

ANALYSIS OF INTERNET GAMING ADDICTION TO PHYSICAL ACTIVITY AND BODY INDEX IN ADOLESCENT AGED 12-15 YEARS

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ABSTRACT: Objective : To examine the relationship between internet gaming addiction and physical activity and body mass index of adolescents aged 12-15 years in Four Junior High Schools in the KramatJati District, East Jakarta, 2018. **Method :** Further analysis of the study "Overview of the Use of Electronic Media on Physical Health, Mental Health and Academic of Schools in Junior High School Levels in KramatJati District, East Jakarta, DKI Jakarta 2018" with a sample of 315 studies. The instrument use the questionnaire of Internet Gaming Disorder Scale (IGDS) and Physical Activity Questionnaire and Adolescents (PAQ-A). **Results :** The result of this study showed the most internet gaming addiction level is the low with 20 samples (11.1%) and the most physical activity is the moderate with 80 samples (44.4). The correlation showed r (0.359) and statistically $p < 0.05$. And adolescents with low internet gaming addiction were 177 students (70.8%) and normal BMI was 126 students (50.4%), with correlation results $r = -0.036$ and p value = 0.566. **Conclusion:** Based on research conducted by the author in the KramatJati sub-district, East Jakarta, there is a strong and statistically significant relationship between the level of internet gaming addiction and the results of internet gaming addiction with BMI in adolescents having a weak, inversely proportional, and statistically insignificant relationship. with physical activity of adolescents aged 12-15 years.

Keyword : Internet Gaming Addiction, physical activity and Body Mass Index, Adolescents.

I. INTRODUCTION

The existence of electronic media in society gives a special interest. There are various kinds of benefits that can be taken when using electronic media and not a few of them have a negative effect. Electronic media users of all ages, especially teenagers and young adults.

According to WHO, adolescence is a period that marks the transition from childhood to adulthood. Historically, it usually lasted from 12 to 18 years of age, which roughly corresponds to the time from the start of puberty. The majority of children and adolescents worldwide do not meet current physical activity guidelines and are considered physically inactive.

Children and teenagers spend their time doing activities sedentary (*sedentary behavior*) such as watching TV, playing *video games* and using the computer to cause adolescents less physical activity, decreased fitness, decreased self-esteem, prosocial, academic achievement and change the composition of the body such as *body mass index*. Sedentary activity is associated with obesity. (Tremblay et al, 2011).

Active Video Game (AVG), is a *game* played in which the player physically interacts with the image on the screen, AVG can help increase physical activity and improve body composition. Increased time spent in screen-using and sedentary activities has also been implicated as a contributor to the high rates of overweight and obesity (Maddison et al, 2011).

There is increasing interest in the physical activity levels of children and adolescents from health (cited from e.g., Dietz, 1994; Magarey et al., 2003; Sherar et al., 2008) physical activity declines with age, particularly during adolescence, with girls being less active than boys at all ages (quoted from Biddle et al., 2004; Hedstrom and Gould, 2004; Trost et al., 2008; Whitehead & Biddle, 2008).

Regular physical activity in adolescence contributes physical, psychological, and social well-being. In contrast, low levels of physical activity are linked to obesity, heart disease, and diabetes.

Physical activity is any body movement due to skeletal muscle activity that results in energy expenditure. Everyone performs physical activity between individuals with each other depending on the individual's lifestyle and other factors. Physical activity consists of activities during work, sleep, and in leisure time. Physical exercise that is planned, structured, carried out repeatedly including physical exercise is part of

physical activity. Moderate physical activity that is carried out continuously can prevent the risk of non-communicable diseases such as vascular disease, diabetes, cancer and others (Kristanti et al., 2002).

There is evidence that many adolescents who do not meet the recommended standard of physical activity have a high risk of developing obesity. Obesity is strongly associated with health risks. The cause of obesity is a multifactorial of biological environmental factors. The main risk factors for obesity are diabetes, asthma, arthritis, hypertension, cardiovascular disease, and *dyslipidemia*, causing a decrease in life expectancy (Hamrani, et al., 2015); (Barnett, Cerin, & Baranowski, 2011); (Raistenski, Sidlauskiene, Strukcinskiene, Baysal, & Buckus, 2016); (Liang & Lau, 2014); (Mhurchu, et al., 2008); (Trembley, et al., 2011).

The increasing development of digital media has led to growing public concern about the potential adverse effects regarding the possibility that *internet gaming* can lead to addiction (Gentile, et al., 2018). *The Diagnostic and Statistical Manual of Mental Disorders* (DSM) is used by psychiatrists and psychologists in many countries as the primary diagnostic tool for classifying psychiatric disorders. In the most recent version of the DSM (5th edition [DSM-5]), the *American Psychiatric Association* (APA), implemented several changes to the description and criteria for pathological behavior and included *Internet Gaming Disorder* (IGD) as a tentative disorder (Lemmens, Valkenburg, & Gentile, 2015). Problematic internet use is considered behavioral addiction, along with substance abuse. Recently, a new psychological disorder, known as *internet gaming disorder* (IGD), was added in part III of *The Diagnostic and Statistical Manual of Mental Disorders* (DSM-V) (Na, Lee, Choi, & Kim, 2017). The prevalence of low *internet gaming* addiction in junior high school teens is 86 percent higher than high *internet gaming* addiction, which is 13.9 percent (Yu & Cho, 2016).

Body mass index (BMI) is an indicator measuring nutritional status expressed as a relationship between body weight (kg) and height (cm). *Body Mass Index* (BMI) is calculated by the formula $BB/(TB)^2$. The results of the BMI are divided into four categorical categories, namely *underweight*, normal, *overweight* and *obese* (Nutall, 2015).

In some findings it was stated that there was a relationship between the ER and BMI. That the ER can reduce BMI because it can increase physical activity so that more energy is expended (*energy expenditure*). The emergency room can also make teenagers' eating patterns become irregular so that energy intake becomes less. This will affect adolescent weight loss, thus affecting the BMI value (Guy, Leewing, & Sridhar, 2011); (Trembley, et al., 2011); (Maddison, et al., 2011); (Simons, et al., 2014).

Internet Gaming Addiction Relationship With Physical Activity And Adolescent Body Mass Index

There are still many differences of opinion in the literature from the findings between *internet gaming* addiction and physical activity in adolescents. *Internet gaming* addiction can increase physical activity so that the energy expended is even greater. But there are some findings from the literature that states that addiction *internet gaming* can improve settling time (*sedentary time*) and decrease the activity fisik. dan There is still a lot of disagreement of results between addiction *internet gaming* and BMI in adolescents. According to Guy, *internet gaming* addiction can increase physical activity so that the energy expended is even greater. This is what affects weight loss and reduced waist circumference in adolescents who are overweight (Guy, Leewing, & Sridhar, 2011). The decrease in BMI is also influenced by changes in sedentary behavior, namely changes in the type of *gaming* played so as to increase physical activity and reduce screen time (Maddison, et al., 2011). Reduced caloric intake from snacks and sugary drinks is another factor that causes adolescent weight loss during *gaming* (Simons, et al., 2014). In contrast to the results of previous studies, Trembley stated that *internet gaming* can increase adolescent weight, if *internet gaming* becomes a sedentary behavior (Trembley, et al., 2011).

According to LeBlanc, *internet gaming* positively increases energy expenditure, but the relationship between *internet gaming* and BMI is still unclear (LeBlanc, et al., 2014). While Stockdale did not find a relationship between *internet gaming* and BMI in adolescents (Stockdale & Coyne, 2017).

II. METHOD

This type of research is a further analysis of the Research "Overview of the Use of Electronic Media on Physical Health, Mental Health, and School Academics in Junior High School Adolescents in KramatJati District, East Jakarta in 2018", using the cross-sectional method (*Cross Sectional*). This analysis aims to examine the relationship between *internet gaming* addiction and physical activity in junior high school adolescents aged 12-15 years in KramatJati District, East Jakarta in 2018.

III. RESULTS

the relationship between *internet gaming* addiction and physical activity has a result of $r = 0.359$ which means that it shows a strong correlation with the assessment of the correlation value if $r > 0.25$ is declared strong. Where statistically significant $p = 0.000$ with an assessment of $p < 0.05$. while the relationship

between *internet gaming* addiction and BMI has a result of $r = -0.036$ which means that there is an inverse and weak relationship. Which is not statistically significant.

IV. DISCUSSION

Based on the correlation calculation, there is a *Spearman* correlation test table that has been carried out, the relationship between *internet gaming* addiction and physical activity has a value of $r = 0.359$ which indicates a strong correlation and p value = 0.000 which shows statistically significant results. So the conclusion of this study is the relationship between internet gaming addiction and physical activity has a strong and meaningful relationship.

However, based on the *chi square* test that has been carried out between *internet gaming* addiction and physical activity, the results obtained are $X^2 = 4.380$ and $p = 0.112$ which show results that are not significant because $p > 0.05$, this is because the results are fluctuating or inconsistent, namely for physical activity. low, medium and high respectively 15%, 60.6% and 24.4% for addiction to *internet gaming* tinggi. Diperoleh also results that addiction *internet gaming* in males $20:36 \pm 19:00$ with physical activity 22.80 ± 22.85 and addicted to *internet gaming* in women 15.38 ± 14.00 with physical activity 19.02 ± 17.90 . Then the results obtained are low *Internet Gaming* addiction 20 (11.1%) and high *Internet Gaming* addiction 7 (3.9%),

From the data that has been obtained, it can be concluded that the relationship between the level of *Internet Gaming* addiction and physical activity of adolescents is still not conclusive. This may be influenced by many factors that affect the relationship between the two .

Then from the results of the literature it was found that the relationship between *internet gaming* and physical activity was the result of *internet gaming* addiction in women 38.63 ± 14.00 while in men 37.71 ± 11.99 . In this study, it was statistically significant at a p -value of 0.18. Likewise, the result of *internet gaming* addiction for students who engage in regular physical activity is 36.38 ± 11.76 . As for students without physical activity 40.37 ± 15.05 . Two hundred and sixty eight students (83.2%) did not have internet addiction and 2 (0.6%) students had high internet addiction. Of the 322 students, 54 (16.7%) had mild internet addiction (Khan M, Shabbir F & Rajput T 2017).

Based on the calculation of the correlation in the *Spearman* correlation test table that has been carried out, the relationship between *internet gaming* addiction and BMI has a value of $r = -0.036$ which is an inverse and weak relationship and a p value of 0.566 which shows statistically insignificant results. So the conclusion of this study is the relationship between *internet gaming* addiction and BMI has an inverse relationship and is weak and not significant.

The results of this study are different from previous research proposed by Ballard (2016) which states that the relationship between *internet gaming* addiction and BMI has a moderate, directly proportional and statistically significant relationship with $r = 0.27$ and $p < 0.01$.

It is possible that there are differences in the results of the study due to the type of *gaming* and the duration of *gaming* that affect the amount of ER experienced by adolescents so that it affects the behavior of settling in adolescents. This high sedentary behavior affects adolescent eating patterns to be irregular, low calorie intake, lack of energy expended and low physical activity, so that it can reduce BMI in adolescents. Another possibility is to limit the use of cell phones and smartphones at school, by adding extracurricular activities to the school or extracurricular activities. These factors can affect adolescent weight loss, thus affecting the BMI value. Parenting patterns in educating children and adolescents use permissive parenting, namely parenting with low control and high level of closeness. The application of this parenting pattern can be in the form of setting the time for teenagers to use gadgets at certain times, for example, teenagers can only use gadgets for *gaming* only on weekends, while on school days gadgets are used to do schoolwork and communicate well with family, friends and teachers. Therefore, there is a need for a clearer link or relationship between *internet gaming* and BMI, in future studies a longitudinal study is needed to be able to see a causal relationship in future research.

V. CONCLUSION

Teenagers in junior high school (SMP) KramatJati sub-district showed that the category of *Internet Gaming* addiction was the highest experienced by adolescents in junior high school 50, grade 9, age 14 years and in boys it was higher than girls. the highest number of low physical activity is in junior high school 50, grade 8, age 12 years and in boys. And the correlation between the two states that there is a strong and statistically significant correlation. But in the *chi square* test, the results were not significant, because the results were inconsistent. And those who were addicted to *internet gaming* were low and had normal weight, while those who had high *internet gaming* addiction had *overweight* BMI but the number was less. While the relationship between *internet gaming* addiction and BMI is inverse but weak but not statistically significant.

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