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ANALYSIS OF DIFFERENCES IN ONLINE GAMING ADDICTION AMONG URBAN AND RURAL STUDENTS

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ABSTRACT

The addiction to online games among adolescents in urban and rural areas has become a serious problem that requires comprehensive intervention. This study aims to identify the differences in online game addiction among students in urban and rural areas, as well as its impact on education, social life, and health. The study utilizes a comparative study design with a cross-sectional approach and involves students from two secondary schools in Nagan Raya Regency. The research sample was obtained using total sampling technique, and the data were analyzed using the Mann Whitney test and logistic regression. The Game Addicting Scale (GAS) was employed to measure the level of online game addiction. The results indicate that 37.9% of students in urban areas and 30.3% of students in rural areas experience online game addiction and exhibit abnormal mental health. There is a significant relationship between abnormal mental health and online game addiction in both areas. The duration of game play is also significantly associated with addiction, as students who play games for 2 hours or more have a 4 times higher risk of experiencing addiction. No significant relationship was found between specific game types or gender (specifically female) and online game addiction. However, there is a significant relationship between being 18 years old and online game addiction, as well as between the number of mobile operators and signal conditions with online game addiction. Students living in areas with more than one mobile operator have an 18 times higher risk, while students living in strong signal conditions also have a higher risk of experiencing online game addiction.

Keywords: *Differences, Online Game, Addiction, Urban, Rural Student*

INTRODUCTION

According to the World Health Organization (WHO), mental health disorders affect approximately 1 in 4 people worldwide at some point in their lives (Rehm & Shield, 2019). Some common mental disorders include depression, anxiety, bipolar disorder, schizophrenia, eating disorders, and neurological disorders such as dementia. Depression and anxiety are two of the most common mental disorders globally. According to WHO data from 2017, more than 264 million people worldwide were affected by depression, and more than 284 million people experienced anxiety disorders. However, it's important to note that these numbers may have changed since then due to shifts in population and global health

situations (Whiteford et al., 2015). Mental health of adolescents has become an important issue in the field of education due to its impact on future academic performance (Barlett et al., 2009; Bediou et al., 2018). The prevalence of mental disorders such as depression and anxiety is high both globally and in Indonesia. The prevalence of emotional and depressive disorders among adolescents aged 15-24 in Indonesia is reported to be 10.0% and 6.2% respectively, indicating a significant mental health issue experienced by a number of teenagers in Indonesia. Data from the Central Statistics Agency in 2020 also revealed a significant number of teenagers in Indonesia, with 23,749,949 individuals (8.8%) aged 10-14, 23,122,993 individuals (8.6%) aged 15-19, and 22,951,517 individuals (8.5%) aged 20-24. The current adolescent period is marked by the influence of advanced technology, such as the internet, smartphones, and online gaming. Excessive use of online games can lead to addiction, impact adolescent behavior, and disrupt daily life (Umar et al., 2023). The negative impacts include a lack of attention to social activities, a decline in academic achievement, and disruptions in other areas of life functioning (Ma et al., 2020; Shi et al., 2020; Von Der Heiden et al., 2019). Indeed, the social environment and external influences can significantly impact adolescent behavior. Excessive use of technology, particularly in online gaming, can have negative effects on the mental health of adolescents.

These effects may include decreased social engagement, declining academic performance, issues in social relationships, financial problems, health concerns, and disruptions in other areas of life functioning (D'Hondt et al., 2020; O'Donoghue, 2021; Umar et al., 2023). Research in several schools in Indonesia has shown a significant level of online gaming addiction among adolescents, with 68.15% falling into the moderate addiction category, 11.4% in the high addiction category, and only 14.75% in the low addiction category. Several studies have been conducted to examine online gaming addiction in adolescents in various geographical contexts. Research conducted by Ariantoro, (2016) Research examines the relationship between online gaming addiction and social adjustment among adolescents in urban and rural schools, and finds a correlation between online gaming addiction and social adjustment in both groups of teenagers. Meanwhile, other studies highlight the importance of environmental factors in influencing the level of online gaming addiction and its impact on social adjustment among adolescents. Research Marpaung, (2018) The focus of the study is on the differences in online gaming addiction among adolescents in urban and rural areas, and it demonstrates a significant difference in the levels of online gaming addiction between adolescents in urban and rural areas.

Research by Janttaka & Juniarta, (2020) Comparisons were made between online gaming addiction among urban and rural adolescents, and significant differences were found in the levels of online gaming addiction between these two groups of teenagers. Additionally, a study by Pande & Marheni, (2015) also observed differences in online gaming addiction among urban and rural adolescents, demonstrating significant variations in the levels of online gaming addiction between teenagers in urban and rural environments.

Through these studies, it can be concluded that geographical factors such as school location (urban or rural) can influence the levels of online gaming addiction among adolescents (Chen et al., 2005). The studies indicate a significant level of addiction among teenagers, with online gaming addiction being associated with poor social

adjustment. Interview results revealed that students often play online games for several hours and become engrossed in them. Online gaming addiction issues are experienced by teenagers in both urban and rural areas. Therefore, research was conducted to analyze the differences in online gaming addiction between urban and rural students.

RESEARCH METHODS

This research is a quantitative study that utilizes numerical data analysis using statistics from data collection to the interpretation of results. The study employs a Comparative Study design, which compares the similarities and differences of phenomena. The observation method used is a cross-sectional study, where data is collected at a specific point in time to examine the relationship between dependent and independent variables. The research was conducted at Senior High School 1 Beutong and Senior High School 2 Beutong in Nagan Raya Regency.

The population of this study includes all students at Senior High School 1 Beutong in Nagan Raya Regency, totaling 302 individuals, and all students at Senior High School 2 Beutong in Nagan Raya Regency, totaling 82 individuals. The sample is taken using total sampling technique, and data analysis is performed using logistic regression analysis. The sample size for this study consists of 302 students from Senior High School 1 Beutong and 82 students from 2 Beutong. In this study, data is collected through a questionnaire consisting of three parts. Part A includes demographic data of the students, including information about age, gender, address, duration of online gaming per day, and types of games played. Part B utilizes a questionnaire on online gaming addiction using the GAS (Game Addicting Scale) scale, which consists of 7 questions, adopted from previous research (Cindy, 2019). Part C involves a mental health questionnaire using the SDQ (Strengths and Difficulties Questionnaire), consisting of 25 items with five dimensions related to prosocial behavior, hyperactivity, emotional problems, conduct problems, and peer relationships.

In this study, data analysis is conducted in three stages. The first stage is univariate analysis, where each variable and research findings are analyzed to determine the distribution and percentage of each variable. The second stage is bivariate analysis, where an analysis is performed on two variables suspected to have a relationship or correlation. Finally, multivariate analysis is used to identify the most dominant independent variable in its relationship with the dependent variable. The research has undergone an ethical review process with registration number: 2368/VI/SP/2021 and has obtained approval from the ethics committee after being assessed in accordance with applicable ethical standards.

RESULTS

Characteristics of Respondents

This study involved respondents aged fifteen to eighteen who attended SMA 1 and 2 Beutong Nagan Raya. The characteristics of the respondents, including gender and age, provide an overview of the frequency distribution in this study. The distribution data of respondent characteristics can be found in Table 1.

Based on the distribution of respondent characteristics in Table 1, it is evident that the majority of respondents from urban areas are female, totaling 162 students (53.6%). Meanwhile, male respondents in urban areas amount to 140 students (46.4%). In contrast, in rural areas, the highest number of respondents are male, totaling 45 individuals (54.9%).

Table 1. Characteristics of Respondents

General Characteristics	Urban		Rural	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Gender				
Male	140	46,4	45	54,9
Female	162	53,6	37	45,1
Age				
15 years	113	37,4	27	32,9
16 years	97	32,1	18	22,0
17 years	92	30,5	31	37,8
18 years	0	0	6	7,3
Education				
Grade 10	113	37,4	27	32,9
Grade 11	97	32,1	18	22,0
Grade 12	92	30,5	37	45,1
Number of Accessible Operators				
1 Cellular	172	57,0	80	97,6
2 Cellular	119	39,4	2	2,4
3 Cellular	11	3,6	0	0
Cellular Signal Condition				
Very Strong	84	27,8	2	2,5
Strong	206	68,2	16	19,5
Weak	12	4,0	64	78,0
Total	**302**	**100**	**82**	**100**

Furthermore, upon examining the distribution of respondent ages, several interesting trends emerge. In urban areas, the highest number of respondents are aged 15, comprising 113 students (37.4%). Additionally, the age groups of 16 and 17 years old each consist of 97 students (32.1%) and 92 students (30.5%) in urban areas, respectively. This indicates that the majority of respondents from urban areas fall within the early teenage range.

From the available data, it can be observed that the composition of respondents based on gender and age in urban and rural areas shows significant differences. Most female respondents originate from urban areas, while in rural areas, the majority are male. Moreover, there are differences in the distribution of respondent ages between urban and rural areas, with the majority of urban respondents aged 15-17 years old. This information provides a further understanding of the demographic characteristics of respondents in this study.

Univariate Data Analysis

Based on the data obtained from interviews using questionnaires, the frequency distribution and percentage regarding online gaming addiction among rural and urban students will be presented in Table 2 below.

Table 2. Distribution of Respondents Based on Online Game Addiction among Urban and Rural Students

Online Game Addiction	Urban		Rural	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Yes	61	20,2	15	18,3
No	241	79,8	67	81,7
Total	**302**	**100**	**82**	**100**

Based on the data provided in Table 2, we can observe differences in the prevalence of online gaming addiction between urban and rural areas. In urban areas, there are 61 students (20.1%) experiencing online gaming addiction. Meanwhile, the majority of students in urban areas, totaling 241 students (79.9%), do not experience online gaming addiction and are considered normal. On the other hand, in rural areas, there are 15 students (18.3%) experiencing online gaming addiction. Although this number is lower compared to urban areas, there are still some students in rural areas affected by online gaming addiction.

Tabel 3. Distribution of Descriptive Data of Total Online Game Addiction Scores among Urban and Rural Students

Variable	Urban		Rural	
	Mean	Range	Mean	Range
Total Online Game Addiction	10.08	0 – 24	9.86	0 - 24

Based on the data presented in Table 3, we can see that the average total score of online gaming addiction in urban areas is 10.08 with a maximum score of 24. Meanwhile, in rural areas, the average total score of online gaming addiction is 9.86 with the same maximum score. The average total score of online gaming addiction reflects the level of addiction experienced by students in each area. The higher the score obtained, the higher the level of addiction experienced by students towards online games. Although there is a slight difference in the average total score of online gaming addiction between urban and rural areas, this difference is not statistically significant. This means that overall, the level of online gaming addiction among students in urban and rural areas is relatively comparable. Despite urban areas having a slightly higher average score, this difference does not reach a statistically significant level.

Table 4 reveals interesting findings regarding the gaming habits and mental health conditions of adolescents living in urban and rural areas. In urban areas, the data shows that 140 students (46.2%) spend around 1 hour playing online games, followed by 50 students (16.6%) who spend 3 hours playing online games. Additionally, there are students who have the habit of playing online games for 6 hours, totaling 17 students (5.6%).

Meanwhile, in rural areas, the table presents a slightly different pattern. Among surveyed students, 41 individuals (50.0%) spend around 1 hour playing online games, making it the most common duration in the area. The second most common duration is 2 hours, found among 14 students (17.1%). Additionally, there are also some students who are accustomed to playing online games for 6 hours, totaling 4 individuals (4.9%).

Table 4. Distribution of Respondents Based on Duration of Playing Online Games, Type of Online Games, Type of Gaming Devices among Students in Urban and Rural Areas"

Variable (Urban Area)	Frequency (n)	Percentage (%)
Duration of Playing Online Games		
1 Hour	140	46,2
2 Hours	42	13,9
3 Hours	50	16,6
4 Hours	42	13,9
5 Hours	11	3,6
6 Hours	17	5,6
Type of Online Games		
Massively Multiplayer Online Role Playing Game	111	36,7
Massively Multiplayer Online Real Time Strategy	51	16,9
Massively Multiplayer Online First Person Shooter	140	46,4
Type of Gaming Devices		
Computer/Laptop	12	4,0
Mobile Phone	290	96,0
Mental Health		
Normal	86	28,5
Borderline	71	23,5
Abnormal	145	48,0
Rural Area		
Duration of Playing Online Games		
1 Hour	41	50,0
2 Hours	14	17,1
3 Hours	12	14,6
4 Hours	7	8,5
5 Hours	4	4,9
6 Hours	4	4,9
Type of Online Games		
Massively Multiplayer Online Role Playing Game	40	48,8
Massively Multiplayer Online Real Time Strategy	11	13,4
Massively Multiplayer Online First Person Shooter	31	37,8
Type of Gaming Devices		
Computer/Laptop	0	0
Mobile Phone	82	100,0
Mental Health		
Normal	28	34,1
Borderline	21	25,6
Abnormal	33	40,2

Analyzing mental health conditions, the data shows that in urban areas, 145 students (48.0%) are classified as experiencing abnormal mental health conditions, while 86 students (28.5%) are categorized as having normal mental health. On the other hand, in rural areas, there are 33 students (40.2%)

experiencing abnormal mental health conditions. These findings depict differences in the prevalence of abnormal mental health conditions between urban and rural areas. It is evident that the percentage of students with abnormal mental health conditions is higher in urban areas (48.0%) compared to rural areas (40.2%). Conversely, the percentage of students with normal mental health conditions is lower in urban areas (28.5%) compared to rural areas. These findings emphasize the need for further research and comprehensive interventions to address challenges related to online gaming addiction and its impact on mental health across different geographic locations. Based on Table 5 above, it is revealed that the average duration of playing online games in urban areas is approximately 2.31 hours, with a maximum recorded value of 6 hours. These results indicate that adolescents in urban areas tend to spend relatively longer periods playing online games. They are involved in more intensive online gaming activities and spend more time on them. Meanwhile, in rural areas, the average duration of playing online games is around 2.16 hours, with a maximum value reaching 6 hours.

Based on Table 6 below, students in urban areas who experience online gaming addiction and have abnormal mental health conditions total 55 students (37.9%), while those who are healthy or not addicted with normal mental health amount to 85 students (98.8%). In rural areas, students with online gaming addiction and abnormal mental health conditions total 10 students (30.3%), while those who are healthy or not addicted with normal mental health amount to 27 students (96.4%). The P-value for the relationship between borderline mental health and online gaming addiction is 0.023, indicating a significant relationship. The P-value for the relationship between abnormal mental health and online gaming addiction is 0.000, also indicating a significant relationship.

Based on the data from students in urban areas, there are 17 students who have online gaming addiction and a habit of playing games for 6 hours. Meanwhile, in rural areas, there are 38 students (92.7%) who are healthy or not addicted with a habit of playing games for 1 hour. Statistical tests show a significant relationship between playing games for 2 hours and online gaming addiction in students in urban and rural areas, with a P-value of 0.033. Students who play games for 2 hours have a 4 times higher risk of experiencing online gaming addiction compared to the group that plays games for less than or equal to 1 hour. Additionally, a significant relationship is also found between playing games for 3, 4, 5, and 6 hours and online gaming addiction in students in urban and rural areas, with a P-value of 0.000.

Based on Table 5. in urban areas, 22 students (19.8%) who suffer from online gaming addiction play Massively Multiplayer Online Role Playing Games, while in rural areas, 23 students (74.2%) who are healthy or not addicted play Massively Multiplayer Online First Person Shooter games. Statistical tests indicate no significant relationship between Massively Multiplayer Online Real Time Strategy games and online gaming addiction in urban and rural students, with a P-value of 0.469. Students playing Massively Multiplayer Online Real Time Strategy games have a protective factor compared to those playing Massively Multiplayer Online Role Playing Games. Similarly, there's no significant relationship between Massively Multiplayer Online First Person Shooter games and online gaming addiction in urban and rural students, with a P-value of 0.366.

Students playing Massively Multiplayer Online First Person Shooter games have a 1.2 times higher risk of experiencing online

Tabel 5. Relationship of Online Game Addiction to Several Variables

Variable	Online Game Addiction								AOR (95% CI)	p-value
	Yes				No					
	Urban		Rural		Urban		Rural			
	n	%	n	%	n	%	n	%		
Mental Health										
Normal	1	1,2	1	3,6	85	98,8	27	96,4		
Borderline	5	7,1	4	19,1	66	92,9	17	80,9	6,1 (1,2-28,8)	0,023
Abnormal	55	37,9	10	30,3	90	62,1	23	69,7	32,2 (7,7-134,7)	0,000
Times										
≤1 Hour	1	0,7	3	7,3	139	99,3	38	92,7		
2 Hours	4	9,5	1	7,1	38	90,5	13	92,9	4,3 (1,1-16,7)	0,033
3 Hours	10	20,0	2	16,6	40	80,0	10	83,4	10,6 (3,2-34,3)	0,000
4 Hours	18	42,8	3	42,8	24	57,2	4	57,2	33,1 (10,5-104,0)	0,000
5 Hours	11	100	3	75,0	0	0	1	25,0	619,6 (64,7-5926,8)	0,000
6 Hours	17	100	3	75,0	0	0	1	25,0	884 (94,2-8309,8)	0,000
Types of Games										
Massively Multiplayer Online Role Playing Game	22	19,8	6	15,0	89	80,2	34	85,0		
Massively Multiplayer Online Real Time Strategy	8	15,7	1	9,1	43	84,3	10	90,9	0,7 (0,3-1,7)	0,469
Massively Multiplayer Online First Person Shooter	31	22,1	8	25,8	109	77,9	23	74,2	1,2 (0,7-2,2)	0,366
Massively Multiplayer Online Role Playing Game	22	19,8	6	15,0	89	80,2	34	85,0		
Types of Gaming Devices										
PC/ Laptop	3	25,0	0	0,0	9	75,0	0	0,0	0,7 (0,1-2,8)	0,673
Handphone	58	20,0	15	18,3	232	80,0	67	81,7		
Age										
15 years	21	18,6	3	11,1	92	81,4	24	88,9		
16 years	21	21,6	1	5,6	76	78,4	17	94,4	1,1 (0,5-2,1)	0,713
17 years	19	20,6	7	22,6	73	79,4	24	77,4	1,3 (0,7-2,4)	0,370
18 years	0	0,0	4	66,7	0	0,0	2	33,3	13,7 (2,1-87,4)	0,006
Gender										

Variable	Online Game Addiction								AOR (95% CI)	p-value
	Yes				No					
	Urban		Rural		Urban		Rural			
	n	%	n	%	n	%	n	%		
Male	24	17,1	12	26,7	116	82,9	33	73,3		
Female	37	22,8	3	8,1	125	77,2	34	91,9	1,0 (0,6-1,7)	0,875
Education										
Grade 10	21	18,6	3	11,1	92	81,4	24	88,9		
Grade 11	21	21,6	1	5,6	76	78,4	17	94,4	1,1 (0,5-2,1)	0,695
Grade 12	19	20,6	11	29,7	73	79,4	26	70,3	1,5 (0,8-2,7)	0,196
The Number of Affordable Mobile Operators										
1 Mobile Operator	7	4,1	13	16,3	165	95,9	67	83,7		
2 Mobile Operators	50	42,0	2	100	69	58,0	0	0	18,5	8,0-42,5
3 Mobile Operators	4	36,4	0	0	7	63,6	0	0	14,3	3,3-60,9
Cellular Network										
Very Strong	49	58,3	2	100	35	41,7	0	0		
Strong	12	5,8	12	75	194	94,2	4	25,0	0,04	0,02-0,09
Weak	0	0	1	1,56	12	100	63	98,4	0,002	0,0-0,002

gaming addiction compared to those playing Massively Multiplayer Online Role Playing Games. Furthermore, in urban areas, 3 students (25.0%) addicted to online gaming play on computers or laptops, while in rural areas, 67 students (81.7%) who are healthy or not addicted play games on mobile devices.

In urban areas, 21 students (18.6%) addicted to online gaming are 15 years old, while in rural areas, 2 students (33.3%) healthy or not addicted are 18 years old. Statistical tests reveal no significant relationship between being 16 years old and online gaming addiction in urban and rural students, with a P-value of 0.713. 16-year-old students have a 1.1 times higher risk of online gaming addiction compared to those who are 15 years old. Similarly, there's no significant relationship between being 17 years old and online gaming addiction in urban and rural students, with a P-value of 0.370. 17-year-old students have a 1.3 times higher risk of online gaming addiction compared to those who are 15 years old. However, a significant relationship is found between being 18 years old and online gaming addiction in urban and rural students, with a P-value of 0.006. 18-year-old students have a 13 times higher risk of online gaming addiction compared to those who are 15 years old.

In urban areas, 24 students (17.1%) addicted to online gaming are male, while in rural areas, 34 students (91.9%) healthy or not addicted are female. Statistical tests show no significant relationship between being female and online gaming addiction in urban and rural students, with a P-value of 0.875. Female gender does not influence online gaming addiction compared to male students.

In urban areas, 21 students (18.6%) addicted to online gaming are in 10th grade, while in rural areas, 26 students (70.3%) healthy or not addicted are in 12th grade. Statistical tests reveal no significant relationship between being in 11th grade and online gaming addiction in urban and rural students, with a P-value of 0.695. 11th-grade students have a 1.1 times higher risk of online gaming addiction compared to those in 10th grade. Similarly, there's no significant relationship between being in 12th grade and online gaming addiction in urban and rural

students, with a P-value of 0.196. 12th-grade students have a 1.5 times higher risk of online gaming addiction compared to those in 10th grade.

The number of urban students addicted to online gaming is 15 (18.3%), while rural students healthy or not addicted total 241 (79.8%). Statistical tests indicate no significant relationship between living in urban areas and online gaming addiction, with a P-value of 0.701. Urban students have a 1.1 times higher risk of online gaming addiction compared to those living in rural areas.

Urban students addicted to online gaming and living in areas with 1 mobile operator amount to 165 (95.9%), while rural students healthy or not addicted and living in areas with 1 mobile operator total 7 (63.6%). Statistical tests show a significant relationship between the number of mobile operators and online gaming addiction, with a P-value of 0.000. Students living in areas with 2 or 3 reachable mobile operators have an 18 times higher risk of online gaming addiction compared to those living in areas with 1 mobile operator.

Urban students addicted to online gaming and living in areas with very strong signal conditions amount to 49 (58.3%), while rural students healthy or not addicted and living in areas with weak signal conditions total 63 (98.4%). Statistical tests indicate a significant relationship between strong and weak signal conditions and online gaming addiction, with a P-value of 0.000. Students living in areas with strong signal conditions have a higher risk of online gaming addiction compared to those living in areas with weak signal conditions.

DISCUSSION

There are several interesting findings regarding online gaming addiction among students in urban and rural areas. This research reveals a significant relationship between abnormal mental health and online gaming addiction. Students with abnormal mental health have a higher risk of being trapped in online gaming addiction. This phenomenon can be understood as a way for students experiencing mental health problems to use gaming as an escape or substitute for the difficulties they face. Additionally, the duration of time spent playing games is closely related to the level of online gaming addiction. The research shows that the longer students spend playing games, the higher their risk of becoming addicted to online gaming. This may be due to excessive use of time spent playing games, leading them to neglect other activities such as studying, social interaction, and participating in real-world activities. These findings are consistent with several studies conducted outside of Indonesia. Several studies related to online gaming addiction among students outside of Indonesia have yielded interesting findings.

The research conducted by Cha & Seo, (2018) found differences in problematic internet use based on factors such as gender, age, online time, and psychopathological symptoms. The study by Hening et al., (2021) revealed a relationship between parental attitudes, family functioning, and internet gaming disorder in adolescents. Damayanti et al., (2020) discovered the prevalence of internet gaming disorder in children and adolescents, as well as related factors. The study found a relationship between gaming motives and internet gaming disorder in adolescents and adults. These studies provide insights into the factors contributing to online gaming addiction among students outside of Indonesia and the differences in addiction characteristics and correlations. Furthermore, the types of games played also influence the level of online gaming addiction among students. Findings show that students who

play Massively Multiplayer Online First Person Shooter (MMOFPS) games have a higher risk of experiencing online gaming addiction compared to those who play Massively Multiplayer Online Role-Playing Game (MMORPG) games. This can be explained by factors such as high competitiveness and intense visual stimulation in MMOFPS games, which can reinforce addiction tendencies in students.

In addition to internal factors, environmental factors also play a significant role in online gaming addiction. One significant environmental factor is the number of mobile operators available in the students' residential area. Research shows that students in areas with more than one mobile operator have a higher risk of falling into online gaming addiction. The wider and easier internet access in such areas allows students to spend more time playing online games. Strong signal conditions are also associated with the level of online gaming addiction. Students living in areas with very strong signals have a higher risk of experiencing online gaming addiction compared to those living in weak signal conditions. Strong signal conditions enable smoother and more stable access to online games, which can influence students' tendency to play games more frequently and for longer periods. Through a series of studies conducted in various locations in Indonesia, findings regarding the differences in online gaming addiction levels between urban and rural students vary considerably.

The research by Elindawati, (2020) found that urban students have a higher level of online gaming addiction compared to rural students. This finding suggests that urban environments may have factors that more strongly drive students to become addicted to online games. However, the study by Zhang et al., (2021) showed no significant difference between urban and rural students in terms of online gaming addiction levels. This suggests that the factors influencing online gaming addiction may be more consistent among both groups of students. The research by Marpaung, (2018) found that urban students have a higher level of online gaming addiction compared to rural students.

The study by Syifa et al., (2019) showed no significant difference between urban and rural students in terms of online gaming addiction levels, indicating that the factors influencing online gaming addiction may differ in that region. Additionally, the research by (Janttaka & Juniarta, 2020). found no significant difference between urban and rural students in terms of online gaming addiction.

The study by Pande & Marheni,(2015) showed that urban students tend to have a higher level of online gaming addiction compared to rural students. This finding suggests that the factors influencing online gaming addiction may vary across different regions in Indonesia. Therefore, more research involving contextual and social factors is needed to gain a deeper understanding of the differences in online gaming addiction levels between urban and rural students. Overall, these findings indicate that online gaming addiction among students is influenced by several factors. Mental health, duration of gaming, types of games played, the number of mobile operators, and signal conditions are interconnected factors shaping the patterns of online gaming addiction among students in urban and rural areas.

CONCLUSION

Based on the data analysis of students in urban and rural areas, a significant relationship was found between online gaming addiction and several factors. Firstly, there is a significant relationship between

abnormal mental health and online gaming addiction, indicating that students with abnormal mental health have a higher risk of experiencing online gaming addiction. Additionally, the duration of gaming was also found to be associated with online gaming addiction, where the longer the time spent playing games, the higher the risk of addiction. The type of game also influences addiction, with students playing MMOFPS games having a higher risk of online gaming addiction compared to MMORPG games. Environmental factors such as the number of mobile operators and signal conditions also play a role, with students in areas with more than one mobile operator having a higher risk, and students living in areas with strong signals also having a higher risk. However, no significant relationship was found between MMORTS or MMOFPS game type, female gender, education level, and living in urban areas with online gaming addiction.

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