



JUARA: Jurnal Olahraga

E-ISSN 2655-1896 ISSN 2443-1117
<https://doi.org/10.33222/juara.v8i3.3703>



Playing Games: A Cross-Sectional Study of Food Recall, Sleep Quality, and Physical Activity in Women Aged 18-22 Years Actively Playing Games

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Info Artikel

Article History:

Received 13 October 2023

Approved November 2023

Published 16 Desember 2023

Keywords:

*Online games,
nutritional intake,
physical activity, sleep
quality*

Abstract

This research explores how women aged 18-22 play video games and their gaming habits regarding nutritional intake, sleeping habits, and daily physical activity while playing video games. The research method used is quantitative research with a cross-sectional research design. Data collection is carried out by collecting exposure and results simultaneously to describe the subject's characteristics and the relationship between variables. The research results were that video game players did not adopt a healthy lifestyle due to poor physical activity, poor diet, consuming relatively large amounts of caffeine while playing video games, and poor sleep quality. Conclusion: Everyone who plays video games must also pay attention to their health to live an everyday life as usual.

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INTRODUCTION

The development of technology is currently experiencing a tremendous increase. We can see this in every aspect of human life when it is closely related to technology. This is undoubtedly an advantage for humans because every activity can be made easier with the help of technology. Still, there are also disadvantages with current technological developments where every individual is very addicted to the technology used to change their habits in activities (Vuorinen et al., 2022).

Video games are currently a trendy technological development among young people. Playing online and offline games provides a sensation that can entertain its users. This is by (Amalia 2023) the growth in the number of online and offline video game players reached 180 million people or 64.5% of the Indonesian population as active game players. This is certainly progress in the world of technology, but it is a threat to implementing a healthy lifestyle (Li et al., 2023).

Apart from video games, the number of active Internet users, according to the Indonesian Internet Service Providers Association (APJII), is around 215.6 million people in Indonesia who are internet users. (Amalia, 2023), The rampant use of the internet and online video games must also be balanced with a good quality of life, such as physical activity, a balanced diet, and good quality sleep. Physical activity is a need that every individual must maintain to get the benefits of physical activity (Djalante et al., 2020).

Every individual must take the time to continue physical activity every day to maintain their fitness (Zhang et al., 2020). Various benefits can be felt by exercising regularly, such as controlling body weight, improving joint flexibility, strengthening muscles, preventing diabetes, and eliminating stress. (Motl & Sandroff, 2020). The benefits of physical activity are a dream for all groups, but to achieve this, serious sacrifices are needed from each individual, especially for teenagers who actively play games and the internet; they

spend more time indoors without doing physical activity that supports their physical fitness. (Matias et al., 2023). This will undoubtedly negatively impact teenagers who choose not to live an active life and tend to spend time at home.

Several previous studies have revealed this (Goodway JD, Ozmun JC, 2019). Both children, teenagers, and adults are at significant risk of obesity, poor sleep quality, and other health problems caused by lack of physical activity. This must be of extraordinary concern so that everyone can maintain health throughout life. Each individual has difficulties in maintaining consistent physical activity among teenagers, and this is due to many factors such as lifestyle, environment, school activities, etc. (Byeon et al., 2022). This condition is also complicated by the existence of games whose development is extraordinary among teenagers, where every teenager has at least 2 to 3 games on their smartphone. (Altintas et al., 2019a) This has changed the lifestyle among teenagers because of unlimited video game play.

The result of teenagers being active in playing video games is a change in sleep patterns; most importantly, this is because each teenager has no limits on when and when to stop playing video games. This is certainly not good if it happens continuously over a relatively long period (Colder Carras et al., 2018). Teenagers who actively play video games usually play video game activities at night and tend to finish in the morning. This will undoubtedly impact the psychology of someone who actively plays video games from night to morning and has to do other activities in the morning. (Lepe-Salazar & Salgado-Torres, 2023).

Individuals who do not have good quality sleep can have an impact on the quality of their concentration both when studying or working (Li et al., 2023), and it will have a harmful psychological impact if the quality of sleep is not good (Vuorinen et al., 2022). Several research results explain that a person's lack of quality sleep significantly impacts a

person's psychological side (Vuorinen et al., 2022).

The prolonged use of gadgets, irregular sleep patterns, and lack of physical activity impact teenagers' food intake, which can affect body mass index (BMI). (S et al., 2020). Food intake in daily activities for teenagers should still be based on a nutritious and balanced diet according to their daily activities. (Silva et al., 2019).

The habit of playing video games for an extended period can gradually change one's eating patterns (Portes et al., 2023); apart from that, the number of calories consumed daily can increase beyond the norm, which results in regular weight gain (Matias et al., 2023). Irregular eating patterns for video game players can also impact the quality of their health in the future. This research explores how every woman aged 18-22 plays video games and their gaming habits in terms of nutritional intake, sleeping habits, and daily physical activity while playing video games.

METHODS

This research examines the relationship between sleep quality, food intake, and physical activity while playing video games for women aged 18-22. The type of research used is quantitative research with a cross-sectional research design. Data collection is carried out by collecting exposure and results simultaneously to describe the subject's characteristics and the relationships between variables. This research was conducted in November 2023 on women aged 18-22 who actively played video games. The sample in this study was 30 respondents aged 18-22

years in Gorontalo who participated in this research and had been selected based on the criteria of age, occupation, type of physical activity, and invalid answers.

The data collection technique carried out in this research used a questionnaire in the form of Google Forms and direct interviews given to respondents; the instrument used to find a picture of physical activity using The International Physical Activity Questionnaire (CRAIG et al., 2003), to determine the description of sleep quality in each individual using the Pittsburgh Sleep Quality Index (PSQI) (Buysse et al., 1989) as well as collecting data for food recalls using direct interviews by recording food intake consumed during the last three days in November 2023.

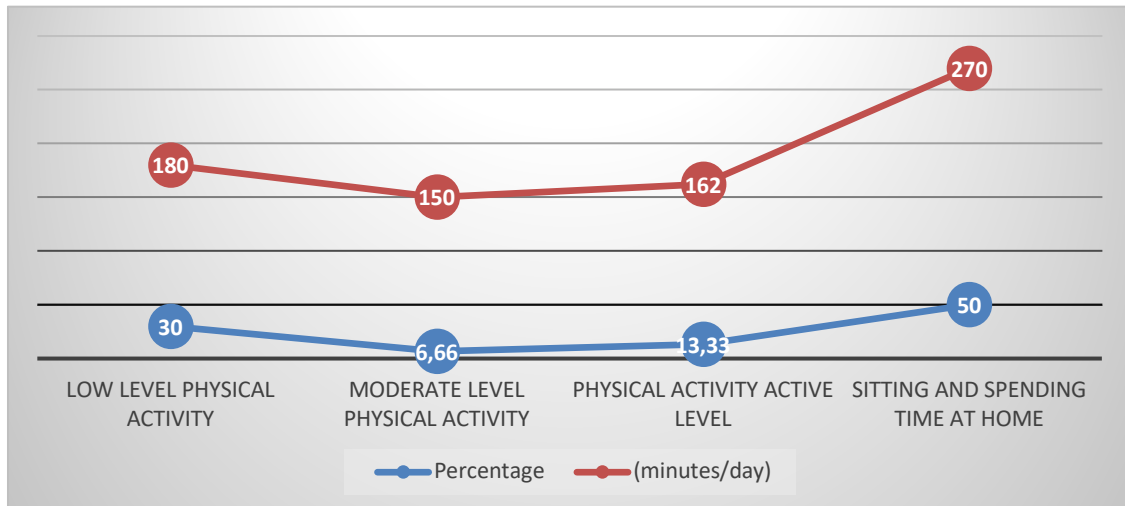
This research data analysis uses Pearson correlation, where the normality of the data is analyzed using Shapiro-Wilk. Correlation tests were carried out to explore the relationship between sleep quality, food recall, and physical activity in women 18-22 who actively play video games.

FINDINGS AND DISCUSSION

Findings

Our researchers have mapped the data in tables and graphs according to the variables based on the data collection results, which were carried out using Google Forms and direct interviews. Figure 1 explains the physical activity carried out by the sample within a predetermined period using the International Physical Activity Questionnaire (IPQ) instrument so the results obtained are as follows:

Diagram 1. Time spent in various intensities of physical activity according to the International Physical Activity Questionnaire (IPAQ)



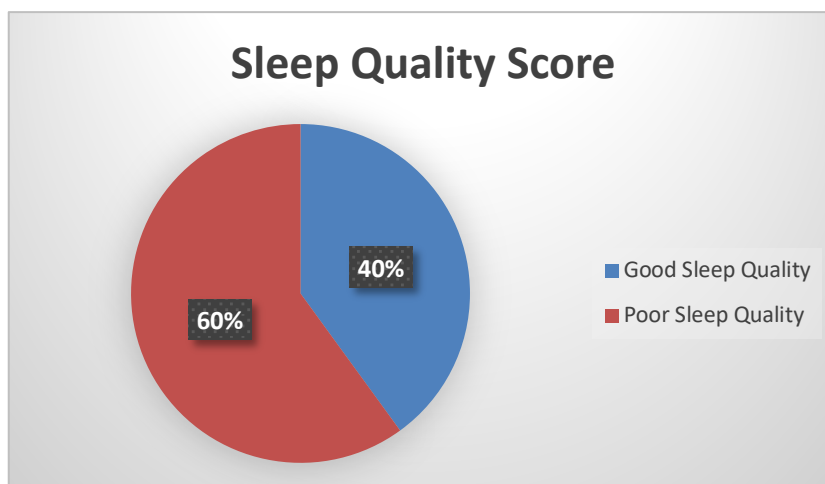
From the data displayed, it can be seen that the participation of the samples in carrying out the physical activity is minimal, where of the total sample, 30% of the samples only carry out low-level physical activity, and the time achieved in carrying out the physical activity is only 180 minutes/day. Meanwhile, physical activity with moderate intensity was 6.66%, and the time succeeded in doing physical activity was only 150 minutes/day because the physical activity was related to less popular sports.

category with a percentage of 13.33%, and the average time spent doing physical activity each day reached 162 minutes/day. On the contrary, several samples spend most of their time doing nothing at home for a relatively long period, 270 minutes/day or 50% of the total sample.

In the data collection process, researchers also found samples in the active physical activity

In diagram 2, the sleep quality of samples taken within a predetermined period is explained. The Pittsburgh Sleep Quality Index (PSQI) instrument obtains the sleep quality score.

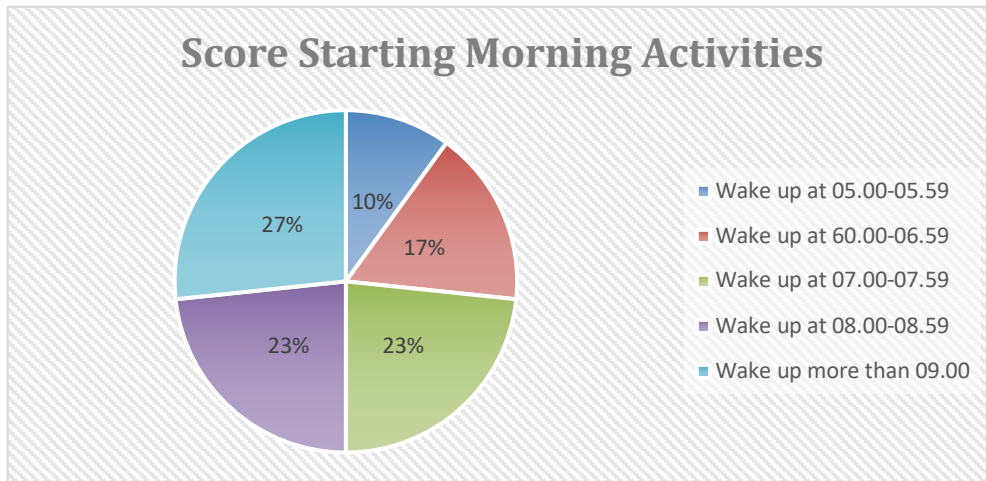
Diagram. 2 Sleep quality score according to the Pittsburgh Sleep Quality Index (PSQI)



In diagram 2, the sleep quality of the samples is explained over a predetermined period. Here, it was found that 60% of the samples experienced poor sleep quality; several factors caused this, while 40% of them had good sleep quality.

Diagram 3 explains what time the samples start their daily activities. This illustrates the quality of sleep and the start time of the daily activities that each sample will carry out daily. This can give us an idea of the physical activity we will do every day.

Diagram. 3 Scores for starting morning activities according to the Morningness-Eveningness Questionnaire (MEQ)



The data collection process in Table 1 uses food recall by recording what the sample consumed in a certain period; Table 1 explains what is often consumed by the sample based on the food source. The data collection results found that carbohydrates from put rice, yellow rice, and fried rice were frequently consumed daily, reaching 73.33% of the total sample. Meanwhile, 20% of noodles and 6.66% of sweet potatoes are consumed as snacks.

Meanwhile, the most significant protein intake comes from seafood, 60%; this is based on the description of the region where Gorontalo is a coastal area where sea catches are very abundant, while protein intake from chicken/beef/goat reaches 23.33% and eggs reach 16.66%. Meanwhile, the liquid consumed by mineral water samples got 56.66%, coffee 30%, where coffee was the main drink for the samples when playing games, while tea consumption was 10% and milk was 3.33%.

Table 1. Sources of food intake

| | Food Sources | % | N |
|---------------------|------------------------------|-------|----|
| Carbohydrate Intake | White rice/Yellow/Fried Rice | 73,33 | 22 |
| | Noodles | 20 | 6 |
| | Sweet potato | 6,66 | 2 |
| Protein Intake | Chicken/Cow/Goat | 23,33 | 7 |
| | seafood | 60 | 18 |
| | egg | 16,66 | 5 |
| Water Source Food | Mineral water | 56,66 | 17 |
| | Coffee | 30 | 9 |

| | | |
|------|------|---|
| Tea | 10 | 3 |
| Milk | 3,33 | 1 |

Diagram 4 explains the time spent by the samples per day on their gadgets, whether playing games, etc. It is necessary to know how much the activity of playing gadgets, especially games, influences physical activity. From diagram 4, it is known that as many as

30% of the sample can spend time playing online games up to 0-4 hours/day, while 47% of the sample can spend time playing games up to 4-8 hours/day, and another 23% can spend time playing games up to 4-8 hours/day.

Diagram 4. Daily online game-playing activities



Discussion

This research explores how women aged 18-22 play video games and their gaming habits regarding nutritional intake, sleeping habits, and daily physical activity while playing video games. The results show that, on average, the majority of women who actively play video games at the age of 18-22 years spend 4-8 hours per day; this is according to the research results (Forrest et al., 2017), where on average, gamers tend to spend up to 7 hours in front of their gadgets per day. However, in this case, it strengthens the assumption that gamers do not spend 7 hours per day just playing games but also interspersed with other gadget activities such as watching and social media (Mcmanus & Carvalho, 2022).

The impact of the high activity of playing video games started during the pandemic when every individual spent a lot of time at home due

to self-quarantine, so the use of gadgets to play video games increased. (Ayub Tatya Admaja & Yulis Agung Saputro, 2021; Siagian, 2022), This indirectly changes your habits, so your attachment to gadgets increases daily (Çelik & Bektaş, 2023).

The high activity of playing video games among adults is not based solely on hobby factors; this occurs due to the increased stress level among adults, especially among women aged 18-22 years who are busy with their college assignments (Forrest et al., 2016). Many factors underlie adults' active playing of video games, including reducing financial expenses for visiting recreational areas, but it can relax the mind after playing.

Another impact of gamers' high levels of activity with gadgets is the poor food intake consumed by game players. This is also in line with research (Yohana & Mulyono, 2021),

where someone who actively plays video games also slowly changes their eating habits (Ruckwongpatr et al., 2023). Several things can result from changing eating patterns; according to research results (Francisco-Donoghue et al., 2022) explained that changes in eating patterns, The amount of nutrition, and physical activity can hurt the individual, such as increasing fat levels in the body and uncontrolled obesity due to lack of outdoor activities. Of course, changes in body mass caused by high online gaming activity can have an impact on health in the future (Jiang et al., 2016; Marker et al., 2022)

Besides the food consumed by video game players, the consumption of drinks can also contribute to changes in eating patterns for video game players, especially when consuming relatively large amounts of caffeine. Research findings also confirm that video game players tend to drink coffee. 30%, where video game players consume coffee every time they play video games. Based on research, sipping coffee can provide a feeling of calm or relaxation to video game players (Ortiz de Gortari & Panagiotidi, 2023; Schubert et al., 2022). However, consuming large amounts of coffee can also hurt health in the future.

Playing video games for a relatively long period per day, apart from causing problems with food intake for video game players, video game players also changes the way they rest at night. This is explained previously; according to research, 60% of respondents have Poor sleep quality (Altintas et al., 2019b; Limone et al., 2023). Someone who does more activities at night, whether working, hanging out with friends, or playing video games for an extended period, will gradually change their habits, especially sleeping. This also has an impact on what time a person rests and what time a person starts their activities in the morning.

From the data obtained, 27% of video game players start their activities after 9 am; this shows that their video game playing activities are carried out until late at night; this is undoubtedly dangerous for their health, as research has done. (Altintas et al., 2019b; Limone et al., 2023; Ortiz de Gortari & Panagiotidi, 2023) Playing

video games makes players addicted, which results in changes in the lifestyle of video game players. This is undoubtedly bad for online game players because addiction, which results in lifestyle changes, can hurt a person's decision-making due to lack of sleep (Jiang et al., 2016; Lin et al., 2023).

Changing the lifestyle of someone who is addicted to video games will undoubtedly have negative consequences if the video game players are still at school or working; this will disrupt their mental, emotional, and memory (Sanz-Matesanz et al., 2023; Smith & Weston, 2022). With changes in lifestyle made by video game players, especially in terms of sleep patterns, this will, of course, impact the intensity of physical activity carried out by video game players due to gaming activity in the evening and waking hours being relatively late in the day.

Physical activity of female video game players aged 18-22 years based on data collection results shows that 50% of game players spend more time lying down at home and 30% do low-level physical activity; this certainly needs to be a serious concern because of the quality The physical activity carried out by video game players is deficient. This worsens the quality of physical and mental health and the body composition of video game players due to the body's relatively poor metabolic processes. Research conducted by (Teychenne et al., 2020) shows that physical activity carried out by individuals routinely and consistently can benefit physical health, especially mental health.

In other literature, the quality of physical activity also provides a feeling of relaxation in the brain, which can impact memory and increase the perpetrator's intelligence. (Aarsland et al., 2020), Physical activity must be a part that cannot be ignored in everyday life, so every individual needs to plan their physical activity daily to maintain their fitness. (Teychenne et al., 2020). . Apart from fitness, physical activity aims to stabilize the body's metabolism (Kauh, 2020). Several obstacles cause female video game players aged 18-22 years to have hot temperatures in their environment. This undoubtedly contributes to decreased motivation

to do physical activity, so they tend to behave passively.

However, this research also has advantages and disadvantages. In addition, information was collected on several essential aspects of video game players' lives: physical activity, food intake during gaming, and sleep quality. This allowed us to gain more insight into this unique sample's daily habits and health.

CONCLUSION

This research concludes that the sample studied did not have a healthy lifestyle; this was characterized by very little physical activity, which has the potential for health problems. This is also related to the relatively poor quality of sleep, which will also have a negative impact on the mental health level of game players, such as depression and anxiety levels. The quality of diet is also poor, so there need to be improvements in diet to maintain health. Every individual who is active in playing video games also needs to pay attention to their safety so that they can continue to lead a normal life as usual. Future research is needed to assess the findings of this study and the long-term impact of what has been discovered in this study and to investigate further possible correlations between nutrition, physical exercise, sleep patterns, and gaming.

ACKNOWLEDGMENTS

Thanks to the Rector of Universitas Muhammadiyah Gorontalo, Department of Sports Science, and all lecturers of Sports Science who have provided material and moral support to complete this research.

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