "social media" refers to several internet-based networks that allow people to interact with each other both verbally and visually<sup>(3)</sup>.

The number of Indonesian social media users grows year after year as social media technology advances. The We Are Social study found that Indonesia had 191 million active social media users in January 2022. That number represents an increase from the previous year, which was 170 million people as of January 2021<sup>(4)</sup>. In using social media, there are several things that affect the intensity of social media use, namely age, gender, socioeconomics, personality, and purpose of use<sup>(4),(5),(6)</sup>. Although the development of social media has positive impacts such as wider connections, being able to interact with a more diverse set of people, and making human work seem easier, this development also has a negative impact on humans, especially students<sup>(7)</sup>. Students are especially important because they are undergoing psychological changes and transitioning from late adolescence to early adulthood. In this phase, students are forming their identity, so they have a tendency to establish closer interpersonal

relationships and are bound to find out their identity<sup>(2)</sup>. The negative impact provided by social media is that with the development of social media, many people are dependent on opening their gadgets. The use of social media can also put pressure on its users, as on social media many people are competing to upload good photos or videos to get praise in the comments column or to get a lot of likes. Now this can make social media users anxious, especially when they see their achievements achieved easily by their friends<sup>(8)</sup>. The convenience provided by social media can also have adverse effects, such as an increased risk of cyberbullying<sup>(9)</sup>. This will certainly cause social media users to feel anxious, stressed, and depressed<sup>(8)</sup>. The convenience offered by social media also makes its users anxious<sup>(2)</sup>. Anxiety has a high prevalence and is the second largest cause of DALY (Disability Adjusted Life Year) in Indonesia from 1990 to 2017<sup>(10)</sup>. Anxiety is a concept that expresses affective features; it is commonly acknowledged as an emotional response, mood, and specific anxiety condition with cognitive, physiological, and behavioral components. Anxiety is an emotional condition marked by physiological arousal, uncomfortable tension, and apprehension about something horrible happening. When anxiety is unfounded or disproportionate to the threat, it can be considered abnormal<sup>(11)</sup>.

While depression is the most common mental disorder in the general population<sup>(12)</sup>. Depression is also the highest cause of DALYs in Indonesia from 1990 to 2017<sup>(10)</sup>. Depression is a mood disorder that has symptoms such as disturbances in appetite and

sleep patterns, difficulty in concentrating, feeling worthless, feeling guilty, and having a pessimistic attitude<sup>(13)</sup>. Given that social media has both positive and negative effects, a more in-depth discussion is required to evaluate whether there is a relationship between the intensity of social media use and levels of anxiety and depression in medical students. The general purpose of this study is to determine the relationship between the intensity of social media use and the levels of anxiety and depression among medical students. Specifically, this research aims to identify the correlation between the intensity of social media use and anxiety levels, as well as the correlation between the intensity of social media use and depression levels, within the population of medical students.

## MATERIALS AND METHODS

This study is designed as a correlational-type analytic observational study with the goal of investigating the relationship between variables. This study will explore for a link between the intensity of social media use and the level of anxiety and depression among medical students throughout the 2021 academic year.

Data collection for this study was place in the Faculty of Medicine, Udayana University, using a questionnaire. The implementation of data collection and collection in this study was carried out in June 2024. The population in this study were students of the Medical Education Study Program, Faculty of Medicine Udayana in 2021. The sample of this study were students of the Udayana University Medical Education Study Program in the 2021 academic year who met the inclusion and exclusion criteria. Inclusion Criteria: Students in the 2021 academic year of the Udayana University Medical Education Study Program and students who actively use social media. Exclusion Criteria: Students who have been diagnosed with mental disorders or who are currently undergoing therapy for anxiety or depression. This study conducted data collection by distributing online questionnaires to a sample of Students in the 2021 academic year of the Udayana University Medical Education Study Program. The sampling technique in this study

**Table 1.** Characteristics of research subjects (n = 94)

Research data		Frequency	Percentage
Age	19	2	2,13%
	20	25	26,60%
	21	60	63,83%
	22	6	6,38%
	23	1	1,06%
Gender	Female	55	58,51%
	Male	39	41,49%

This study processed a total of 94 research individuals. The research subjects' characteristics include their age and gender.

uses purposive sampling, where how to take respondents based on a specific purpose is not based on strata, random, or regional. The minimum sample formula, used in this study is the Slovin formula which results in 71 respondents. In this study, the independent variable is the intensity of social media use, while the dependent variable is the level of anxiety and depression in medical students. The instruments in this study were questionnaires adapted and modified from the Social Network Time Usage Scale (SONTUS) questionnaire and the Depression Anxiety Stress Scales (DASS) 42.

The data processing technique used in this research is the Rank Spearman correlation test. This research data was processed using the Statistical Product and Service Sollution (SPSS) application or Microsoft Excel 2019. Research data processing is carried out in several stages, such as coding, data entry, and data verification. This research was financially supported by the researcher personally. There were no external funding sources involved in the study design, data collection, analysis, interpretation, or the decision to submit the article for publication. The authors declare that there are no conflicts of interest regarding the publication of this paper. The authors affirm that the results presented in this study are genuine and unbiased and that there was no financial or personal relationship that could inappropriately influence the work reported. The research was authorized by the Faculty of Medicine's Research Ethics Committee (No. 1321/UN14.2.2.VII.14/LT/2024).

## RESULT

The study was conducted at Udayana University's Faculty of Medicine. In June 2024, data was collected using the purposive sampling approach and the slovin formula to estimate sample size, which is a methodology for obtaining a representative sample size with an acceptable margin of error. The number of samples required is 71 respondents. There were 94 individuals who filled out the questionnaire. The total data used for data analysis was 94 respondents. The data was analyzed using the Spearman rank correlation test. The correlation test is used to find a relationship or test the significance of the hypothesis.

Table 1 shows the characteristics of the research subjects.

**Table 2.** Characteristics of research subjects by age with the level of intensity of social media use (n = 94)

Sample characteristics		Age				
Social media use		19	20	21	22	23
Low	n	1	2	7	1	0
	%	1,06	1,06	7,45	1,06	0,00
Medium	n	1	12	32	4	1
	%	1,06	12,77	34,05	4,26	1,06
High	n	0	11	21	1	0
	%	0,00	11,70	22,34	1,06	0,00
Very High	n	0	0	0	0	0
	%	0,00	0,00	0,00	0,00	0,00
Total	n	2	25	60	6	1
	%	2,13	26,60	63,83	6,38	1,06

The subjects in this study were between 19 and 23 years old and had varying levels of social media usage, including low, medium, high, and very high. Table 2 shows the characteristics of

the research subjects based on their age and level of social media usage.

**Table 3.** Characteristics of research subjects by gender with the level of intensity of social media use (n = 94)

Sample characteristics		Gender	
Social media use		Female	Male
Low	n	8	3
	%	8,51	3,19
Medium	n	27	23
	%	28,72	24,47
High	n	20	13
	%	21,28	13,83
Very High	n	0	0
	%	0,00	0,00
Total	n	55	39
	%	58,51	41,49

The research subjects consisted of females and males with varying levels of social media usage, namely low, medium, high,

and very high. Table 3 shows the characteristics of the research subjects based on their gender and level of social media usage.

**Table 4.** Characteristics of research subjects by level of intensity of social media use with the level of anxiety (n =94)

Sample characteristics		Social media use			
Anxiety level		Low	Medium	High	Very High
Normal	n	6	25	13	3
	%	6,38	26,60	13,83	3,19
Mild	n	1	8	1	0
	%	1,06	8,51	1,06	0,00
Moderate	n	4	11	4	1
	%	4,26	11,70	4,26	1,06
Severe	n	0	6	11	0
	%	0,00	6,38	11,70	0,00
Very Severe	n	0	0	0	0
	%	0,00	0,00	0,00	0,00
Total	n	11	50	29	4
	%	11,70	53,19	30,85	4,26

The participants in this study had varying intensities of social media use, ranging from low to very high, as well as anxiety levels such as normal, mild, moderate, severe, and very

severe. Table 4 shows the characteristics of the individuals studied based on their intensity of social media use and anxiety levels.

**Table 5.** Characteristics of research Subjects by level of intensity of social media use with the level of depression (n = 94)

Sample characteristics		Social media use			
Depression level		Low	Medium	High	Very High
Normal	n	10	34	19	2
	%	10,64	36,17	20,21	2,13
Mild	n	0	5	5	1
	%	0,00	5,32	5,32	1,06
Moderate	n	0	6	2	0
	%	0,00	6,38	2,13	0,00
Severe	n	1	2	2	1
	%	1,06	2,13	2,13	1,06
Very Severe	n	0	3	1	0
	%	0,00	3,19	1,06	0,00
Total	n	11	50	29	4
	%	11,70	53,19	30,85	4,26

The research participants had varying levels of social media use, ranging from low to very high, as well as levels of depression (normal, mild, moderate, severe, and very severe). Table 5 shows

the characteristics of the individuals studied based on their intensity of social media use and their level of depression.

**Table 6.** Correlation between social media intensity and anxiety level (n = 94)

Sample characteristics		Social media use				P
Anxiety level		Low	Medium	High	Very High	
Normal	n	6	25	13	3	0,277
	%	6,38	26,60	13,83	3,19	
Mild	n	1	8	1	0	
	%	1,06	8,51	1,06	0,00	
Moderate	n	4	11	4	1	
	%	4,26	11,70	4,26	1,06	
Severe	n	0	6	11	0	
	%	0,00	6,38	11,70	0,00	
Very Severe	n	0	0	0	0	
	%	0,00	0,00	0,00	0,00	
Total	n	11	50	29	4	
	%	11,70	53,19	30,85	4,26	

The Spearman Rank correlation analysis of the 94 participants surveyed yielded insignificant results, with a p-value of 0.277, which is greater than 0.05. This indicates that there is no significant relationship between the intensity of social media use

and anxiety levels. From the data distribution, it can be seen that anxiety levels vary with different intensities of social media use. Table 6 shows the Spearman Rank correlation analysis between intensity of social media use and anxiety level

**Table 7.** Correlation between social media intensity and depression level (n = 94)

Sample characteristics		Social media use				P
Anxiety level		Low	Medium	High	Very High	
Normal	n	10	34	19	2	0,227
	%	10,64	36,17	20,21	2,13	
Mild	n	0	5	5	1	
	%	0,00	5,32	5,32	1,06	
Moderate	n	0	6	2	0	
	%	0,00	6,38	2,13	0,00	

Severe	n	1	2	2	1
	%	1,06	2,13	2,13	1,06
Very Severe	n	0	3	1	0
	%	0,00	3,19	1,06	0,00
Total	n	11	50	29	4
	%	11,70	53,19	30,85	4,26

The Spearman Rank correlation analysis of the 94 participants surveyed yielded insignificant results, with a p-value of 0.227, which is greater than the 0.05 level. This indicates that there is no significant relationship between the intensity of social media use and the level of depression. In addition, the data distribution shows that respondents with different intensities of social media use have different levels of depression. Table 7 shows the Spearman Rank correlation analysis between intensity of social media use and level of depression.

## DISCUSSION

The goal of this study was to examine the association between the intensity of social media use and the level of anxiety and depression among Medical Faculty Udayana students in the class of 2021. The results of this study indicate that there is no statistically significant relationship between the intensity of social media use and anxiety levels ( $p = 0.277$ ), nor is there a statistically significant relationship between the intensity of social media use and depression levels ( $p = 0.227$ ). These results are in line with previous research, which also states that mental health is not significantly affected by high social media use. This study analyzed the bidirectional relationship between social media use intensity and mental health using longitudinal data collected among adolescents. Adolescents who used social media more often did not report higher depressed symptoms or lower life satisfaction one year later, and vice versa. The study also showed that adolescents at risk of mental health decline were those who exhibited problems with social media use, such as addiction, rather than those who exhibited high intensity of social media use<sup>(14)</sup>.

This is in accordance with previous research conducted by researchers from the Rustida College of Health Sciences in 2023 with 82 junior high school students. This study revealed that there was no relationship between the intensity of social media use and mental health in adolescents at X Glenmore junior high school. This study shows that low intensity of social media use does not always make someone unable to experience mental health disorders, and vice versa, someone with a very high intensity of social media use also does not always have a negative impact on their mental health; in fact, social media is not uncommon for someone to use to entertain themselves when stressed<sup>(15)</sup>. This research is also supported by a study entitled "Social media use and its impact on adolescent mental health: An umbrella review of the evidence" which identified 25 studies showing that the relationship between social media use and mental health is inconsistent. diverse types of social media can also result in diverse mental health consequences, therefore a stronger conceptual framework is needed to investigate the complicated relationship between social media use and mental health<sup>(16)</sup>.

In accordance with research by Nechita in 2018, various factors can affect a person's anxiety level. One of them is related to family. According to one study, moms play the most essential role in teaching their children about social unrest and anxiety, whereas fathers are more likely to teach self-confidence to those who already suffer from social anxiety. Other research has found that children without a father role at home had higher levels of anxiety and worse levels of self-esteem than the general population. Attachment factors also have a strong relationship with anxiety. A less comfortable attachment was also associated with higher levels of anxiety, as oxytocin levels mediated this relationship. Other research has also indicated that if moms exhibit signs of anxiety and despair, their children will report significant levels of anxiety from puberty onwards<sup>(17)</sup>.

The role of religiosity in various religions, such as prayer, has a positive effect on anxiety levels. Furthermore, certain behaviors, such as eating or exercising, have an impact on anxiety. In one study, health-related anxiety is associated with one's nutrition and physical activity; also, women who constantly examine their weight and body shape will experience an increase in anxiety levels. In relation to other people, it has also been demonstrated that reading facial emotions increases anxiety. Sleep and rest are also related to anxiety. One study stated that the quality of sleep affected anxiety<sup>(17)</sup>.

A study also found that alcohol consumption is used to provide a feeling of security for people suffering from anxiety, but excessive consumption can affect anxiety levels. A difficult childhood also has a significant impact on adult anxiety. Individuals who were exposed to negative, potentially traumatizing events during childhood reported higher levels of anxiety and more severe anxiety symptoms as adults. In the same study, it has been observed that individuals with a history of anxiety disorders exhibit anxiety-depression comorbidity<sup>(17)</sup>.

Pregnancy can also be a factor that increases anxiety levels. Women who have had a miscarriage will feel more anxious during their next pregnancy<sup>(17)</sup>.

Other research have found that a variety of factors influence the level of depression. Early life stress (ELS), which includes early trauma and bad events, can have serious consequences for depression and other mental illnesses. Common ELS include emotional abuse, poverty, death of a family member, sexual abuse, domestic violence, physical abuse, and illness/injury<sup>(18)</sup>.

Diet can also influence the development of depressive symptoms. Diet may not appear to have much to do with mental disorders, but abnormal levels of certain nutrients and chemicals, such as phytochemicals, omega-3 fatty acids, vitamins and minerals, poly- and monounsaturated fats, and fiber, have been shown to cause depressive symptoms by impairing various bodily functions<sup>(19)</sup>. Furthermore, depression symptoms might be produced by genetic factors, but they can be avoided or eased by maintaining a good and healthy lifestyle<sup>(20)</sup>.



Based on the findings of this study, there is no correlation between the intensity of social media use and levels of anxiety and depression in medical students. This study found that high levels of social media use do not always have a negative influence on anxiety and depression in medical students.

## CONCLUSIONS AND SUGGESTIONS

The conclusion of this study is that there is no relationship between the intensity of social media use and the level of anxiety and depression in medical students at Udayana University class of 2021.

Suggestions from this study are to examine other variables that are related and can affect the level of anxiety and depression that have not been studied in this study and further research based on the type of social media so that it can research with a clearer conceptual framework.

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