Loneliness with Problematic Internet Use Among College Students

Vanessa Luna Maulida and Fitri Ayu Kusumaningrum[(✉)]

Department of Psychology, Universitas Islam Indonesia, Yogyakarta, Indonesia
18320023@students.uii.ac.id, fitriayukusumaningrum@uii.ac.id

Abstract. Students should avoid problematic internet use because it negatively impacts various life aspects, including academics. This study aimed to determine the relationship between loneliness and problematic internet use among 168 female and 27 male students aged 18–25. It used quantitative methods with the UCLA Loneliness Scale Version 3 [1] and the Generalized Problematic Internet Use Scale 2 [2]. The results showed a significant positive relationship between loneliness and problematic internet use for students in West Java. The correlation coefficient value obtained was r = 0.348 and p = 0.000 (p < 0.005). This shows that higher loneliness increases problematic internet use and vice versa, therefore, the study hypothesis is accepted.

Keywords: problematic internet use · loneliness · students

1 Introduction

Problematic internet use is when individuals spend much time on the internet without a purpose, resulting in a negative impact [3]. According to [4], this uncontrollable, troublesome, and time-consuming behavior causes difficulties in social, work, or financial relationships among internet users. Students are among the subject groups vulnerable to this problem. In line with this, [5] found that 4–10% of students have a high potential to experience problematic internet use. This is due to the internet access provided by the campus and less costly mobile internet packages. Furthermore, students are separated from parental supervision and free to select and use the internet [6].

Problematic internet use has adverse effects, including decreased motivation to learn, difficulties learning productively, reduced academic performance [7], insomnia, eye strain, and lack of sleep, causing daytime sleepiness [8]. One factor that causes problematic internet use is loneliness, which encourages people to communicate online and use the internet compulsively [9].

Based on [9–13], this study found a gap in the literature that uses student respondents in West Java Province. [14] showed that West Java Province has 35 million internet users. Therefore, this study aimed to explore Loneliness with Problematic Internet Use among College Students.

2 Literature Review

2.1 Problematic Internet Use

Problematic internet use is when individuals spend much time on the internet without a purpose, resulting in a negative impact [3]. It is also a maladaptive preoccupation with internet use [15]. According to [4], this uncontrollable, troublesome, and time-consuming behavior causes difficulties in social, work, or financial relationships among internet users.

2.2 Aspects of Problematic Internet Use

The aspects of problematic internet use [2] include:

1) Preference for Online Social Interaction (POSI)

Preference for online social interaction (POSI) occurs when individuals perceive the relationships formed through the internet as safer, comfortable, effective, and more confident than face-to-face interactions.

2) Mood Regulation

Mood regulation is characterized by using the internet to overcome negative feelings such as boredom and anger experienced by individuals in everyday life.

3) Cognitive Preoccupation

Cognitive preoccupation is an obsessive thought pattern on internet use. This happens when individuals cannot stop thinking about what is happening online while living their real life.

4) Compulsive Internet Use

This aspect describes an individual's failure to control their internet use. A person's internet use is problematic when it interferes with normal daily activities. Furthermore, individuals often have low self-regulation, making them unable to control their internet use.

5) Negative Outcomes

These are negative influences of problematic internet use on personal, social, work, academic, and environmental life.

2.3 Loneliness

Loneliness is a discrepancy between individuals' views of themselves and how they are seen by other people [1]. According to [16], loneliness arises due to the gap between individuals' view of themselves and the type of relationship they want to have in the past and in an ideal state they have never experienced. This reaction often arises in the individual's unsatisfactory interpersonal experience [17].

2.4 Aspects *of Loneliness*

[18] identified three aspects of loneliness. First, personality is a psychophysical system that determines individual behavior and thinking. Second, social desirability is the desire of individuals in social life liked by their environment. Third, depression refers to attitudes and feelings characterized by feelings of worthlessness, lack of enthusiasm, depression, self-blame, emptiness, and sadness.

2.5 Theoretical Foundations of Problematic Internet Use and Loneliness to Students

The following journals examine the positively correlated problematic internet use and loneliness. [9] were conducted in Kuwait and Saudi Arabia, [10] in Portuguese, [11] on students at a Turkish university, [12] in Jakarta, and [13] in Yogyakarta. Therefore, the two variables have clear dynamics and strengthen the study hypothesis on the relationship between loneliness and problematic internet use in students. This implies that higher loneliness increases the level of problematic internet use for students.

3 Methods

3.1 Participants

The study respondents comprised male and female undergraduate students living in West Java Province selected using purposive sampling.

3.2 Measurement

1) Problematic Internet Use Scale

Problematic internet use was measured using the Generalized Problematic Internet Use Scale 2 (GPIUS-2). Measurements were taken based on preference for online social interaction (POSI), mood regulation, cognitive preoccupation, compulsive internet use, and negative outcomes [2]. The measuring tool was developed by Caplan [2] and has been adapted and modified into Indonesian. The GPIUS-2 scale has 15 question items with a Likert scale. Each question item has eight answer options with a score of 1 (Strongly Disagree) to 8 (Strongly Agree). The total score is obtained by adding up the scores of all items, where a higher score implies higher problematic internet use.

2) Loneliness Scale

Loneliness was measured using the UCLA Loneliness Scale (Version 3) based on personality, social desirability, and depression [18]. The measuring instrument was developed by Russell [1] and has been adapted and modified into Indonesian. The UCLA Loneliness Scale (Version 3) consists of 20 question items, each with 4 answer options. Their scores were Never = 1, Rarely = 2, Sometimes = 3, and Always = 4. The total score is obtained by adding up the scores of all items in which a higher score implies a higher loneliness level.

3.3 Research Design

This study used non-experimental and quantitative designs with the correlational method.

3.4 How toAnalyze Data

Data were analyzed with correlational techniques using the IBM SPSS Statistics for Windows version 26.0 program.

4 Result

4.1 Demographics

Table 1 shows that 82 of the 195 respondents were 21 years old, while one was 24. The respondents comprised 168 women and 27 men. Furthermore, 108 respondents have extracurricular activities. Based on internet usage, 115 respondents used the internet for 6 to 12 h, while five spent more than 18 h online. Additionally, 153 respondents had WiFi, and 42 respondents did not.

4.2 Normality Assumption Test

The normality test was conducted using the One-Sample Kolmogorov-Smirnov method to determine whether the data were normally distributed. The results showed a significance of 0.200 and 0.089 ($p > 0.05$), meaning the problematic internet use and loneliness variable data are normally distributed (Table 2).

4.3 Linearity Assumption Test

The linearity test was conducted to determine whether the significance of the two variables had a linear relationship. Table 3 shows that the F linearity value is 25.579, and the significance value of the two variables is 0.000 ($p < 0.05$). This indicates a linear relationship between problematic internet use and loneliness variables.

4.4 Hypothesis Testing

Table 4 shows the significance of 0.000 ($p < 0.05$), implying a significant positive relationship between the two variables. It implies that higher loneliness increases the problematic internet use for students in West Java Province, hence, the study hypothesis is accepted.

Table 1. Demographics Aspect

Demographic Aspect	Category	Amount	Percentage
Age	18	6	3.1%
	19	16	8.2%
	20	36	18.5%
	21	82	42.1%
	22	37	19%
	23	15	7.7%
	24	1	0.5%
	25	2	1%
Total		**195**	**100%**
Gender	Female	168	86.2%
	Male	27	13.6%
Total		**195**	**100%**
Extracurricular Activities	Yes	108	55.4%
	No	87	44.6%
Total		**195**	**100%**
Internet Usage Time	Less than 6 h	23	11.8%
	6 h to 12 h	115	59%
	12 h to 18 h	52	26.7%
	More than 18 h	5	2.6%
Total		**195**	**100%**
Wifi Ownership	Yes	153	78.5%
	No	42	21.5%
Total		**195**	**100%**

Table 2. Normality Test Result

Variable	Significant Value (p)	Description
Problematic Internet Use	0.200	Normal
Loneliness	0.089	Normal

Table 3. Linearity Test Result

Variable	F	Significant Value (p)	Description
Problematic Internet Use*Loneliness	25.579	0.000	Linear

Table 4. Hypothesis Test Results

Variable	Correlation coefficient	Significance Value (p)	Description
Problematic Internet Use*Loneliness	0.348	0.000	Significant

Table 5. Intercorrelation Aspect Test Results

	1	2	3	4	5	6	7
1. Problematic Internet Use	1	.685**	.592**	.769**	.784**	.731**	.348**
2. POSI	.685**	1	.311**	.431**	.342**	.269**	.283**
3. Mood Regulation	.592**	.311**	1	.417**	.289**	.223**	.034*
4. Cognitive Preoccupation	.769**	.431**	.417**	1	.555**	.416**	.090*
5. Compulsive Internet Use	.784**	.342**	.289**	.555**	1	.617**	.362**
6. Negative Outcomes	.731**	.269**	.223**	.416**	.617**	1	.399**
7. Loneliness	.348**	.283**	.034*	.090*	.362**	.399**	1

4.5 Additional Analysis Test

1) Intercorrelation Aspect Test

Table 5 shows differences in the magnitude of the correlation between the five aspects of problematic internet use and loneliness. The intercorrelation test also showed that the strongest significant correlation is owned by the negative outcomes aspect with a correlation coefficient (r) of 0.399. The compulsive internet use aspect has a correlation coefficient (r) of 0.362, while the POSI aspect has a correlation coefficient (r) of 0.283. The mood regulation aspect does not correlate with loneliness because it shows a significance of 0.641 (p > 0.05). Similarly, the cognitive preoccupation aspect has a significance of 0.210 (p > 0.05).

Table 6. Different Test Results of Problematic Internet Use in Terms of Gender

Category	F	Significance Value (p)	Description
Female	81.03	0.368	No difference
Male	77.78		

Table 7. Problematic Internet Use Different Test Results in Terms of Extracurricular Activities (EA)

Category	F	Significance Value (p)	Description
Have EA	78.82	0.116	No difference
Do not have EA	82.76		

Table 8. Different Test Results of Problematic Internet Use in Terms of WiFi Ownership

Category	F	Significance Value (p)	Description
Have WiFi	80.65	0.910	No difference
Do not have WiFi	80.31		

2) Different Test

a) Gender
Table 6 shows that the mean values for females and males are 81.03 and 77.78, respectively, with a significance of 0.368 ($p > 0.05$). This implies no significant difference between the levels of problematic internet use of female and male subjects. The mean value also shows that the level of problematic internet use among females is higher than in males.

b) Extracurricular Activities
Table 7 shows that the mean values for subjects with extracurricular activities and those without are 78.83 and 82.76, respectively, with a significance of 0.116 ($p > 0.05$). This indicates no significant difference between the level of problematic internet use in subjects with extracurricular activities and those that do not. Additionally, the mean value indicates that the level of problematic internet use in subjects with no extracurricular activities is higher than in those with extracurricular activities.

c) WiFi Ownership.
Table 8 shows that the mean values for subjects with WiFi and those without are 80.65 and 80.31, respectively, with a significance of 0.910 ($p > 0.05$). This implies no significant difference between the level of problematic internet use on subjects with WiFi or those without. The mean value also shows that the level of problematic internet use in subjects with WiFi is higher than in those without.

5   Discussion

This study aimed to determine the relationship between loneliness and problematic internet use for students. The tests conducted on 195 respondents showed a positive relationship between the two variables with a correlation coefficient (r) of 0.348 and a significance value (p) of 0.000 (p < 0.05). This indicates that higher loneliness increases the level of problematic internet use for students, leading to the acceptance of study hypothesis.

The results support [9], which found a positive correlation between problematic internet use and loneliness with a coefficient (r) of 0.43. A study on adolescents in Indonesia [19] showed a correlation coefficient (r) of 0.194. However, there are no studies using student subjects in West Java Province. Therefore, this study could be strengthened using the results on the relationship between problematic internet use and loneliness in students in West Java.

The intercorrelation test showed a relationship between several aspects of problematic internet use and loneliness. The aspects include a preference for online social interaction (POSI), compulsive internet use, and negative outcomes. The largest correlation value was obtained in the negative outcomes aspect. This shows that loneliness affects the level of negative outcomes, 7% of which is accounted for loneliness [20]. In line with this, [2] stated that psychosocial problems such as loneliness influence some individuals to develop negative internet use behavior.

The largest correlation coefficient was obtained from the compulsive internet use aspect. This supports [21], which found a relationship between levels of loneliness and compulsive internet use. Furthermore, [22] observed that individuals often experience internet reinforcement. For instance, a person may use the internet to reduce loneliness or other negative feelings. This makes individuals involved in a circle where they use the internet continuously. Therefore, higher loneliness makes internet use more compulsive.

Subsequent findings showed that the level of loneliness in individuals causes a preference for online social interaction (POSI). In line with this, [20] disclosed that lonely individuals have the potential to develop POSI because they perceive online interactions as less intimidating. This makes them feel that social interactions are more effective online. Furthermore, [20, 23] revealed that loneliness significantly predicts POSI.

The test on aspects of mood regulation and cognitive preoccupation with loneliness did not show a significant relationship because the significance value exceeded 0.05 (p > 0.05). This contradicts [24], which found that individuals experiencing loneliness use the internet to entertain their negative feelings. Similarly, the uncorrelatedness of cognitive preoccupation aspects is inconsistent with [25], which stated loneliness could trigger obsessive thinking patterns when using the internet, also called cognitive preoccupation.

The analysis showed no significant difference between the levels of problematic internet use in male and female subjects. However, female subjects obtained a more significant mean value than males. This denotes that females have more problematic internet use than men. In line with these findings, females' internet use is often associated with a reduction in tension. The females experiencing negative feelings believe their tension would reduce when they continue using the internet [26].

Problematic internet use was also viewed from the subjects' extracurricular activities. The tests showed no significant difference between the problematic internet use in

subjects with and without extracurricular activities. This could be due to the low level of extracurricular physical activities. The prevalence of problematic internet use is higher for individuals that do not engage in physical activities [6]. This is in line with the finding that physical activity positively correlates with individuals' willingness to limit internet use [27]. However, the mean value signified that subjects with no extracurricular activities have more problematic internet use than those engaged in physical activities. This occurs because individuals with no extracurricular activities often engage in recreational use of the Internet, such as playing games and watching programs [28]. Therefore, it is closely related to the emergence of problematic internet use [29].

The two variables were also reviewed based on WiFi ownership to add information regarding possible protective factors. The analysis showed no significant difference between the level of problematic internet use on subjects with WiFi access and those that do not have this access. The high mean value indicates that the level of problematic internet use is higher for individuals with WiFi access because they have a higher risk of problematic internet use. This is because they access the internet using their devices easily [30]. However, the difference in the mean value was probably caused by varied perspectives among the subjects.

There is a significant positive relationship between problematic internet use and loneliness in students in West Java Province. This implies that a higher level of loneliness increases problematic internet use among students. Therefore, they should overcome loneliness positively to avoid problematic internet use.

Further studies should use more protective and risk factors for problematic internet use in students by completing questions on the subjects' demographics.

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