Original Research Paper

Relationship between the frequency of playing online games and the habit of consuming high-sugar drinks on adolescent

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Abstract

Background: Online gaming has become increasingly popular in recent years, with millions of people worldwide spending hours every day playing games. While there are many benefits to playing online games, such as improved hand-eye coordination and problem-solving skills, there are also some potential risks, such as developing unhealthy habits. One of these habits is consuming drinks high in sugar.

Objectives: This research contributed to nurses as preventive and promotive programs at school or in the community.

Method: A cross-sectional study was conducted to identify the relationship between online gaming and the consumption of high-sugar drinks. Samples were taken from adolescents aged 15-23 years. The sample selection was carried out by chance in youth gathering areas such as cafes, The sample formula was taken using the Slovin formula, with the results being 60 samples. The research was conducted from July to August 2023 in Depok Sleman, Indonesia.

Results: The study found a significant relationship between the frequency of playing online games and the habit of consuming drinks high in sugar. The more time people spend playing online games, the more likely they are to consume sugary drinks.

Keywords: Online gaming; sugar drink; habit; nurses

1. Introduction

Adolescents cannot be said to be mature in their obligations, and for this reason, adolescents often engage in more playing activities than productive activities. An adolescent wants to become an adult, but at the same time, an adolescent cannot assert himself. Physiological, emotional, psychological, and social factors contribute to adolescence, so adolescents cannot yet be said to be mature in the family (Osmanova, 2019). Adolescents develop cognitively, physically, socially, and emotionally, and this development will prepare them to experiment with new behaviors. There is a big possibility that adolescents will fall into repetitive habits (Singh, 2020). Several researchers have raised questions about adolescent health, including adolescent lifestyles.

One of the activities that adolescents sometimes feel repetitive and addictive in the current digital era is playing online games. Adolescents often feel addicted to online games, with reported time playing online games of more than 8 hours per day (Anggraeni et al., 2021). Playing games is not bad, but it is also not recommended if it interferes with adolescents' activities. Research results from Purwaningsih & Nurmala (2021) show that several adverse effects from playing online games interfere with

adolescents' mental health. However, it has not been specifically discovered whether there is a connection with physical health specifically.

Health problems associated with online games cannot be considered a direct result of online gaming habits. Several physical health problems in adolescents, such as headaches, eye pain, and sleep disorders, are found in adolescents who use the Internet for an extended period of time (Bagdady et al., 2021). There is a high risk of health problems in adolescents due to long-term internet use, especially online games, and complaints of pain in the upper neck, lower neck, right shoulder, back, and waist (Pratama & Widyanti, 2019). Apart from health problems caused by the habit of playing online games, it is thought that behavioral problems also arise when playing online games.

Long activities when playing online games usually mean that adolescents don't have time to eat because adolescents enjoy playing online games. Still, on the other hand, there is a feeling of hunger. This condition makes adolescents look for food or drinks that can replace hunger. Drinking water that is sweetened or sweetened, such as carbonated water, can reduce hunger, and it temporarily eliminate thirst (Rogers et al., 2020).

Adolescents' choice of sweet drinks as a substitute for hunger and to fill free time is influenced by peers, availability of sweet drinks, targeted marketing, and drink prices (Chung et al., 2019). So, the choice of sweet snacks as a time filler when playing online games among adolescents may also be chosen by adolescents because of changing hunger and the influence of friends. Among the reviewed articles, no research examined how often adolescents consume sweet drinks when playing online games, which increases the need for research knowledge.

This research aims to contribute for nurses as preventive and promotive programs at school or in the community. The results of this research can be a basis for developing more effective intervention strategies for maintaining adolescent health in today's digital era.

2. Research Method

This research is a cross-sectional quantitative research study. Data was collected from July to August 2023. The sample was taken using the Slovin formula, where the population was adolescents aged 15 to 23 years who played online games in a cafe in Depok District, Sleman, for two months. Indonesia. The total population is 150 adolescents; from the sample calculation results, we got a sample of 60 adolescents. The online game usage behavior questionnaire is measured with a 15-question questionnaire which includes questions about frequency of playing, length of playing, type of game played, and impact of playing games such as abandoning learning activities. Sugar drink consumption behavior in this study was measured using a questionnaire with 10 questions covering frequency, quantity, type, and duration of consumption.

Data collection is done by filling out a questionnaire directly face to face. Samples are collected in a place such as a restaurant, then respondents fill out questions. The research was carried out after passing an ethics review from St. Paul University with id: SPUP_2022_0001_SR_SS. The following figure explains the sampling method. Inclusion criteria include of adolescent boys and girls aged 15 to 23 years who play online games more than three times a month.

Data analysis was carried out using the chi-square test. The operational definition of online game-playing behavior variables uses two parameters, namely high risk and not high risk. These parameters are categorized using average cut-off points. If the respondent's value is more than the average value then the respondent's behavior is categorized as high-risk online game-playing behavior, conversely, if the respondent's value is less than the average, then the respondent is categorized as low-risk. The behavior of playing online games is an expression of the respondent through filling out a questionnaire about the respondent's behavior in playing online games. The variable definition of consuming drinks high in sugar is the respondent's statement about their daily behavior in the last month regarding their habit of consuming sweet drinks. Categorization of respondents in consuming sweet drinks is also based on cut-off points. Respondents are said to be at high risk if they consume sweet drinks more than the overall response consumption average, and respondents are said to be at low risk for consuming sweet drinks if their consumption of sweet drinks is below the overall average for respondents.

Figure 1. Sample methods
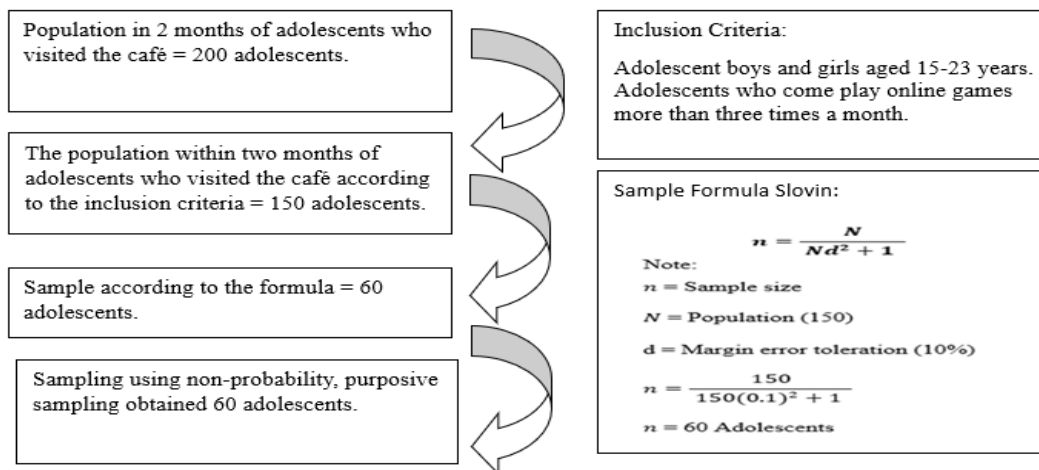
3. Results and Discussion

From the data analysis that has been carried out, the following results are explained in the table as follows:

Table 1. Description of adolescent gender.

Gender	Frequency	Percent (%)
Boy	27	45.0
Girl	33	55.0
Total	60	100.0

Based on Table 1, it is known that there were more female adolescents in this study. Around 55% of adolescent girls were found to play more online games.

Table 2. Characteristics of adolescent age

Age category	Frequency	Percentage
Middle adolescent	9	15.00%
Last adolescent	51	85.00%
Total	60	100%

Based on Table 2, it is known that the majority of adolescents in this study fall into the late adolescent category with a percentage of 85.00%.

Table 3. Relationship between online games behavior with sugar drink consumption.

Online games behavior	Consuming High-Sugar Drinks		P-value
	Low risk	High risk	
High risk	1	18	0,049
Low risk	11	30	
Total	12	48	

Based on Table 3, it is known that there is a significant relationship between online gaming behavior and consumption of sweet drinks. It was also found that the habit of drinking sweets was more common among adolescents when playing online games.

3.1. Effectiveness of Core

Based on Table 1, there were more female adolescents in this study. Around 55% of adolescent girls were found to play more online games. This condition is certainly a new trend because, previously, online games were more common among adolescent boys.

There are several possible explanations for this trend. One possibility is that the gaming industry has become more inclusive of female gamers in recent years (Hemovich, V. 2018). More and more games are being developed that appeal to a female audience, and there is a growing community of female gamers who support each other. The number of women playing online games is increasing, although some harassment is found, requiring further intervention to look into these cases (Arnold-Ferencz & Tarkó, 2021).

Another possibility is that female adolescents are more interested in playing online games than in the past. This could be due to a number of factors, such as the increasing popularity of mobile gaming, the growing availability of high-speed internet, and the changing social norms around gaming. The rise of global communication and the pervasive nature of mass media entertainment has led to stark increases in the popularization of video games. The gaming industry has become more inclusive of female gamers in recent years (Hemovich, V. 2018). Some factors cause adolescent girls to want to play online games, such as the desire for feelings of pleasure, refuge, avoidance of distractions, and the development of social ties as the main motives.

The gaming industry is becoming more diverse and inclusive, and it gives female adolescents a new way to socialize, compete, and express themselves, which is beneficial to them (King, D.L., & Potenza, M.N. 2020). Online games can provide female adolescents with a safe and supportive space to socialize with other gamers from all over the world. This can be especially beneficial for female adolescents who feel isolated or marginalized in real-world social circles. Online games can also provide female adolescents with an opportunity to compete in a fair and equitable environment. This can help them to develop their competitive skills and confidence. Furthermore, it can provide female adolescents with a way to express themselves creatively and experiment with different identities. This can help them to develop their sense of self and to explore their interests.

To date, several e-sports tournaments and organizations have begun to consider gender diversity in the video game community through 'women-only tournaments' and 'women's gaming spaces' to normalize the idea of women's competition. This emphasizes the importance of understanding attitudes towards female gamers and competitive gaming, as well as encouraging women to compete in video game tournaments on the same platforms as men to challenge gender diversity in video game communities within video gamer culture (Law, Y. 2019).

On the other hand, there is also the negative side affecting women whose frequency of online game use is high while having a low frequency of physical activity and high consumption of drinks high in sugar as an accompaniment to playing online games. Like other studies that examined physical activity in adolescent girls, it was found that around 92.7% of participants did not fulfill the Physical activity recommendations, namely 60 minutes of moderate to vigorous physical activity every day (Ahmad Bahathig A et al. 2021). Other negative consequences of online gaming are addiction and cyberbullying. The problem of emotional imbalance caused by the lack of opportunities to play games is also a problem.

However, the benefits of online gaming can outweigh the risks, especially if female adolescents play in moderation and under the supervision of their parents or guardians. The role of nurses and families is to increase understanding of the process of gaming behavior among women and cross-cultural knowledge, as well as to filter and formulate prevention strategies for bad habits that emerge (Sharma, M.K. et al. 2019).

Based on Table 2, the majority of teenagers who were able to be collected by researchers were teenagers in the late teenage category with a percentage of 85.00%. This is possibly because late adolescents are starting to become more curious about the information that will be presented in research. Another reason why it is easy to gather late teens is that there is a trend in late teens who are more likely to have access to leaving the house, access to like gatherings, especially in fun places like cafes. Late teens also have a higher interest in sweet drinks and online games than younger teens. Research from

Della Corte et al. (2021) which explains that late teens are more likely to have their own money and can go to places that provide sweet drinks and online games, late teens are more mature and have more developed interests.

Based on Table 3, there is a significant relationship between online gaming behavior and consumption of sweet drinks. This means that adolescents who play online games are more likely to consume sugary drinks than adolescents who do not play online games. There are a few possible explanations for this trend. One possibility is that adolescents who play online games are more likely to be sedentary, have a higher incidence of having low physical fitness, have poor eating habits, and are obese (Puolitaival, T., Sieppi, M., Pyky, R. et al. 2020). This means they are not burning as many calories as adolescents who are more active. As a result, they may be more likely to crave sugary drinks, which can provide them with a quick burst of energy. Another possibility is that adolescents who play online games are more likely to be stressed. Stress can lead to cravings for sugary drinks, which can provide a temporary feeling of comfort (Gabut G. et al. (2023).

In relation to this, it is also important to consider the potential health risks associated with consuming sugar drinks and playing online games excessively. Sugary drinks are high in empty calories and added sugar. Excessive consumption of sugary drinks can lead to a number of health problems, including Weight gain, Obesity, Type 2 diabetes, Heart disease, Stroke, Liver disease, Some types of cancer, and Health risks associated with excessive online gaming (Manolis, A.S., & Manolis, T.A. 2019). On the other hand, excessive online gaming can lead to a number of health problems, including Addiction, Sleep problems, Obesity, Eye strain, Carpal tunnel syndrome, Social isolation, and Mental health problems (Purwaningsih, E., & Nurmala, I. 2021).

With these, it is essential to educate adolescents about the potential health risks associated with consuming sugary drinks and playing online games excessively. Parents and guardians can also help to reduce the risks by setting limits on screen time and by providing adolescents with healthy alternatives to sugary drinks and online games.

Here are some specific tips for parents and guardians of adolescents about the health risks associated with consuming sugary drinks and playing online games excessively. Set limits on screen time. Encourage adolescents to engage in other activities, such as spending time with friends and family, exercising, and pursuing their hobbies. Provide adolescents with healthy alternatives to sugary drinks, such as water, milk, and unsweetened fruit juice. Monitor adolescent's online activity to make sure that they are safe and that they are not spending too much time playing online games. By taking these steps, parents and guardians can help their adolescents to stay healthy and safe.

4.   Conclusion

Based on the results of the study, there is a significant relationship between the frequency of playing online games and the habit of consuming high-sugar drinks among adolescents in Depok Sleman, Indonesia. This is especially true in the later stage of adolescence, with more females as participants. This finding is important as sugary drinks have potential health-related risks that need to be addressed.

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