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The Relationship Between Online Game Addiction and Duration with Insomnia Among Trisakti University Students

Hubungan Adiksi dan Durasi Game Online dengan Insomnia pada Mahasiswa Universitas Trisakti

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ABSTRACT

Insomnia is a sleep disorder involving difficulty initiating or maintaining sleep or experiencing poor sleep quality. It is a common problem among college students. The increasing incidence of insomnia is suspected to be related to the development of digital technology, particularly online gaming, through addiction and excessive gaming duration. This study aims to analyze the relationship between gaming addiction and duration of online gaming with the incidence of insomnia among students at the University Trisakti. The study employed an observational analytical design with a cross-sectional approach. The sample consisted of 194 students, who were selected using consecutive non-random sampling. Data were collected using the Game Addiction Scale (GAS) questionnaire, the Insomnia Severity Index (ISI), and an online gaming duration questionnaire. Data analysis was performed using the chi-squared test with a significance level of $p < 0.05$. The results showed that the prevalence of online gaming addiction was 40.2%, and of insomnia was 63.4%. A significant relationship was found between online gaming addiction and insomnia ($p = 0.004$), as well as between online gaming duration and insomnia ($p = 0.037$). It can therefore be concluded that addiction to online gaming and the duration spent playing are significantly related to the occurrence of insomnia in Trisakti University students.
Keywords: Online game addiction, online game duration, insomnia

ABSTRAK

Insomnia merupakan gangguan tidur yang ditandai dengan kesulitan memulai tidur, mempertahankan tidur, atau kualitas tidur yang tidak optimal dan sering dialami oleh mahasiswa. Perkembangan teknologi digital, khususnya penggunaan game online, diduga berperan dalam meningkatnya kejadian insomnia melalui adiksi dan durasi bermain yang berlebihan. Penelitian ini bertujuan untuk menganalisis hubungan antara adiksi dan durasi bermain game online dengan kejadian insomnia pada mahasiswa Universitas Trisakti. Penelitian ini menggunakan desain observasional analitik dengan pendekatan potong lintang. Sampel penelitian berjumlah 194 mahasiswa yang dipilih menggunakan teknik consecutive non-random sampling. Data dikumpulkan melalui kuesioner *Game Addiction Scale* (GAS), *Insomnia Severity Index* (ISI), dan kuesioner durasi bermain game online. Analisis data dilakukan menggunakan uji *Chi-square* dengan tingkat kemaknaan $p < 0,05$. Hasil penelitian menunjukkan bahwa prevalensi adiksi game online sebesar 40,2% dan insomnia sebesar 63,4%. Terdapat hubungan yang bermakna antara adiksi game online dengan insomnia ($p = 0,004$) serta antara durasi bermain game online dengan insomnia ($p = 0,037$). Dapat disimpulkan bahwa adiksi dan durasi bermain game online berhubungan secara signifikan dengan kejadian insomnia pada mahasiswa Universitas Trisakti.
Kata Kunci: Adiksi game online, durasi game online, insomnia

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INTRODUCTION

Insomnia is a condition characterized by disturbances in the duration, quality, and timing of a person's sleep. It is one of the factors that can contribute to a decreased quality of life. Cella suggests that the quality of life of individuals with insomnia can be evaluated based on several factors: physical health, mental health, social functioning, personal roles, and overall well-being.[1]

According to data from the World Health Organization (WHO), approximately 18% of the global population experiences sleep disorders, with an estimated one in three people suffering from insomnia. Meanwhile, the Sleep Foundation reported that insomnia affected 67% of 1,508 respondents from Southeast Asia, with 23.8% of cases occurring in adolescents. In Indonesia, Eliza's research showed that insomnia prevalence reached around 67%, with 55.8% experiencing mild insomnia and 23.3% experiencing moderate insomnia. [2] In Indonesia itself, insomnia prevalence was recorded at 10% in 2018, meaning that approximately 23 million of the total population of 238 million experienced this sleep disorder.[3] Furthermore, a study of adolescent boys in Jakarta showed that around 40% experienced poor sleep quality. Research by Julian and Kurniawan found that, in West Jakarta, 87.3% of respondents reported poor sleep quality. Similar results were found in Amalia and Istianah's research in East Jakarta, where 64.8% of respondents experienced sleep quality disorders. [4]

Online game addiction is one of the factors that can contribute to insomnia. Online game addiction is a form of addiction caused by internet technology, also known as internet addiction disorder. It is characterized by excessive dependence on online games and the desire to play continuously, which can have negative effects on physical and psychological health. Individuals with this addiction are unable to control or manage their behavior.

The WHO officially recognized online gaming addiction as a mental disorder for the first time in the 11th revision of the International Classification of Diseases (ICD-11). According to Newzoo's 2021 Global Games Market Report, the number of online gamers worldwide reached 2.8 billion in 2021, marking a 5.4% increase from the previous year. The Asia-Pacific region accounts for around 50% of the global total with approximately 1.5 billion users, while Indonesia alone recorded 118 million online gamers. [7] In Indonesia, it is adolescents who show the most interest in online gaming. Data show that 64.45% of male and 47.85% of female adolescents aged 12–22 engage in online gaming[8].

This study aims to determine the prevalence of online gaming addiction and insomnia among Trisakti University students and to analyse the relationship between online gaming addiction, gaming duration, and insomnia incidence among these students.

MATERIALS AND METHODS

This is an observational, analytical, cross-sectional study. It aimed to analyze the relationship between online gaming addiction, gaming duration, and insomnia incidence among Universitas Trisakti students. The study was conducted from October to December 2025, with 194 respondents selected via

consecutive non- random sampling. Data were collected using a questionnaire consisting of the Game Addiction Scale (GAS) to assess gaming addiction, a questionnaire about gaming duration, and the Insomnia Severity Index (ISI) to measure insomnia severity.

The data were then processed through editing, coding, data entry, and cleaning. Univariate analysis was then used to describe the characteristics of the respondents, including their age and gender, as well as the distribution of online gaming addiction, gaming duration, and insomnia. Next, bivariate analysis was conducted to determine the relationship between online gaming addiction and gaming duration as the independent variables and insomnia as the dependent variable. Statistical analysis was performed using the Statistical Package for the Social Sciences (SPSS), employing the chi-squared test and setting the statistical significance level at $p < 0.05$. The results of the data analysis are presented in tabular and narrative form.

RESULTS

The respondents to this study were grouped according to their age, gender, degree subject, whether or not they lived with their parents, whether or not they had received psychiatric treatment, how long they had spent gaming, and what type of game they typically played. Of the 194 respondents, the majority were aged 20–25 (51%) and male (65.5%). Most respondents were not addicted to online games (59.8%), had short gaming sessions (91.8%), and experienced insomnia (63.4%).

Table 1. Frequency Of Research Subject Characteristics

Variable	n	%
Age (year)		
17-19	95	49
20-25	99	51
Gender		
Man	127	65.5
woman	67	34.5
Online game addiction		
Addicted	78	40.2
Not Addicted	116	59.8
Online game duration		
Long	1	0.5
Medium	15	7.7
Short	178	91.8
Insomnia		
Insomnia	123	63.4
Not insomnia	71	36.6

Source: Primary Data, 2026

DISCUSSION

The characteristics of adolescence can contribute to insomnia because teenagers often struggle to get enough sleep and rest as they grow older. Many teenagers tend to go to bed late but still have to wake up early, resulting in insufficient sleep. In terms of health, a healthy sleep duration is considered to be 6–9 hours per day. Adolescents are individuals aged 10–24 years who are reaching sexual maturity and developing their self-identity. In Indonesia, there are 66.8 million adolescents in this age range, comprising 34.4 million males and 32.4 million females (BPS, 2021).[2]

The results of this study also suggest that there is no significant correlation between gender and insomnia ($p = 0.275$; $p > 0.05$).

Table 2. Bivariate Analysis: Age, Gender, Online Game Addiction, and Duration of Online Game Playing on Insomnia in Trisakti University Students

Variable	Insomnia						P value
	Not insomnia		insomnia		Total		
	n	(%)	n	(%)	n	(%)	
Age							
17-19 years old	36	18.6	59	30.4	95	49	0.713
20-25 years old	35	18	64	33	99	51	
Gender							
Men	43	22.2	84	43.3	127	65.5	0.275
Woman	28	14.4	39	20.1	67	34.5	
Online game addiction							
Addicted	19	9.8	59	30.4	78	40.2	0.004*
Not addicted	52	26.8	64	33	116	59.8	
Online game duration							
Short	69	35.6	109	56.2	178	91.8	0.037*
Long	2	1	14	7.2	16	8.2	

* Chi-square test $p<0.05$

The results of this study are in line with the findings of Wijaya, Susanti and Usman (2024), who studied students on the Medical Education Programme at the Faculty of Medicine at Andalas University. Their study showed that there was no significant relationship between gender and insomnia, with a p-value of 1.00 ($p > 0.05$).[11] However, the results of this study are not in line with those of Nasution, Mardhiati, and Hamal (2022), who studied students at SMAN 13 in Tangerang City. Their study showed a significant relationship between gender and insomnia symptoms, with a p-value of 0.003 ($p < 0.05$).[9]

Although risk factors for insomnia can be found in both men and women, some factors are sex-specific. These differences are related to biological variations, particularly sex steroid hormones. The primary hormones in women are oestrogen and progesterone, whereas testosterone is the dominant hormone in men. Sleep disturbances in women are often associated with changes in ovarian hormone levels that occur during certain life stages, such as puberty, pregnancy, the menstrual cycle, and menopause.[11]

In men, high-dose testosterone replacement therapy has been reported to be associated with decreased sleep quality and reduced sleep duration. Generally, low or fluctuating oestrogen levels in women are associated with an increased risk of sleep disorders, including insomnia. However, the influence of testosterone levels on sleep patterns in men remains uncertain due to inconsistent research findings. Conversely, when social factors are considered as risk factors for insomnia, the gender difference in insomnia incidence becomes less pronounced. It is considered that the role of gender-related social factors is inadequate in explaining the differences in insomnia incidence between men and women.[11]

Online game addiction can be identified

through excessive usage patterns that disrupt sleep, particularly among adolescents. The better an adolescent's ability to control their gaming habits, the lower their insomnia rate. Conversely, the poorer their control over their gaming behaviour, the higher their risk of insomnia. This aligns with the findings of Budhi and Indrawati, who stated that adolescents with higher self-control are less likely to develop online game addiction. [12]

This study revealed a significant correlation between online gaming addiction and insomnia, with a p-value of 0.004 ($p < 0.05$). These results are consistent with those of Zamaa et al., who reported a significant relationship between online gaming addiction and sleep disturbances ($p = 0.005$).[13] However, they are inconsistent with the findings of Winanta et al., who stated that there was no significant relationship between gaming habits and students' sleep quality ($p = 0.640$).[14]

The findings of this study support the theory that online gaming addiction is a form of excessive, addictive behaviour towards online games. This addiction emerges as an intense urge to repeatedly engage in the activity, in this case, playing online games. Online games are games that are accessed via the internet and can be played by multiple users simultaneously.[15] These research findings are reinforced by a study conducted by Peracchia et al., which showed that gaming can result in decreased sleep duration, increased sleep onset latency (SOL), changes in rapid eye movement (REM) and slow wave sleep (SWS) phases, as well as drowsiness and fatigue.[16]

Overall, these results indicate that prolonged gaming, especially at night, can be a major factor in sleep disturbances and potentially negatively impact cognitive function. [16] Overall, these results suggest that prolonged gaming, particularly at night, may significantly impact sleep quality and potentially impair cognitive function. [16]

The results of this study indicate a significant association between the duration of online gaming and insomnia ($p = 0.037$; $p < 0.05$). These results are consistent with those of Tudu, Tira and Landi's research, which reported a significant relationship between daily gadget use duration and insomnia incidence among FKM UNDANA students in the 2020 and 2021 cohorts, as indicated by a p-value of 0.002. The results of this study are also consistent with those of a study by Matur and colleagues, which found that most adolescents spend 46 hours per day playing online games (55.8%). This prolonged playing time has the potential to trigger online gaming addiction in adolescents.[19] The researchers concluded that adolescents have a high level of dependence on online games, which leads to excessive gaming behavior that negatively impacts their health. This dependence makes it difficult for them to control how much time they spend gaming, which can ultimately lead to sleep disorders such as difficulty falling asleep, frequent night-time awakenings, and decreased sleep quality. Therefore, it is necessary to educate adolescents about regulating the duration of online gaming and to provide them with support from family and the surrounding environment. [20]

According to Valkenburg and Peter's (2019) Media Involvement Theory, intense media involvement, including online gaming, can influence a person's interests and behavior. The

findings of this study support this theory, showing that prolonged gaming increases adolescents' interest and curiosity, encouraging them to continue playing. This illustrates how excessive interaction with digital media can shape behavior and interests.[21]

Using electronic devices, especially at night, is known to inhibit melatonin secretion, which helps induce sleepiness (National Sleep Foundation). Exposure to blue light from device screens can delay sleep onset, disrupt circadian rhythms, and increase the risk of insomnia. In line with Potter and Perry's theory, modern lifestyles, including the habit of using technology before bedtime, significantly contribute to sleep disorders in adolescents. [22]

CONCLUSIONS AND SUGGESTIONS

A study on the relationship between online gaming addiction and insomnia prevalence among Universitas Trisakti students revealed that 40.2% of participants were addicted to online gaming, while 63.4% experienced insomnia. The analysis showed a significant association between online gaming addiction and insomnia ($p = 0.004$), as well as between insomnia and the duration of online gaming ($p = 0.037$). These results imply that the level of addiction and the duration of online gaming both play a role in increasing the risk of insomnia in students.

For future research, it is recommended that researchers use more detailed and objective measurement instruments, such as an automatic screen time tracking application, in order to obtain more accurate data and minimize reporting bias. Furthermore, students at Universitas Trisakti are expected to manage their online gaming time in order to avoid excessive play and to balance it with physical activity, rest, and academic activities. They are also encouraged to adopt good sleep habits, such as limiting night-time gaming and maintaining a regular sleep schedule, to help prevent sleep disorders.

CONFLICT OF INTEREST

The author declares that there is no conflict of interest in the conduct of the research or in the publication of this manuscript, and that the data presented are not influenced by the interests of any party.

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