

Adherence to the 24-Hour Movement Guidelines Among Jambi University Sports Education Students: Differences Between Students Who Live in Cities and in Villages

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Abstract: The objective of the study was to compare 24-hour movement guidelines between city-based students and rural students. The study used the survey method with a cross-sectional study approach. The total number of subjects was 40 students with an average age of 20.69 0.83 years, weight 57.32 10.57 kg, and height 169.66 9.78 cm. The findings in the study showed that the students living in the village had met the sleep duration (65%), the duration of screen use (55%), and the physical activity guideline (75%), whereas the city students only met 45% for sleep durations, 20% for screen use, and 35% for 24 hours. Thus, it could be concluded that geographical positioning affects the level of physical activity, so the findings could be used as material for consideration for students to be able to mimic healthy lifestyles that are often applied by students residing in the country in order to balance their fitness status.

Keywords: 24-Hour Movement Guidelines, Screen Use, Sleep Duration

A. Introduction

Physical fitness is a fundamental starting point in performing everyday activities effectively and efficiently (Chaddha et al., 2017). High physical activity, low screen use, and optimal sleep duration have been recommended as healthy lifestyle patterns that can provide many additional health benefits such as endurance, inning an ideal weight, and training the respiratory system rather than just applying one movement (Tremblay et al., 2014). The description and interpretation of the physical activity status of children and adolescents become crucial in order to know their fitness levels. Although the relationship between health and moving habits is often discussed separately, there is evidence that the behavior of frequently performed movements is associated with fitness status throughout the day (the 24-hour period) (Janssen et al., 2017b). Therefore, an increase in one of these movements (e.g., physical activity) can be linked to a decrease in the behavior of other moves (eg, duration of screen use), in addition, healthy children and adolescents are also more physically active, and have good motor coordination as well as improve their cognitive abilities.

The 24-hour motion guidelines for children and adolescents have been recommended as a new holistic approach to promoting adolescent health by integrating all behaviors that cover the aspects of sweat, steps, sleep, and screening (Hyunshik et al., 2021; Roman-Viñas et al. 2016). The guideline suggests that adolescents should engage in at least 60 minutes per day of moderate to severe physical activity, duration of sleep without interruption for 8-10 hours/day, and should avoid using screens for more than 2 hours/days (Cliff et al., 2017; Carson et al., 2017). However, most studies revealed that 24-hour movement guidelines in adolescents were less than 10%, inconsistent results were also found in the proportion of crumbs that did not meet one of the three 24-hour Movement Guidelines ranging from 5.1% to 38.7% in Asia, 32.97% in South America, 9.1% to 42.0% in North America, 12.5% to 42,0% in Canada, and from 8.7% to 36.4% in Europe (Howie et al., 2020; Knell et al. 2019; Lee et al, 2018; Rubín et al.; 2020). The differences in 24-hour movement guide in these countries are influenced by social factors (eg., gender and age), culture (eg. ethnicity), (eg., socio-economic status) as well as geographical location (eg, place of residence between cities vs. villages) (Janssen et al., 2017a). Therefore, more research is needed on the prevalence of 24-hour movement guidelines in various countries, one of which is Indonesia.

As far as we know, there were only two studies that analyzed the proportion of adolescents meeting the 24-hour motion guidelines, the first revealed that only 1.7% of participants met physical activity, screen time, and sleep duration, while 8.2% did not meet the 24-hour movement guideline, and in this study, it was also explained that the gender factor did not find any difference to the 24 hours motion guidance (Sevil-Serrano et al., 2019). (Tapia-Serrano et al., 2021). Thus, the researchers wanted to try to find out from the other side of factors such as the geographical location of participants associated with the 24-hour motion guidelines. On the other hand, the geographic location also has a great influence on the level of physical activity of a person because there are differences in lifestyle habits between the village and the city. So, with the data, this research can be used as a reference material for students to adjust the level of fitness degrees to be able to live healthy, and productive.

B. Methods

This study uses the survey method with a cross-sectional design approach. This method is used to collect data at the same time without providing intervention with the aim of comparing 24-hour motion guidelines using questionnaires in the two different groups. Subjects participating in this study based on inclusion criteria, namely students of Jambi University Sports Education, participants have no history of cardiovascular disease, are in a healthy condition, and live in cities and villages. total subjects 40 male and female students consisting of 20 students living in Jambi

towns and 20 students living outside Jambi City/ or village. average age 20.69 0.83 years, weight 57.32 10.57 kg, and height 169.66 9.78 cm.

The data collected from the study included anthropometry (age, weight, and height), physical activity, screen time, and sleep duration. Anthropometric data was collected directly, while other parameters such as physical activity and screen time using the 24-movement guidelines. The completion of the questionnaire is submitted directly before the study begins and participants can bring it to their home for content based on their daily activities for 2 months.

Anthropometric data such as age, weight, and height were used in the trial using a one-way analysis or an ANOVA test that aims to compare the differences between students living in cities vs. villages. Further for the level of physical activity, sleep duration, and duration of staring at the screen in a trial with a paired T-Test to see comparisons between the two groups. For compliance with 24-hour motion guidelines analyzed with frequency tests. complete Statistical analysis using SPSS application version 22 with a $p < 0.05$ degree of significance.

C. Results and Discussion

Anthropometric data were presented as mean values, standard deviations, and significance values between the two groups. The results of the study showed that the average age, weight, and height of students living in urban areas did not show any significant differences when compared to students who lived in villages. (see table 1)

Table 1. Data Anthropometry

Variable	Total (N=40)	Group		p-value
		City (n=20)	Village (n=20)	
Age (years)	20.69 ± 0.83	20.68 ± 0.84	20.71 ± 0.82	0.609
Weight (kg)	57.32 ± 10.57	57.35 ± 10.58	57.29 ± 10.57	0.837
Height (cm)	169.66 ± 9.78	169.63 ± 9.82	169.70 ± 9.75	0.802

Furthermore, the prevalence of 24-hour motion guidelines between the two groups is presented in Table 2. The findings in this study showed that the physical activity score of students living in the city was on a scale of 2.67 out of 5. The average screen use time was 4.81 hours/day and sleep duration 8.21 hours/ day. whereas the students who lived in the village were found physical activity scores of 2.78 out of 5 scales, 4.63 hours/ day for the duration of use of the screen and 8.62 hours/ day for the sleep length of each individual. Statistically, the results of the three variables

between the two groups showed a significant difference $p < 0.05$ where the village group scored better than the city group.

Table 2. Prevalence Of 24-Hour Motion Guidelines in Both Groups

Variable	Total (N=40)	Group		p-value
		City (n=20)	Village (n=20)	
Physical Activity (1-5)	2.72 ± 0.81	2.67 ± 0.83	2.78 ± 0.79	0.001*
Screen time (h/day)	4.72 ± 2.02	4.81 ± 2.58	4.63 ± 1.47	0.001*
Sleep duration (h/day)	8.41 ± 2.26	8.21 ± 1.78	8.62 ± 2.75	0.032*

* Significant average difference $p < 0.05$

The results in this study show that the proportion (%) of participants who fulfilled physical activity, duration of use of the screen, and sleep duration in the city living groups respectively were 35%, 20%, and 45%. whereas the village group has fulfilled the physical activity guidelines, durations of using screen and duration of sleep respectively are 75%, 55%, and 65%.

Table 3. The Proportion Of 24-Hour Movement Guidelines for City Vs. Village Students

Meeting 24-hour movement guidelines	Total (N=%)	Group		p-value
		City (n=%)	Village (n=%)	
Physical activity	22 (55)	7 (35)	15 (75)	0.001*
Screen Time	15 (37.5)	4 (20)	11 (55)	0.001*
Sleep Duration	22 (55)	9 (45)	13 (65)	0.001*

The geographical location of an area can influence the social, cultural, economic, and healthy lifestyle conditions of its inhabitants. The aim of this study was to compare compliance with the 24-hour movement guidelines of students living in cities versus those living in the countryside. The findings in this study provide evidence that students living in cities have less healthy lifestyle patterns compared to those living in villages. This is evident from the 24-hour movement guidelines that they have been working on for two months, where the majority of students from the villages fulfill the three 24-hour motion guidelines: 75 percent of physical activity, 65 percent of sleep duration, and 55 percent of screen use. While city students only perform 35% of physical activity, sleep duration is 45% and screen use is 20%.

The 24-hour movement guidelines for adolescents have recommended moderate to severe physical activity for 60 minutes/day or a minimum of 2.75 on a scale of 5, sliding time < 2 h/day, and sleep duration of 8-10 hours/day. (Janssen et al.,

2017a; World Health Organization, 2020). There are significant differences in physical activity, sleep duration, and screen duration between the students living in the city and the village. The average physical activity of the village students is on a scale of 2.78, compared to 2.67. Our findings have a higher score than the findings that have been made in the Spanish state, where the activity rate of male teenagers is only 2.63 (Tapia-Serrano et al., 2021). Low compliance with 24-hour movement guidelines can have a negative impact on student fitness, which is characterized by the emergence of degenerative diseases such as diabetes, obesity, and high blood pressure (Oshima et al., 2015; Tannehill et al. 2015). On the other hand, low compliance with 24-hour guidelines for students living in urban areas is also influenced by a number of factors, including over-playing online games, limited means of physical activity, high environmental air pollution, and unhealthy food consumption that affects student sleep quality.

Students who live in the countryside have good fitness due to a number of factors, such as the difficulty of accessing the Internet, so students rarely use smartphones, help fit plants in parents' gardens, away from the traffic density, so it's easy to do sports, and often socialize with the community around. The results of this study are in line with the findings published by (Wicaksono et al., 2021) which say that students who live in the high plains have a better level of fitness when compared to students living in the low plains. Thus, the results of the study can serve as a reference for students, parents, teachers, and academic civitas to always pay attention to the fitness status of their students so that they can help them to have good physical endurance, fitness, a personality, discipline, and have high mental health.

D. Conclusions

The findings in this study show that the students who live in the village have met the sleep duration (65%), the duration of screen use (55%), and the physical activity guidelines (75%), whereas the city students only 45% for sleep length, 20% for screen use, and 35% for physical activity. Thus, it can be concluded that geographical location affects the level of physical activity, so the findings can be used as material for consideration for students to be able to mimic the healthy lifestyle that is often applied by the students living in the country in order to balance their fitness status.

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