



EFFECTS OF ONLINE GAMING ADDICTION ON ADOLESCENT PHYSICAL HEALTH

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Abstract

In all of Southeast Asia, Indonesia has the most gamers. It is estimated by the Indonesian government that 2.7 billion individuals suffer from gaming addiction. APJII (Indonesian Internet Service Providers Association) data indicates that 89.9 billion people play online games on their mobile phones, and this number is predicted to rise. The purpose of this study is to analyze relationship between online gaming addiction with adolescent physical health. Analytical research using a cross-sectional design. The study was carried out between December 1–8, 2023, in one of Semarang City's private high schools. There are 198 students and divided up among 6 distinct classes. 66 students from 6 classes were the sample size for the sampling procedure, which employed the Slovin formula. This study uses basic random sampling or draws based on the number of attendance. The GAS (Game Addiction Scale) questionnaire sheet and the respondent's physical health questionnaire were employed in the data collection procedure. Using Pearson Product Moment correlation for data analysis. Playing online games can have an impact on an adolescent's physical health and between two variables have a strong association.

Keywords: Game online addiction, Physical health, Adolescents, ICD-11

1. Introduction

Addiction is a serious problem that is associated with excessive internet use. An addiction that is frequently observed is the addiction to online gaming. Online games are a particular kind of game that needs to be played online and have excellent graphics to pique players' attention (Djannah et al., 2021a; Khazaal et al., 2016; Mujiya Ulkhaq et al., 2018a; Sayeed et al., 2021) Southeast Asia's largest gaming population resides in Indonesia. It is estimated by the Indonesian government that 2.7 billion individuals worldwide suffer from gaming addiction. According to data from the Association of Indonesian Internet Service Providers, or APJII, 89.9 billion individuals play online games on their phones, and that number is predicted to rise (Djannah et al., 2021a). Playing video games online has become a daily routine for many teenagers. The same is seen in some settings, such as restaurants, where a large number of teens are still using their phones to play games.

All humans have important physical demands that must be satisfied. If someone begins to disregard their bodily demands, bad things will happen, particularly if it affects their health. A few of the health issues that could develop are epilepsy, heart disease brought on by lack of sleep, muscle strains, anemia, and issues related to the eyes. (Ayenigbara, 2018a; Zhang et al., 2022). It is evident that playing video games can have an impact on one's health because gaming addiction is now included in the WHO's ICD-11 standard. Radiation rays from cell phones can have harmful impacts on a person's health when used as a gaming platform. Feeling lightheaded, exhausted, dehydrated, malnourished, or even cancerous are some of the symptoms that may appear (Djannah et al., 2021; Hardell, 2018).

Five respondents were selected at random for a preliminary study that the researcher did in one of Semarang City's private high schools. The five

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responders are all high school kids, ages sixteen to seventeen. The five of them use their phones to play online games for about four hours every day. Massively Multiplayer Online Role-Playing Games (MMORPGs) like Dota 2 and Mobile Legends are among the genres of games utilized. The five responders reported experiencing dry eyes and neck ache after staring at their phones to play online games. With the inclusion of online gaming addiction or game addiction in the most recent ICD-11 diagnostic classification, it is evident that a large number of people, particularly youths, suffer from this illness. It is well established from earlier studies that dizziness and fatigue are common symptoms among those who become addicted to video games. Because they frequently postpone eating and urinating, responders are also at risk for gastritis and urinary tract infections (Sinanto et al., 2021).

Based on the explanation above, the purpose of this study is to analyze relationship between online gaming addiction with adolescent physical health.

2. Method

Analytical study using a cross-sectional design is the methodology employed. The study was carried out between December 1-8, 2023, in one of Semarang City's private high schools. All of the grade 11 students enrolled in the high school where the research was done made up the study's population. With the school's consent, the population selection was adjusted. There are 198 students in all, distributed among 6 distinct classrooms. The Slovin formula (10%) is the sample method employed. 66 individuals from 6 courses were the number of samples used as a result of the calculation. With the help of the teacher, eleven students from each class will be chosen at random using a random sample technique or by drawing based on attendance. The inclusion and exclusion criteria need to be taken into consideration by the sample technique. Eleventh-grade students who are enrolled in the school where the research is being performed, play video games for more than two hours a day, and use their phones to play online games are the inclusion requirements. Students who are absent at the time of data collection are considered exclusion criteria.

Three questionnaires were utilized to obtain the data: one for respondent identity, one for the GAS (Game Addiction Scale), and one for the respondent's physical health. The GAS questionnaire was created by Lemmens and has undergone reliability testing (Lemmens et al., 2009). In terms of internal consistency, there was good reliability. The findings indicate that the GAS model with 21 items fits the data well and has strong psychometric qualities (Mujiya Ulkhaq et al., 2018b). A reduction of the GAS components to seven was made in certain research (Lemmens et al., 2009). The questionnaire to assess adolescents' physical health utilized a questionnaire that had been used by Sayeed and Ayenigbra in a previous study (Ayenigbara, 2018b). The reliability of all seven GAS products was high. Also, across the sample, both versions show strong concurrent validity. A Likert scale comprising five scales was utilized for the GAS and the physical health question on the questionnaire. In this study, the purpose of univariate analysis is to characterize or explain the properties of each research variable. The type of data determines the format of the univariate analysis. The median, or middle value, mode, or frequent value, and mean, or average, are used to describe numerical data. The statistical test employed for bivariate analysis is the Pearson Product Moment correlation coefficient, represented by the tiny letter r (r). This test is utilized to ascertain the degree of relationship (strength of relationship) between the variables because the data scale is a numerical scale (ratio and interval). Processing research data with the SPSS 22 program's assistance.

3. Result and Discussion

The research questionnaire consists of four parts: a consent form for participation, a personal data sheet to address research objectives, such as identifying research respondents' characteristics, a GAS (Game Addiction Scale) questionnaire to assess the extent to which research respondents play online games, and a physical health questionnaire to address research objectives regarding the effects of online gaming addiction on research respondents' health. The following are findings from studies pertaining to respondent characteristics:

Table 1. Characteristics of research respondents

Data	Results		
	Number of Answers	Precent (%)	Mean
Gender			
Men	46	70%	Men
Women	20	30%	
Age			
16 years old	19	29%	17 tahun
17 years old	35	53%	
18 years old	12	18%	
Duration of Game Play/Day			
≤ 3 hours	19	29%	4,5 hours
4-5 hours	45	68%	
≥ 6 hours	2	3%	
Been gaming for ... years			
≤ 1 years	22	34%	3 years
1-3 years	39	59%	
4-6 years	5	7%	

Table 1 indicates that the research participants are male 17-year-olds. On average, respondents use their phones to play online games for 4,5 hours. The average respondent has been an online gamer for one to three years.

Table 2. Questionnaire normality test results

Data kuesioner	Kolmogorov-smirnov		
	Statistic	df	Sig.
Gaming addiction	,239	66	0,058
Health impact	,201	66	0,060

Kolmogorov-Smirnov statistical test method for data normality (>50 data). The results show that the GAS questionnaire and the adolescent physical health questionnaire are normally distributed has a normal distribution (Sig. >0.05).

Table 3. Question items in the questionnaire

No	Criteria	Question Description	1	2	3	4	5	Score
Questionnaire GAS (Game Addiction Assesement)								
1	Saliency	Have you thought all day long about playing a game?	0	1	1	36	28	289 point
2	Tolerance	Have you played longer than intended?	0	2	2	25	37	295 point
3	Mood modification	Have you playing games improve your mood?	0	0	0	40	26	290 point
4	Relapse	Have others unsuccessfully tried to reduce your time spent on games?	0	8	8	27	23	263 point
5	Withdrawal	Have you felt upset when you were unable to play?	1	4	5	36	20	268 point
6	Conflict	Have you had arguments with others (e.g. family, friends) over your time spent on games ?	6	11	5	18	26	245 point
7	Problems	Have you neglected important activities (e.g. school, work, sports) to play games?	0	2	5	36	23	278 point
Health problem questionnaire								
1	Vision issues	Have you ever experienced blurred vision shortly after playing a game?	3	2	0	36	25	276 point
2	Vision issues	Have you ever felt eye discomfort after playing a game?	2	1	2	33	28	282 point
3	Musculoskeletal issues	Have you ever felt dizzy during or after gaming?	2	4	5	35	20	265 point

No	Criteria	Question Description	1	2	3	4	5	Score
4	Musculoskeletal issues	Have you ever feel sore or cramped fingers during or after gaming?	0	0	0	29	37	301 point
5	Musculoskeletal problems	Have you ever get neck aches or cramps during or after gaming?	0	0	2	43	21	283 point
6	Nutrition issues	Have you ever endured thirst while gaming?	5	7	2	26	26	259 point
7	Nutrition issues	Have you ever skipped a meal to play a game?	4	0	3	30	29	278 point

Table 3 shows that the questionnaire question with the highest scores, "GAS (Game Addiction Assessment) tolerance criteria," indicates that a large number of respondents agreed with the question. The GAS questionnaire has three criteria: tolerance, mood, and priority. The three greatest criterion for muscle and eye impairments on the health problem questionnaire are numbers 4,5 and 2.

Table 4. Pearson Product Moment statistical test results

		Health impact
Gaming addiction	Pearson correlation	0,798
	Sig. (2-tailed)	0,001
	N	66

The findings of the Pearson Product Moment statistical test above indicate that playing online games can have an impact on an adolescent's health, with a significance value of 0.001 (<0.005). The two variables have a strong association, as indicated by the Pearson correlation value, which is 0.798 (0.6 - 0.8 = strong relationship strength).

Table 1 presents the research findings for 66 respondents, revealing that 70% of the respondents are men. According to this research, men predominate over women when it comes to online gaming. The findings of this survey are consistent with those of other earlier studies, which indicate that respondents who play online games are primarily male. A study conducted in 2022 by Surbakti at a vocational high school in West Java revealed that out of 241 respondents, 210 of them were men (Surbakti et al., 2022). It is well known that men are more likely than women to develop an addiction to online gaming. The impact of internet gaming on men's and women's brains differ. Men are typically more aggressive and driven to accomplish goals in gaming, such as finishing levels and chores in online games. Male online gamers may experience anxiety when they lose since this can activate the brain regions responsible for regulating emotions (Djannah et al., 2021b; Wang et al., 2014). The average age of the responders is still 17, indicating that they are still in their adolescent years. Teenagers typically spend more time than adults playing internet games. Excessive online video game playing by adolescents can have a variety of negative social, psychological, and physical effects (Griffiths, 2015).

The amount of time spent playing games each day and the number of months the responder has been playing online games show the degree of dependence on gaming (Djannah et al., 2021b). According to the study's findings, 45 out of 66 respondents play online games on their phones for four to five hours per day. This demonstrates that the typical respondent plays online games for an inordinate amount of time. There is a high correlation between the average amount of time spent playing online games and addiction or dependence on the activity (Wang et al., 2014). Adolescents will spend at least 55 hours a week playing video games on the internet. Adolescents who spend more than four hours a day playing video games on the internet may be addicted to or dependent upon them (Jap et al., 2013). Since one to three years ago, the average response has been an online gamer. This is another sign of an online game addiction or dependence. It is well known that after engaging in online gaming for more than a year or twelve months, a person is considered dependent on the activity (American Psychiatric Assosiation, 2013; Ayenigbara, 2018c; Feng et al., 2017).

The tolerance, mood, and priority categories are the most often asked questions in the GAS questionnaire, according to the results of the question items in Table 3. According to the tolerance criterion, participants concur that they have more time to play games. Teenagers will play video games on the internet for extended periods of time until they are satisfied, whether on purpose or not. The game's ever-

increasing obstacles in each level will appeal to gamers who enjoy challenges and could even become addicted, leading to longer sessions of online gaming (Surbakti et al., 2022). Unchecked use of this can have detrimental effects on adolescents' social lives and health. The mood category is the next important category. The claim made by respondents that playing online games can lift one's spirits was accepted. Teens frequently turn away from other interests in favor of using online gaming as a coping mechanism for their issues. Teens who ignore their other responsibilities, both at home and at school, risk negative results. Excessive internet gaming might result in bad eating habits and low motivation for learning (Pirantika & Purwanti, 2017). Regarding the third criterion, which is priority, the majority of respondents concur by saying that they would like to play online games all day long. Many people who become addicted to playing online games may find it difficult to put the game out of their minds. The individual consequently frequently becomes distracted and daydreams (Pirantika & Purwanti, 2017).

Muscle and visual issues were the most common health problems reported by respondents, according to Table 3's results from the health problems questionnaire. Regarding muscle issues, participants frequently reported experiencing aches or cramps in their fingers and neck either during or after using their mobile phones to play online games. Prolonged gaming might potentially lead to musculoskeletal or muscular issues. Children's surveys reveal a rise in physical complaints linked to online gaming. Hand and wrist pain, as well as discomfort in the neck and back, are some of these complaint. A case study of a nineteen-year-old teen highlighted the problem of Playstation thumb in another study. Playstation thumb is the term for blisters and neuropathy that result from lengthy and intensive game play causing contact between the thumb and controller. Due to overuse of the tendons, playing video games can also result in tendon issues (tendonosis) in the hand and wrist. Prolonged engagement with video games may also lead to issues with posture. These problems can be addressed using ergonomic solutions, such as chairs that have posture monitoring features (Ayenigbara, 2018c).

Vision issues are another health issue that can result from prolonged internet gaming. The majority of respondents acknowledged that they experienced headaches either during or after playing online games. Staring at a video game screen for an extended amount of time can lead to eye tiredness since human eye organs like the cornea, pupil, and iris are not physiologically designed to stare at digital images from electronic devices for extended periods of time. Prolonged and frequent gaming can overload the visual system, resulting in headaches, lightheadedness, and in rare cases, nausea and vomiting (Ayenigbara, 2018c).

Table 4 shows how playing video games online has a significant impact on adolescents' health. The findings of this study are consistent with a systematic review and meta-analysis by Eni Purwaningsih, which demonstrated a strong relationship between the development of health issues and addiction or dependency on online gaming. The study also found that adolescents' mental health issues may worsen if they become dependent on playing online games (Purwaningsih & Nurmala, 2021). The GAS questionnaire results in this study are also consistent with research conducted in South Korea in 2022, which indicates that tolerance is the most important criterion in the GAS questionnaire. Respondents to the GAS questionnaire reported that they frequently spend more time playing online games (Kim et al., 2022).

4. Conclusion and Suggestion

The average research respondent is male and has been playing online games since 3 years ago, respondents always play online games on average 4.5 hours/day. Physical health problems in adolescents that often arise during or after playing online games are sore or cramped fingers and neck aches or cramps. Playing online games can have an impact on an adolescent's physical health and between two variables have a strong association.

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