

Determinants of Internet Addiction in Private University Students

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ABSTRACT

Digital transformation has increased the intensity of internet use among students, which on one hand supports academic activities, but on the other hand has the potential to lead to internet addiction. This study aims to analyse the influence of resilience on loneliness and life satisfaction, as well as the influence of resilience, loneliness, and life satisfaction on internet addiction in private university students. This research uses a quantitative approach with a survey method applied to 280 undergraduate students from the 2021 intake at Bung Hatta University. Data were collected using a structured questionnaire and analysed with Partial Least Squares–Structural Equation Modelling (PLS–SEM) using SmartPLS 4.0. The research results indicate that resilience significantly influences loneliness and life satisfaction. Loneliness and life satisfaction also significantly influence internet addiction, with loneliness being the most dominant factor. Additionally, resilience has been proven to significantly influence internet addiction. This finding indicates that internet addiction in college students is influenced by the interconnected dynamics of psychological factors. Therefore, efforts to prevent internet addiction in college settings need to focus on strengthening psychological resilience, increasing life satisfaction, and reducing loneliness through adequate social support.

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1. INTRODUCTION

Global digital transformation has changed the way humans learn, interact, and build social identities in an increasingly online-connected society. Students are the most affected group because their academic and social activities are highly dependent on digital devices and internet connectivity (Scafuto et al., 2023). In the higher education environment, the internet provides convenience in accessing teaching materials, attending online lectures, and building social relationships. However, high intensity of use also raises the risk of internet dependence, which can potentially lead to psychological disorders, including internet addiction (Faramarzi, 2024).

In Indonesia, the increase in internet usage is happening very rapidly. The Data report shows that the number of internet users in January 2024 reached over 185 million people, or about 66% of the population (Kemp, 2024). Students are the most active user group with high daily usage duration, especially for social media, digital entertainment, and online games. This condition makes students a group vulnerable to internet addiction, characterised by compulsive use in response to psychological and emotional stress. The internet is no longer just a means of communication, but has also become a medium for escaping stress and emotional discomfort. Psychologically, internet addiction is closely linked to loneliness and an individual's ability to manage stress. Individuals experiencing emotional distress, anxiety, and difficulties with emotional regulation tend to use the

internet as a form of escape (Scafuto et al., 2023). From a Cognitive Behavioural Theory perspective, dysfunctional thought patterns such as feelings of worthlessness or inadequacy can drive maladaptive behaviours, including compulsive internet use (Beck, 2021). Loneliness, as a subjective feeling resulting from a lack of satisfying social connections, has been shown to drive individuals to seek substitutes for social interaction through the virtual world, even though such interactions are often superficial and do not provide genuine emotional closeness (Jakobsen et al., 2020; Zelfina & Nurmina, 2023).

Conversely, resilience and life satisfaction act as protective factors against internet addiction. Resilient individuals are able to manage stress, bounce back from difficulties, and maintain psychological well-being, thus tending to have lower levels of loneliness and higher life satisfaction (Ozturk & Kundakci, 2021; Durrotunnisa et al., 2022). Life satisfaction has also been shown to be negatively related to internet addiction because individuals who are satisfied with their lives have better self-control in using technology (Agaj, 2023). Although the relationship between resilience, loneliness, and internet addiction has been extensively studied, research that simultaneously incorporates life satisfaction within the context of Indonesian students is still limited. The phenomenon of excessive internet use, also observed among Bung Hatta University students, highlights the need for more comprehensive research to understand the psychological determinants of internet addiction in students.

Theoretical Foundation Internet Addiction Internet addiction refers to an excessive and uncontrollable pattern of internet use that disrupts an individual's academic, social, and psychological functioning (Young & Abreu, 2017). The internet is often used as an escape mechanism from emotional pressures such as stress, anxiety, and feelings of inadequacy, but compulsive use actually worsens mental well-being and social functioning (Scafuto et al., 2023; Famarzi et al., 2024). Various studies indicate that internet addiction is influenced by psychological and social factors, particularly loneliness, low social support, weak self-efficacy, and internet characteristics such as anonymity and ease of access (Öztürk & Kundakçı, 2021; Almulla et al., 2025). The impact of internet addiction includes a decline in academic performance, disruption of interpersonal relationships, mental health problems, and social withdrawal in college students and adolescents (Zelfina & Nurmina, 2023; Rizki & Andayani, 2023). This finding confirms that internet addiction is a maladaptive behaviour that needs to be understood through a comprehensive psychological approach.

Loneliness

Loneliness is a subjective psychological experience that arises from a discrepancy between the expected and experienced social relationships of an individual (Jakobsen et al., 2020). Loneliness is not only related to the number of social relationships, but also to the perceived quality of emotional closeness. This condition has been identified as a risk factor for various psychological problems, including depression, decreased social functioning, and addictive behaviours (Twenge et al., 2021). In the context of students and adolescents, loneliness has been shown to be positively correlated with internet addiction. Individuals who feel lonely tend to use the internet as a substitute for social interaction that is not fulfilled in the real world (Öztürk & Kundakçı, 2021; Zelfina & Nurmina, 2023). However, online interactions often don't provide adequate emotional closeness, creating a cycle where loneliness drives excessive internet use, which ultimately exacerbates loneliness further.

Resilience

Resilience is an individual's psychological capacity to adapt, endure, and recover from life's pressures or difficulties (Jakobsen et al., 2020). Resilience is understood as a dynamic process influenced by internal resources such as self-control and problem-solving skills, as well as external factors like social support (Ozturk & Kundakci, 2021; Li et al., 2024).

Research indicates that individuals with high resilience tend to have lower levels of loneliness and are better equipped to cope with stress without relying on maladaptive coping strategies, such as compulsive internet use (Öztürk & Kundakçı, 2021; Bagatarhan, 2025). Thus, resilience serves as an important protective factor in preventing internet addiction among college students.

Life Satisfaction

Life satisfaction is an individual's subjective evaluation of their overall quality of life and is a major component of subjective well-being (Shukla, 2021). Life satisfaction is influenced by emotional regulation, social support, resilience, and an individual's ability to maintain a balance between online and offline life (Durrotunnisa et al., 2022; Agaj, 2023). Previous research has shown that life satisfaction acts as a protective factor against internet addiction. Individuals with high levels of life satisfaction tend to have better self-control and do not use the internet as a means of emotional escape (Müller et al., 2023). Additionally, life satisfaction also has the potential to mediate the relationship between resilience and internet addiction by reducing psychological distress that drives addictive behaviour.

Hypothesis Development

The Influence of Resilience on Loneliness

Resilience reflects an individual's ability to manage stress, adapt to pressure, and maintain psychological balance in difficult situations. Individuals with high levels of resilience tend to be able to face emotional challenges independently without losing the quality of their social relationships. Jakobsen et al.'s (2020) research shows that resilience is negatively correlated with loneliness, as resilient individuals are better able to manage negative emotions and build healthy interpersonal relationships. Similar findings were also reported by Öztürk and Kundakçı (2021), who found that students with high resilience tend to have lower levels of loneliness. Therefore, resilience is seen as a protective factor that can reduce feelings of loneliness in students.

H1: Resilience negatively affects loneliness.

The Influence of Resilience on Life Satisfaction

Resilience not only plays a role in coping with stress but also contributes to individuals' positive evaluation of their lives. Resilient individuals are able to interpret challenges as part of the learning process, making it easier to maintain an optimistic outlook on life. Shukla's (2021) research indicates that resilience is positively related to life satisfaction because it enhances emotional regulation and psychological adaptation abilities. The findings of Durrotunnisa et al. (2022) also confirm that individuals with high resilience tend to have better levels of life satisfaction, even in crisis conditions. Thus, resilience is expected to play an important role in increasing students' life satisfaction.

H2: Resilience has a positive effect on life satisfaction.

The Influence of Loneliness on Internet Addiction

Loneliness is a psychological condition that arises when individuals feel they lack meaningful social connections. In such conditions, the internet is often used as an alternative means to fulfil social interaction needs that are not met in the real world. Research by Kim and Davis (2009) and Ostovar et al. (2016) indicates that individuals who feel lonely tend to use the internet excessively as a form of emotional escape. In the context of students, Öztürk and Kundakçı (2021) found that loneliness plays a significant role in increasing internet addiction. This indicates that the higher the level of loneliness experienced, the greater the individual's tendency to develop internet addiction.

H3: Loneliness has a positive effect on internet addiction.

The Influence of Life Satisfaction on Internet Addiction

Life satisfaction reflects the extent to which individuals positively assess their lives and feel fulfilled both emotionally and socially. Individuals with high life satisfaction levels tend to have better emotional stability and self-control in using digital technology. Agaj's (2023) research indicates that students who are satisfied with their lives are better able to manage their internet use adaptively and non-compulsively. Additionally, Müller et al. (2023) found that increased life satisfaction is associated with a decrease in internet addiction symptoms. Therefore, life satisfaction is expected to act as a protective factor against internet addiction.

H4: Life satisfaction negatively influences internet addiction.

The Influence of Resilience on Internet Addiction

Resilience enables individuals to cope with academic and social pressure without resorting to maladaptive coping strategies. Students with high resilience tend to be able to manage stress constructively and do not make the internet their primary means of escape. Research by Öztürk and Kundakçı (2021) and Li et al. (2024) indicates that resilience negatively affects internet addiction. Individuals with low resilience are more prone to vent negative emotions through excessive internet use. Thus, resilience is expected to play an important role in suppressing internet addiction tendencies in students.

H5: Resilience negatively influences internet addiction.

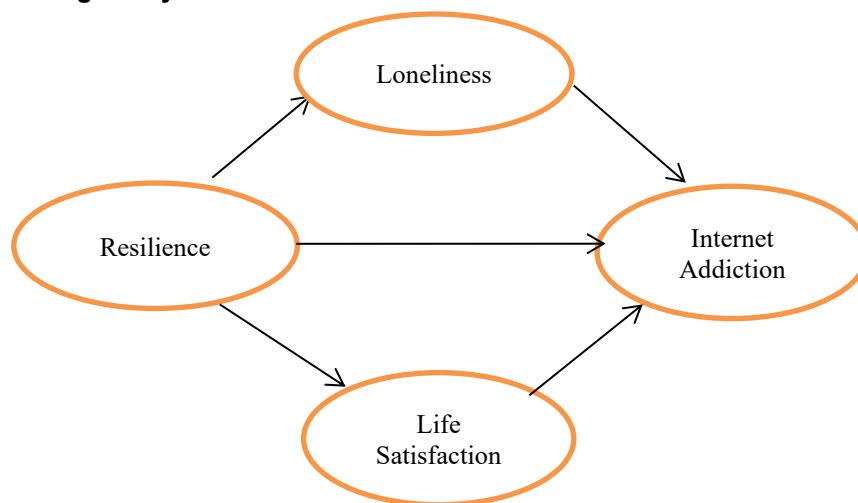


Figure 1. Research Framework

2. RESEARCH METHOD

This study uses a quantitative approach with a survey design. The study population consisted of 1,015 students from the 2021 undergraduate program at Bung Hatta University. The research sample consisted of 280 students selected using stratified random sampling, where the population was divided into several strata, and then samples were randomly drawn from each stratum to ensure representativeness.

Data was collected using questionnaires as the primary data source. The research instrument measures four main variables: internet addiction, resilience, loneliness, and life satisfaction. Internet addiction was measured using 18 items from the Problematic Internet Use Questionnaire (Demetrovics et al., 2008). Resilience was measured using the 8-item mental toughness scale (Gucciardi et al., 2015). Loneliness was measured using the 20-item UCLA Loneliness Scale (Russell, 1996), while life satisfaction was measured using the 5-item Satisfaction with Life Scale (Diener et al., 2010). All items were assessed using a Likert scale.

Data analysis was conducted using Partial Least Squares–Structural Equation Modelling (PLS-SEM) with the assistance of SmartPLS 4.0. The measurement model (outer model) was evaluated through convergent validity testing, discriminant validity (cross-loading, Fornell–Larcker Criterion, and HTMT), and construct reliability using Composite Reliability. The structural model (inner model) is used to test the causal relationships between latent variables. Hypothesis testing was conducted based on the T-statistic value with a critical limit of 1.96 at a significance level of 0.05.

3. RESULTS AND DISCUSSIONS

Research Results According to Ghozali (2020), hypothesis testing is conducted by comparing the T-statistic value with the T-table value of 1.96 at a significance level of P-value = 0.05. If the T-statistic value is greater than the T-table value, it can be concluded that the independent variable has a significant effect on the dependent variable. The results of the hypothesis testing are presented in the following table:

Table 1. Hypothesis Test Results

Hypothesis	Original Sample (O)	Sample Mean (M)	STDEV	T statistics (O/STDEV)	P Values	Conclusion
H1: Resilience -> Loneliness	-0.055	0.056	0.078	0.706	0.001	Accepted
H2: Resilience -> Life Satisfaction	0.800	0.802	0.093	8.573	0.000	Accepted
H3: Loneliness -> Internet Addiction	0.972	0.972	0.004	24.287	0.000	Accepted
H4: Life Satisfaction -> Internet Addiction	-0.954	0.953	0.006	15.633	0.001	Accepted
H5: Resilience -> Internet Addiction	-0.968	0.968	0.004	15.414	0.001	Accepted

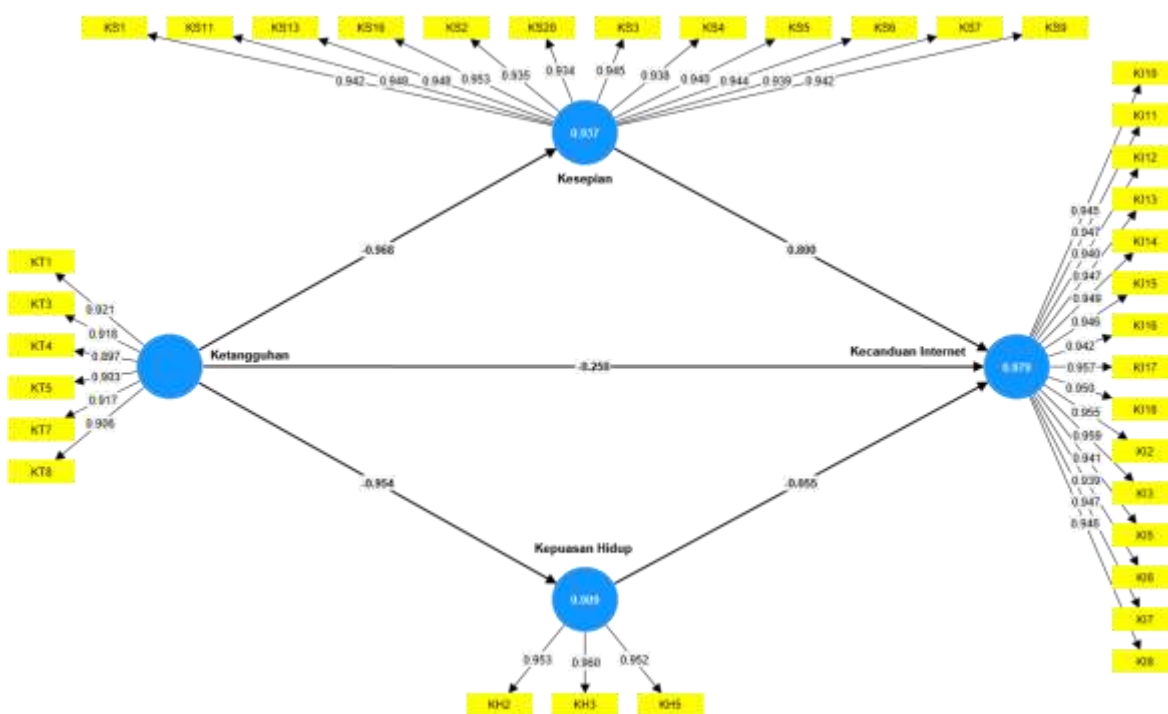


Figure 2. Structural Equation Model

The results of the hypothesis testing indicate that all variables in this study—resilience, loneliness, and life satisfaction—significantly influence internet addiction in private university students. All paths of influence have p-values below 0.05, so all research hypotheses are declared accepted. The main findings indicate that loneliness is the most dominant factor influencing internet addiction, followed by life satisfaction and resilience.

Resilience was proven to have a negative impact on loneliness, although with a relatively small coefficient. These findings indicate that students with high resilience tend to be more independent in facing problems, but under certain conditions, this independence can reduce the intensity of social interaction and lead to feelings of loneliness. On the other hand, resilience showed a strong positive influence on life satisfaction, confirming that the ability to manage stress, adapt, and bounce back from difficulties significantly contributes to students' positive evaluation of their lives. Loneliness has been proven to have a very strong positive influence on internet addiction, confirming that students who feel lonely tend to use the internet as their primary means of fulfilling

social and emotional needs. The use of the internet as an instant and temporary social compensation increases the risk of excessive use and developing into addiction. This finding places loneliness as a primary trigger for addictive internet behaviour among college students.

Life satisfaction also significantly influences internet addiction in a negative direction. Students with low life satisfaction levels tend to use the internet as a form of escape from their perceived life dissatisfaction. However, these findings also indicate that high life satisfaction does not automatically protect individuals from internet addiction if internet use is not managed in a balanced and controlled manner. This indicates a complex relationship between life satisfaction and internet usage behaviour. Additionally, resilience negatively influenced internet addiction, indicating that more resilient students tend to manage academic and social pressure without excessive reliance on the internet. However, when the internet is used as an uncontrolled primary coping strategy, resilience does not always serve as a protective factor. Thus, resilience, loneliness, and life satisfaction play a dynamic role in shaping internet usage behaviour among students, with loneliness being the most dominant determinant.

4. CONCLUSION

This study examines the role of resilience, loneliness, and life satisfaction in explaining internet addiction among private university students. The analysis results indicate that all relationships tested in the structural model are significant, suggesting that internet addiction is not solely influenced by the intensity of technology use, but also by the interconnected dynamics of psychological factors. The main finding indicates that loneliness is the most dominant factor in increasing the likelihood of internet addiction among students. The negative relationship between resilience and loneliness suggests that students with higher levels of resilience tend to be better able to manage emotional stress adaptively. However, the relatively small effect size indicates that resilience does not always directly reduce feelings of loneliness. In certain contexts, high independence can reduce the need for social support, potentially leading to more limited interpersonal interactions and loneliness. This finding suggests that resilience needs to be accompanied by social engagement to function optimally. Resilience was also proven to have a positive and significant influence on life satisfaction. Students who are able to adaptively face academic and social challenges tend to have a more positive evaluation of their lives. The ability to manage stress, bounce back from failure, and maintain an optimistic outlook directly contributes to improved subjective well-being among students. Loneliness shows a very strong positive influence on internet addiction, confirming that students experiencing social isolation tend to use the internet as a means of compensation to meet their social and emotional needs. Online interaction provides an instant but temporary sense of connection, which encourages excessive internet use and risks developing into addictive behaviour. This finding places loneliness as a primary trigger for internet addiction in college students. Life satisfaction also significantly influences internet addiction in a negative direction. Students with low life satisfaction levels tend to use the internet as a form of escape from the dissatisfaction they experience in real life. However, the results of this study also indicate that high life satisfaction does not fully guarantee an individual's avoidance of internet addiction if internet use is not managed in a balanced way. This indicates a complex relationship between life satisfaction and internet usage behaviour. Additionally, resilience negatively influences internet addiction. Students with high resilience are generally able to manage academic and social pressure without relying excessively on the internet. However, when the internet is used as an uncontrolled primary coping strategy, resilience does not always function as a protective factor. Therefore, resilience needs to be balanced with healthy coping strategies and self-control in the use of digital technology.

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