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Leisure Time Habits and Physical Activity Levels in Junior High School Students in the Kepulauan Seribu, Jakarta

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Abstract

Physical activity during adolescence plays a vital role in supporting optimal physical and mental development. This study aimed to assess physical activity levels and sedentary behavior among junior high school students in Thousand Islands regency of Jakarta, Indonesia. The research involved 215 students from grades VII and VIII, consisting of 104 males and 109 females. Physical activity levels were assessed using a modified version of the International Physical Activity Questionnaire (IPAQ) tailored for adolescents. The results indicated that the majority of students on both islands demonstrated moderate to high levels of physical activity, with a relatively low prevalence of sedentary behavior. These findings suggest that the students' engagement in active routines is influenced by the geographic and socio-cultural characteristics of their island environment, which promote outdoor and communal activities. However, a small portion of students reported low activity levels, emphasizing the need for context-sensitive interventions to sustain and enhance active behaviors. This study highlights the importance of integrating localized health promotion strategies to prevent the long-term risks of obesity, metabolic disorders, and mental health challenges. The results serve as a valuable reference for health policymakers and educators in designing effective physical activity programs for youth in remote and coastal communities.

Keywords: *children, jakarta, leisure, physical activity, sedentary*

INTRODUCTION

Physical activity is an important component in the development of children and adolescents, encompassing physical, cognitive, and social aspects (Lubans et

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al., 2016). Additionally, physical activity plays a key role in preventing non-communicable diseases such as obesity, diabetes, and cardiometabolic disorders, as well as supporting mental health and academic improvement (Fernandez et al., 2018). The World Health Organization (WHO) recommends that children and adolescents (5–17 years old) engage in physical activity of moderate to vigorous sintensity for at least 60 minutes every day (Parrish et al., 2020).

Physical inactivity tends to trigger sedentary behavior that can increase the risk of obesity, metabolic disorders, and mental health problems (Nguyen et al., 2020). Previous research conducted in Bandung City revealed that children aged 10–12 years have low levels of physical activity and tend to spend time in sedentary behavior (Hasan et al., 2020). Meanwhile, another study in Surabaya City found that almost 90% of children aged 9–11 years spend time in sedentary behavior, which has a very significant correlation with obesity (Ramadhani et al., 2017).

The current digital era presents a major challenge, as increased gadget use and screen time greatly contribute to low physical activity levels among children and can affect their fitness (Prakoso et al., 2024). Moreover, other factors that hinder activity include limited sports facilities, low support from educators for sports in schools, and an academic culture that prioritizes grades over physical activity (Kappelmann et al., 2024).

The province of DKI Jakarta has a geographic condition consisting of urban mainland areas and island regions (Kepulauan Seribu) that are dispersed and relatively isolated. Children living in urban Jakarta have better access to sports facilities, green open spaces, and physical activity programs at school. In contrast, children in Kepulauan Seribu face various challenges such as limited sports facilities, minimal safe open spaces for playing, and geographic conditions that complicate inter-island mobility. This disparity creates a gap in opportunities for physical activity between children in urban areas and those living on the islands, which may impact their long-term health and physical development.

Several studies on physical activity of elementary and high school children in major cities in Indonesia have been conducted and produced varied results (Andriyani et al., 2020; Anugrah et al., 2021; Hasan et al., 2020). Our previous research successfully measured physical activity patterns in elementary schools in

Kepulauan Seribu. However, studies at the junior high school level in Kepulauan Seribu are still unavailable. This shows an important gap that needs to be filled in the current literature. Therefore, this study aims to analyze the level of physical activity and sedentary behavior of junior high school students in the Kepulauan Seribu area, DKI Jakarta. By understanding physical activity patterns and influencing factors in the island region, the results of this study are expected to form the basis for more effective, contextual, and geographically and socially appropriate intervention policy recommendations for the community of Kepulauan Seribu.

METHODS

Research Design and Subjects

This study used a cross-sectional case study design with a quantitative methodological approach and various data collection tools. Surveys were conducted individually under the supervision of the research team. Data collection was carried out between February 2025 and June 2025. Survey results was collected and recorded through an anonymization process to protect respondent identities. The population of this study consisted of junior high school (SMP) students from Kepulauan Seribu, DKI Jakarta Province, totaling 215 students, comprising 104 male students and 109 female students.

Data analysis

The instrument used in this study was the International Physical Activity Questionnaire (IPAQ) specifically designed for children, which has been tested in several previous studies (Anugrah et al., 2021; Ganeswara et al., 2024). The IPAQ results were measured in Metabolic Equivalents (METs), categorized into three levels: low (<600 METs), moderate (600–3000 METs), and high (>3000 METs). Height measurement in this study was conducted using a calibrated stadiometer. Meanwhile, body weight and Body Mass Index (BMI) were measured using the Xiaomi Mi 2 Pro.

RESULTS

Table 1 presents the anthropometric data of male students (n = 104) and female students (n = 109) participating in this study. The average age of both groups was relatively similar, at 13,4 ± 1,11 years for male and 13,5 ± 1,24 for female. The

average body weight of male students was 45,8 ± 3,9 kg, slightly higher than that of female students, who had an average weight 44,7 ± 4,1 kg. However, the height of male students (155,7 ± 7,6 cm) was higher than that of females (149,5 ± 6,8 cm). Meanwhile, the Body Mass Index (BMI) of female students was higher (21,29 ± 2,8 kg/m²) compared to male (18,9 ± 3,82 kg/m²).

Table 1. Anthropometric Data

Variables	Male (n=104)	Female (n=109)
Age (years)	13,4 ± 1,11	13,5 ± 1,24
Weight (kg)	45,8 ± 3,9	44,7 ± 4,1
Height (cm)	155,7 ± 7,6	149,5 ± 6,8
BMI (kg/m²)	18,9 ± 3,82	21,29 ± 2,8

Table 2 shows the percentage distribution of physical activity levels among junior high school students based on gender. Overall, the proportion of male students in the high physical activity category reached 72,2%, higher than females at only 50,6%. Meanwhile, the moderate activity category was dominated by female students at 38.3%, compared to 20,3% in the male groups. For the low physical activity category, the percentage was relatively small in both groups, at 7,6% for males and 11,1% for females.

Table 2. Distribution of Physical Activity Levels by Sex

Variables	Male (n=104)	Female (n=109)
Low	7,6 %	11,1 %
Moderate	20,3 %	38,3 %
High	72,2 %	50,6 %

Table 3 presents the average daily duration of sedentary activity and light physical activity by gender. The results show that the average daily sitting duration was higher in female students (2,40 ± 0,48 hours) compared to male (2,02 ± 0,39 hours). Coversely, the average sleep duration of male (8,59 ± 2,07 hours) was slightly higher than that of females (8,25 ± 1,80 hours). Time spent studying at home showed relatively similar averages between the two groups, at 1,02 ± 0,21 hours for males and 1,08 ± 0,31 hours for female. For walking activity, males recorded a higher duration (0,90 ± 0,26 hours) compared to females (0,80 ± 0,33 hours).

Table 3. Average Duration of Sitting, Sleep Hours, Studying at Home, and Walking Activities

Variables	Male (n=104)	Female (n=109)
Sitting (hours)	2,02 ± 0,39	2,40 ± 0,48
Sleep duration (hours)	8,59 ± 2,07	8,25 ± 1,8
Study at home (hours)	1,02 ± 0,21	1,08 ± 0,31
Walking (hours)	0,9 ± 0,26	0,8 ± 0,33

DISCUSSION

This study aims to analyze the level of physical activity, anthropometric characteristics, and daily activity patterns of junior high school (SMP) students living in the Kepulauan Seribu area, specifically on Pramuka Island and Panggang Island. This study represents one of the initial comprehensive investigations that integrates physical activity, anthropometric status, and daily habits among junior high school children in the Kepulauan Seribu region, DKI Jakarta.

Research specifically documenting how island geography, limited facilities, and maritime community lifestyles influence active living and health status among junior high school children in this area remains limited. Our previous research focused on physical activity, anthropometric status, and daily habits among elementary school children (Ganeswara et al., 2024). Our study shows that the average body weight of boys was higher than that of girls. This finding is consistent with previous research showing that boys tend to have a higher average body weight than girls (Lacroix et al., 2023). This difference is attributed to distinct dietary patterns (del-Cuerpo et al., 2023). In addition, boys tend to be more physically active than girls, leading to greater muscle mass and overall body weight (Varì et al., 2016). Meanwhile in body height, boys had a higher average height than girls. Our findings align with earlier studies indicating that boys tend to be taller than girls, a difference associated with the onset of puberty (del-Cuerpo et al., 2023).

Physical activity levels indicate that a greater proportion of boys were in the high activity category compared to girls (72.2% vs. 50.6%). Conversely, more girls were in the moderate (38.3% vs. 20.3%) and low activity (11.1% vs. 7.6%) categories than boys. Our findings are consistent with previous research suggesting that boys tend to be more physically active than girls, largely due to their greater involvement in active play and sports in general (Kretschmer et al., 2023). In contrast, girls often have more limited access to large physical spaces, shaped by

environmental factors that influence their physical activity patterns (Kappelmann et al., 2024).

Other results reveal gender differences in daily activity patterns among SMP students in Kepulauan Seribu. Daily sitting duration was higher among girls (2.40 ± 0.48 hours) than boys (2.02 ± 0.39 hours). This is consistent with earlier findings that girls tend to engage in more sedentary activities than boys (Lubasch et al., 2020). Other studies support our results, concluding that limited mobility space, social norms, and lack of safe public spaces are barriers to physical activity among girls and adolescents (Esmaeilzadeh et al., 2024).

The average sleep duration of boys (8.59 ± 2.07 hours) was slightly longer than that of girls (8.25 ± 1.80 hours), but both were within the WHO-recommended range of 8–10 hours per night for children of this age group . This is a positive finding, considering that many adolescents in urban areas show a trend of insufficient sleep due to academic pressure and excessive screen time (Bull et al., 2020). Meanwhile, time spent studying at home was relatively balanced between boys (1.02 ± 0.21 hours) and girls (1.08 ± 0.31 hours). Our findings are consistent with previous research showing that study duration at home tends to be similar between boys and girls, influenced by school culture and family support (Dahlgren et al., 2021).

Although this study provides important initial insights into physical activity and daily habits of SMP students in Kepulauan Seribu, it has several limitations. First, the geographic scope was limited to only two islands, Pramuka and Panggang, so the results cannot yet be generalized to the entire Kepulauan Seribu region. Second, the data collected were cross-sectional and based on self-reports, which may be subject to perception bias and recall errors, especially regarding daily activity and sleep durations. Therefore, follow-up studies using a longitudinal design are necessary to gain a more comprehensive understanding of the determinants of physical activity and sedentary behavior among children in Kepulauan Seribu.

CONCLUSION

Based on the results obtained from this study, the majority of junior high school students in Panggang Island and Pramuka Island have shown relatively

positive physical activity patterns, with a high proportion of both male and female students falling into the moderate to high activity categories. This condition serves as an encouraging early indication for supporting healthy physical development and preventing the risk of obesity and metabolic disorders from an early age. These findings highlight the importance of maintaining and expanding access and opportunities for physical activity in island environments, taking into account the geographical and social characteristics of the region. Therefore, there is a need for policy support and programs at both school and community levels that can promote an active lifestyle as part of the daily routine of children in Kepulauan Seribu, to sustainably support their physical and mental well-being.

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