Sedentary Lifestyle Of Adolescent In Rural Areas in Jombang-Indonesia

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Abstract. Rural areas are areas that are more technologically backward than urban areas, thus allowing work to be carried out manually which still involves physical movement. The purpose of this study was to determine the sedentary lifestyle of adolescents in rural areas. This research is descriptive with cross sectional design. 83 adolescent children living in rural Jombang Indonesia were the respondents of this study. Data collection using the Adolescent Sedentary Activity Questionnaire (ASAQ) instrument which is given online. The result is that the Sedentary Activity level of 40.96% is in the low category on weekdays, while on weekends the Sedentary Activity level of 63.86% is in the high category. The results of the Mann Whitney test also obtained a value of sig p = 0.000, which means that there is a significant difference between Sedentary Activity on weekdays and weekends. In conclusion, the sedentary lifestyle of adolescents in rural areas tends to be low on weekdays, but becomes high on weekends.

Keywords: Rural Areas, Sedentary Lifestyle, Adolescent.

1 Introduction

Physical activity is essential and dramatically affects health both physically and mentally [1]. On the contrary, physical inactivity will cause many health problems [2]. Regular physical activity and consistently maintain health, making it more energetic and independent in old age [3]. Light to moderate physical activity is recommended to reduce sedentary habits resulting in 13% of the cause of death and a 5% of high risk of developing cardiovascular disease (sedentary habits such as viewing tv for more than 2 hours, sitting too long) [4]–[6]. Adequate physical activity and good sedentary behavior regulation are essential for adolescents because they can prevent various diseases such as cardiovascular disease, bowel cancer, osteoporosis, and obesity[7], [8], [9]. Lack of physical activity and excessive Sedentary behavior often occurs in adolescence resulting in the emergence of various health problems as adults. Therefore it is important to fulfill physical activity and limit sedentary behavior during adolescence to prevent the appearance of disease in the future [10]. However, this is often overlooked by developing countries such as Indonesia [11].

Doing physical activity does not mean having to go to the gym or sports club, but only limited to active physical movement, however, and anywhere, such as walking, cycling, running, and others that involve the body actively [3]. In Indonesia, the average population steps

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3513 steps per day which are lower than the global average of 5,000 steps per day [12]. Then there are 22.6% of the Indonesian population who are insufficient to carry out physical activity [13]. This is due to the well-developed economy and the increasing use of motorized vehicles so that work that involves the physical is actively reduced, and sedentary behavior increases [14].

In 2010, WHO recommended that adolescents engage in physical activity with moderate to high intensity (MVPA) for 60 minutes every day [15], as well as limit screen time to a maximum of 2 hours per day [16], [17]. However, in 2020 WHO is improving its recommendations based on a study of 49 developing countries that resulted in the conclusion that less than 30% of adolescents do enough physical activity [18]. Research on sedentary behavior in 66 developing countries concluded that 26.4% of adolescents carried out sedentary behavior for more than 3 hours per day [19].

Indonesia is a developing country with a lower middle income located in the Southeast Asian region and has a population of more than 260 million [10], [20]. Indonesia also has a young population (<20 years old) which accounts for more than 92 million of the total population and is also the fourth largest child population in the world [21]. More than 80% of people who lack physical activity live in developing countries such as Indonesia [22]. Therefore, it is important to conduct research related to physical activity and sedentary behavior in developing countries such as Indonesia [22]. Rural areas are more technologically behind than urban areas, allowing work to be still done manually, which still involves physical moving. This study wants to find out about the sedentary lifestyle of rural communities in Indonesia, especially in Jombang City- East Java.

2 Method

This research is a quantitative study using a cross-sectional design. Eighty-three students who attended high school in rural areas in Jombang city were respondents to this study. Respondents were then asked to fill out the Adolescent Sedentary Activity Questionnaire (ASAQ) questionnaire to determine their level of a sedentary lifestyle. The ASAQ instrument has good reliability and validity values to determine the level of a sedentary lifestyle by respondents at a young age [2]. ASAQ is performed by calculating the total sedentary activity time per day. In this study, ASAQ instruments were divided into 2, namely ASAQ instruments to measure Sedentary lifestyle on weekdays and ASAQ to measure Sedentary lifestyle on weekends. A sedentary lifestyle is said to be low if sedentary activities are carried out < 2 hours per day, it is said to be moderate if sedentary activities are carried out between 2 hours - 4 hours per day, and it is said to be high if sedentary activities are carried out > 4 hours per day [23].

The results of the data obtained are then analyzed descriptively to determine the average Sedentary lifestyle on weekends and weekdays. The calculation of categorization based on the sedentary lifestyle level is also carried out on a percentage basis. Furthermore, to find out the differences in Sedentary lifestyle values both between genders and on weekdays and weekends, the Mann-Whitney Test was carried out.

3 Result

Before explaining the results of this study, it is necessary to know the characteristics of the respondents who participated in filling out this questionnaire. The goal is to find out the diversity of respondents based on gender, age, class, parental education level, and parents' income per month. This is expected to provide a relatively clear picture of the condition of the respondents and their relation to the problems and objectives of this study. The characteristics of the respondents of this study are as follows:

Table 1. Characteristics of research respondents.

Demographic factor		N (%)
Age	15	7 (8.43)
	16	39 (46.99)
	17	34 (40.96)
	18	3 (3.61)
Gender	Boys	22 (26.51)
	Girls	61 (73.49)
Grade	10	9 (10.84)
	11	57 (68.67)
	12	17 (20.48)
Parents‘ education level	No School	1 (1.20)
	Elementary School	12 (14.46)
	Junior High School	13 (15.66)
	Senior High School	46 (55.42)
	Bachelor	10 (12.05)
	Postgraduate	1 (1.20)
Parent’s income	< Rp 1.500.000,-	38 (45.78)
	Rp 1.500.000 – Rp.2.500.000	17 (20.48)
	Rp 2.500.000 – Rp 3.500.000	13 (15.66)
	Rp 3.500.000 – RP 4.500.000	9 (10.84)
	>Rp 4.500.000,-	6 (7.23)

The characteristics of the study respondents based on table 1 above showed that the majority of respondents were women with the age of 16 years and in the 11th grade of high school. The level of education of parents is also dominated by high school graduates, with the most percentage of income being below Rp. 1,500,000,-.

Furthermore, descriptive test results will be presented in the form of mean±standard deviation (Mean±SD) of each indicator. Then each indicator is carried out statistical analysis using the Mann-Whitney test to find out the difference. The results are presented in table 2 below.

Table 2. Descriptive Results of Sedentary Lifestyle Indicator and The Difference Between Each Indicator on Weekdays and Weekends

Sedentary Lifestyle Indicator	Mean±SD (minutes/day)		P (sig)
	Weekday	Weekend	
Watching times	26.47±28.81	60.54±74.34	0.000
Playing games	31.21±45.80	59.59±106.56	0.024
Reading times	13.23±18.94	30.01±36.50	0.000

Study or do homework	32.40±105.39	39.82±34.73	0.000
Additional study or tutoring	12.44±16.12	23.51±26.59	0.044
Use a motorized vehicle	12.14±13.47	42.63±163.47	0.000
Social media time	51.60±216.39	104.85±124.01	0.000
Play or listen to music	19.41±43.28	45.43±99.42	0.000

p<0.05 indicates there is a significant difference using the Mann-Whitney test

The results of table 2 above show that all indicators of the sedentary lifestyle show a significant difference on weekdays and weekends. To find out the Sedentary lifestyle category on weekdays and weekends based on gender, the results are presented in table 3 below.

Table 3. Sedentary lifestyle level category by gender.

Sedentary Lifestyle	Sedentary Lifestyle Level Category	Boys		Girl		P (Sig)
		Percentage	Mean±SD	Percentage	Mean±SD	
Weekday	Low	54.55	149.12±98.69	36.07	230.64±244.68	0.000
	Moderate	22.73		39.34		
	High	22.73		24.59		
Weekend	Low	4.55	349.27±237.46	3.28	459.13±494.90	0.000
	Moderate	50.00		26.23		
	High	45.45		70.49		

p<0.05 indicates there is a significant difference using the Mann-Whitney test

Table 3 above shows that when weekdays, Adolescents of the male gender tend to do low category sedentary activities with a percentage of 54.55%. As for the female gender, they tend to do sedentary activities in the moderate category, with a percentage of 39.34%. For the weekend, respondents with the dominant male gender carried out sedentary activities in the moderate category with a percentage of 50%, while respondents with dominant female genders carried out sedentary activities in the high category with a percentage of 70.49%. Results from the Mann-Whitney test of Sedentary lifestyle differences in gender boys and girls showed meaningfully different results (p<0.05). From the results, it is known that the female gender has a higher Sedentary lifestyle than the male gender. To find out the differences in Sedentary lifestyle in all genders is presented in table 4 below.

Table 4. Sedentary lifestyle level category in all genders

Sedentary Lifestyle	Sedentary Lifestyle Level Category	All Gender		P (Sig)
		Percentage (%)	Mean±SD	
Weekday	Low	40.96	230.64±244.68	0.000
	Moderate	34.94		
	High	24.10		
Weekend	Low	3.61	430.01±442.75	
	Moderate	32.53		
	High	63.86		

p<0.05 indicates there is a significant difference using the Mann-Whitney test

The results of table 4 showed that when weekdays, respondents predominantly carried out sedentary activities in the low category (40.96%), while when weekdays dominantly carried out sedentary activities in the high category (63.86%). The results of the Whitney Mann test also

showed significant results of a Sedentary lifestyle on weekdays and weekends ($p<0.05$) with a greater mean Sedentary lifestyle value on weekends.

4 Discussion

This study analyzed the sedentary lifestyle of 83 respondents who came from Adolescent students living in rural environments. The sedentary lifestyle in this study consists of 8 indicators, namely Watching times, Playing games, Reading times, Studying or doing homework, Additional study or tutoring, Using a motorized vehicle, Social media time, play or listening to music. The result is that social media is a sedentary activity that is mainly carried out by respondents who are adolescent students in rural areas. The average social media time of respondents on weekdays was 51.60 minutes per week, and when weekends increased to 104.85 minutes per week. This needs to be controlled because social media beyond 3 hours will interfere with a person's mental health [24]. In addition, excessive sedentary lifestyles, such as social media, will cause a decrease in physical activity which results in obesity [25].

In the world, more than 73% of internet users are active users of social media [26]. Many teenagers now have Internet-connected devices (iPads, smartphones, video game consoles, etc.) that allow them to go online anytime, anywhere. 76% of all teens use social media. 64% of teenagers are on social media every day. as well as 41% have accounts on various sites [27]. Social media has become one of the most important means of communication among teenagers and is now an indispensable part of their lives. Social media refers to any website that allows social interaction and sharing of ideas [27]. The time spent on social media varies. Some data report that most students spend 30-40 minutes on social media per day from 9 p.m. to 12 a.m. [28]. In Europe, people use social media for more than 2 hours [26]. At Turkey's Bingol University, 41.6% of students use social media for more than 4 hours and are moderate addictions [26]. In 2015 in Turkey, the average person spent 4.5 hours per day and social media for 3 hours and spent 2 hours watching television per day [29]. The Pew Research Center's study shows that 92% of internet use by teenage students ages 13-17 is very high, with 24% online continuously. UNICEF Indonesia's research in 2011 - 2012 on 43.5 million adolescents stated that 80% of adolescents use the internet to search for data and information, such as schoolwork or meeting with friends online (70%) through social media [30]. Among Teenagers, Facebook and Instagram sites are the most popular social media, and teenage students who come from underprivileged families tend to use Facebook more with a percentage of 49% when compared to teenagers from wealthy families who are only 37% [29].

Currently, every urban or rural resident uses social media. However, urban residents use more social media time, which is about 67-70%, and rural residents use around 61% [29], [31]. Prolonged use of social media significantly affects higher cardiometabolic risk, one's self-esteem, lower fitness, and obesity in schoolchildren with different values in boys and girls [32], [33], [34], [35], [36], [37]. Gorkemli (2017) also states that women use social media more often than men [29]. For them, the internet becomes important because of the limited facilities of libraries, and many roads are damaged, so they search for information through the internet and social media [38]. This is in accordance with the results of this study that women do more sedentary activities than men, with an average sedentary time on weekdays of 230.64 minutes per week and on weekends of 459.13 minutes per week (Table 3). Sedentary time will increase with age, and the female sex has more sedentary time than men [39]–[41].

Turning from social media factors, sedentary habits or Sedentary behavior cause negative effects on health. Currently, sedentary behavior is an important issue in public health [42]. Table 4 states that students in rural areas have higher sedentary scores on weekends than on weekdays. This result is in accordance with the research of Sigmundová & Sigmund (2021), which states that during weekends children and their parents have more sedentary time so a program is needed to reduce this [43]. During weekends it was also reported that children had low levels of physical activity and poor control of food intake, so many calories entered and lacked nutrients [44]–[46]. As revealed by Ding et al. (2011) in his research that states that the rural population has now experienced a shift from agriculture to business and some degree of economic modernization that led to a decrease in physical activity [47].

5 Conclusion

Female students in rural areas have a higher sedentary lifestyle score than men on both weekdays and weekends ($p<0.05$). Sedentary activities that are widely carried out are social media time, with an average of 51.60±216.39 minutes per week on weekdays and 104.85±124.01 minutes per week on weekends. A sedentary lifestyle on weekends is also higher than on weekdays, with an average sedentary lifestyle of 230.64±244.68 minutes per week on weekdays and 430.01±442.75 minutes per week on weekends. This result proves that students in rural areas have a high sedentary on weekends. The recommendation of this study is to provide physical activity or exercise on weekends, especially for women.

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