Sedentary Lifestyle of Physiotherapy Students at Universitas Muhammadiyah Lamongan

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Abstract: A sedentary lifestyle involves long periods of sitting or engaging in low-energy activities, such as watching TV, playing video games, using computers, watching online videos, or other electronic media. This type of lifestyle is common in today's modern society and is associated with minimal physical activity, equivalent to 1-1.5 metabolic equivalents (METs). Reduced physical activity among adolescents can have serious health consequences, including obesity, diabetes, musculoskeletal disorders, and decreased physical fitness. This study utilized descriptive quantitative research. The respondents were 32 Physiotherapy students at Universitas Muhammadiyah Lamongan. The results showed that the study found that the level of physical activity among UMLA Physiotherapy students was as follows: 43.75% had moderate physical activity, 31.25% had high-level physical activity, and 25% had low-level physical activity. We can conclude that the majority of UMLA physiotherapy students engage in moderate physical activity, accounting for 43.75% of the respondents. On average, the physical activity of UMLA physiotherapy students does not meet the threshold value for METs.

Keywords: Sedentary Lifestyle, Lifestyle, Physiotherapy

INTRODUCTION

Adolescence is a crucial phase in a person's life, marking the transition from childhood to adulthood between the ages of 10 and 24. During this time, significant physical, emotional, and social changes take place. One important aspect of adolescent development is physical activity and a healthy lifestyle. Sufficient physical activity not only impacts their physical health but also influences their mental well-being, social development, and future quality of life. However, a concerning trend has emerged in recent years: an increasing number of adolescents are leading more sedentary lives, spending excessive time in front of electronic screens such as smartphones, computers, and game consoles. Sedentary lifestyles among adolescents and children are linked to the use of screen-based technologies, such as televisions, smartphones, laptops, and computers. The rise of screen-based technology is feared to contribute to a higher number of children and adolescents, particularly university students, spending prolonged periods sitting still in front of screens (Bauman, 2018).

The term sedentary lifestyle refers to a lack of physical activity, such as resting or engaging in light activity with energy expenditure equivalent to 1-1.5 metabolic equivalents (METs) (Costigan et al., 2013). Sedentary behaviour involves activities like sitting, watching television, lying down, using computers, and other screen-based entertainment (Tremblay et al., 2011). Additionally, spending fewer than 300 minutes per week on physical activity is considered a sign of sedentary behaviour (de Oliveira et al., 2016). Adolescents who lead a sedentary lifestyle often spend long hours sitting, engage in digital entertainment, and avoid healthy physical activity (Desmawati, 2019). Decreased physical activity levels are often due to laziness during leisure time and not much physical activity is required at work and home. The increasing use of transport both motorized and public transport also contributes to the decline in physical activity (WHO, 2018).

According to the Basic Health Research (Riskesdas) data in 2018, the sedentary lifestyle trend in Indonesia increased from 26.1% in 2013 to 33.5% in 2018. The decrease in physical activity among adolescents has serious consequences. It can lead to health issues such as obesity, diabetes, musculoskeletal disorders, and decreased physical fitness. Additionally, less physically active adolescents are at a higher risk of experiencing mental problems such as stress, anxiety, and depression. Poor nutritional status during adolescence also impacts growth and development and will affect health in the future. Good nutrition can enhance the immune system, prevent disease, and optimize health. A person's nutritional status is determined by the balance of nutrients and energy for metabolism from food with the necessary nutrient requirements (Gebreyohannes, 2018). This lifestyle can also hurt their academic performance and social interactions (Hamalding et al., 2019). In a previous study, it was mentioned that under normal circumstances, sedentary lifestyles, physical activity, and sedentary habits have been identified as one of the global health problems in young adults. One-third of adolescents to adults have physically inactive habits, and 41.5% spend four hours or more per day sitting (Hallal et al., 2012).

METHOD

This study utilizes descriptive quantitative research methods to gather data on the physical activities of Physiotherapy students at Universitas Muhammadiyah Lamongan. The respondents, consisting of 18 females and 14 males aged 18 to over 25 years, completed the GPAQ (Global Physical Activity Questionnaire) using a Google form distributed via a WhatsApp group. The questionnaire assessed their daily activities and categorized them as light, moderate, or heavy.

The activities were then classified and the METs (Metabolic Equivalent of Task) value was calculated. The findings are presented in diagram form.

RESULTS

UMLA physiotherapy student respondents are known, with the percentage of gender as follows:

Table 1: Gender of Respondents

Gender	Frequency	Percentage
Male	14	43,75%
Female	18	56,25%
Total	**32**	**100%**

According to table 1, the frequency of gender was calculated. The percentage of respondents identifying as female was 56.25%, while male respondents made up 43.75%.

Table 2: Age of Respondents

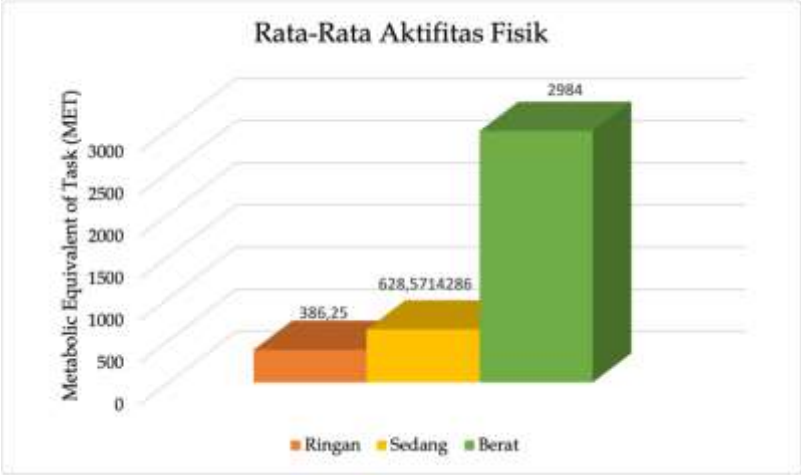
Age (Years)	Frequency	Percentage
18	5	15,625%
19	8	25%
20	8	25%
21	3	9,375%
22	2	6,25%
23	1	3,125%
24	1	3,125%
>25	4	12,5%
Total	**32**	**100%**

Based on Table 2, the survey results indicate that the age group with the highest percentage, 25%, consisted of respondents aged 19-20 years. This was followed by respondents aged 18 years, accounting for 15.625% of the sample, while the lowest percentage, 3.125%, was represented by respondents aged 23-24 years.

Table 3. Physical Activity

Categories	Frequency	Percentage
Low	8	25%
Medium	14	43,75%
Heavy	10	31,25%
Total	**32**	**100%**

The survey revealed that UMLA physiotherapy students engaged in various levels of physical activity. Specifically, 43.75% of students showed moderate physical activity, 31.25% displayed high physical activity, and 25% had low physical activity levels.



Graph 1. Average Physical Activity Results

In the provided data, Graph 1 displays the final Metabolic Equivalents (METs) value of each respondent based on their chosen daily physical activity. The analysis indicates that the respondents did not meet the METs threshold value of <600 for low activity. Those with MET values between 600-3000 for moderate activity qualify, even if they are at the threshold of MET values. However, for strenuous activity, with a MET value of >3000, the result does not meet the qualifications, as the data shows a value of 2984.

Referring to data table 3: Physical Activity and Graph 1: Average Physical Activity, it is evident that UMLA physiotherapy students spend a significant portion of their time engaging in moderate physical activity, with a percentage of 43.75%. However, upon considering the final METs value of each respondent, it is apparent that they do not meet the METs threshold value. Consequently, UMLA physiotherapy students fall into the category of having a sedentary lifestyle.

DISCUSSION

A study by Park et al. (2020) found that a sedentary lifestyle of more than 8 hours per day, along with moderate to high-intensity physical activity (60-75 minutes per day), does not increase mortality. The risk of death is reduced by 14% if a person with a sedentary lifestyle replaces 30 minutes with light physical activity and by 45% when replaced with physical activity. Additionally, a sedentary lifestyle coupled with low to moderate physical activity can reduce systolic and diastolic

blood pressure by 2-3 mmHg (Park et al., 2020). Adolescents with a sedentary lifestyle of more than 6 hours per day have a 2.27 times higher risk of developing obesity and hypertension. Obesity hypertension is a hypertensive condition that begins with obesity. Obesity occurs when daily food contains energy that exceeds needs, especially macronutrients that cause obesity when eaten in excess. A sedentary lifestyle in adolescents is a serious factor for those who are overweight and obese due to metabolic disorders caused by a sedentary lifestyle, which causes the body to store fat and not release it as energy (Steffen, 2019). Similarly, a study found that prolonged online gaming was associated with low physical activity and high body mass index because it requires minimal movement (Braude, 2018).

Nutritional status is not only influenced by physical activity and diet, but other factors influence it such as infectious diseases, genetics, and hormonal (Zarei, 2019). Another study conducted by Lee (2019) states that sedentary behaviour is significantly associated with an increased risk of obesity due to energy expenditure that leads to fat gain and is directly influenced by unbalanced energy intake and energy expenditure. High energy intake is the output of excessive food consumption, while low energy expenditure is the output of a lack of physical activity. More nutrient intake with low physical activity will result in nutrient imbalance leading to overweight. When doing a position such as sitting we must realize that there must be physical movement such as standing for 3 - 5 minutes, stretching the muscles lightly so that the muscles are not stiff, and also a little walking to avoid sedentary activities that occur. These small things are done to help the body improve blood circulation throughout the body. In addition, physical activity can be done regularly with family members and loved ones to make it more enjoyable (Fong et al., 2020). These results are in line with the results of research from (Desmawati, 2019) showing an overview of the results of adolescents in South Tangerang who spend their sedentary time in the low category with a percentage of 77.7%. Using time to do moderate sedentary activities was 17.7% and for South Tangerang adolescents who spent high sedentary time the percentage was only 5.3%. With obesity cases, the percentage is only 10.63%. Previous research from (Rahma & Wirjatmadi, 2020) found that physical activity has an influence on nutritional status, where the results showed that the physical activity of students who were in the good category had a smaller risk of nutritional problems compared to students who were in the sedentary category, which means spending more sedentary time and having a greater risk of nutritional status problems.

On the other hand, families have an important role in influencing the nutritional status of their children. As parents of children, of course, they have a high role and obligation in providing direction to carry out a healthy lifestyle through regulating diet and doing physical activity by giving examples to their children directly, so that children can follow and imitate well about the healthy lifestyle of their parents (Anggarini et al., 2022). The results of previous research show that the role of parents in adolescents' sedentary lifestyle can be measured by examples of parental behaviour, parents' habit of a sedentary lifestyle, parents' concern for the time adolescents spend on a sedentary lifestyle, and parents' support for adolescents to do physical activity (Bounova, 2018). Parental support for adolescents to do physical activity is related to neighborhood support to provide comfortable walking paths (Hinckson, 2017). The researcher assumed that the large number of adolescents with moderate sedentary lifestyles is due to the increasing number of adolescents who appear to be less physically active and more likely to spend time in front of screens of electronic devices, such as smartphones, computers, and game consoles.

CONCLUSION

Based on the results of observations regarding the sedentary lifestyle in physiotherapy students at Universitas Muhammadiyah Lamongan with 32 respondents, the following conclusions can be drawn: (1) The time of physical activity of UMLA physiotherapy students is mostly in the moderate category with a percentage of 43.75%. (2) The average results of physical activity of UMLA physiotherapy students do not meet the METs threshold value.

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REFERENCES

Anggarini, N. V., Hutahaean, S., Amalia, R., Apriliana, V., & Riskyta Istikomah, L. (2022). Peran Guru, Keluarga, Dan Teman Sebaya Dalam Perilaku Gizi Remaja Di Masa Pandemi COVID 19. Jurnal Keperawatan Muhammadiyah, 7(4), 33–40.

Aubert, S., Barnes, J.D., and Tremblay, M.S., (2017). Sedentary Behavior Research Network (SBRN) - Terminology Consensus Project process and outcome. International Journal of Behavioral Nutrition and Physical Activity.

Bauman AE, Petersen CB, Blond K, Rangul V, Hardy LL. The Descriptive Epidemiology of Sedentary Behaviour. 2018. doi:10.1007/978-3-319-61552-3_4.

Braude L, Stevenson RJ. Wathcing television while eating increases energy intake. Journal Appetite. 2018; 76: 9-16.

Bounova A, Michalopoulou M, Agelousis N, Kourtessis T, Gourgoulis V. The parental role in adolescent screen related sedentary behavior. Int J Adolesc Med Health. 2018;30(2).

Costigan SA, Barnett L, Plotnikoff RC, Lubans DR. The health indicators associated with screen-based sedentary behavior among adolescent girls: a systematic review. J Adolesc Health. 2013 Apr;52(4):382-92. doi: 10.1016/j.jadohealth.2012.07.018. Epub 2012 Sep 25. PMID: 23299000.

de Oliveira MR, da Silva VM, Guedes NG, de Oliveira Lopes MV. Clinical Validation of the "Sedentary Lifestyle" Nursing Diagnosis in Secondary School Students. The Journal of School Nursing. 2016;32(3):186-194. doi:10.1177/1059840515588956.

Desmawati. (2019). Gambaran Gaya Hidup Kurang Gerak (Sedentary Lifestyle) dan Berat Badan Remaja Zaman Milenial di Tangerang, Banten. Jurnal Ilmiah Kesehatan Masyarakat. Vol. 11 Edisi 4, 2019.

Fong, B. Y. F., Wong, M. C. S., Law, V. T. S., Lo, M. F., Ng, T. K. C., Yee, H. H. L., Leung, T. C. H., & Ho, P. W. T. (2020). Relationships between Physical and Social Behavioural Changes and the Mental Status of Homebound Residents in Hong Kong during the COVID-19 Pandemic. International journal of environmental research and public health, 17(18), 6653. https://doi.org/10.3390/ijerph17186653.

Gebreyohannes Y , Shiferaw S, Dimstu B,Bugssa G. Nutritional status of adolescents in selected government and private secondary schools of addis ababa, ethiopia. International Journal of Nutrition and Food Sciences. 2014; 3(6): 504.

Hallal, P. C.,et al. (2012). Global physical activity levels: Surveillance progress, pitfalls, and prospects. The Lancet, 380(9838), 247–257. https://doi.org/10.1016/S0140-6736(12)60646-1.

Hamalding, H., Risna, R., & Susanti, S. R. (2019). Hubungan Gaya Hidup Terhadap Overweight Dan Obesitas Pada Remaja Putri Di SMA Negeri 11 Makassar. Jurnal Komunitas Kesehatan Masyarakat, 1(1), 1–6. https://doi.org/10.36090/jkkm.v1i1.240.

Hinckson E, Cerin E, Mavoa S, Smith M, Badland H, Stewart T, et al. Associations of the perceived and objective neighborhood environment with physical activity and sedentary time in New Zealand adolescents. Int J Behav Nutr Phys Act. International Journal of Behavioral Nutrition and Physical Activity; 2017;14(1):145.

Lee, E. and Kim, Y. 2019. 'Effect of university students' sedentary behavior on stress, anxiety, and depression', Perspectives in Psychiatric Care, 55(2), pp. 164–169. doi: 10.1111/ppc.12296.

Park, J. H., Moon, J. H., Kim, H. J., Kong, M. H., & Oh, Y. H. (2020). Sedentary lifestyle: Overview of updated evidence of potential health risks. Korean Journal of Family Medicine, 41(6), 365-73. https://doi.org/10.4082/KJFM.20.0165.

Rahma, E. N., & Wirjatmadi, B. (2020). Hubungan antara Aktivitas Fisik dan Aktivitas Sedentari dengan Status Gizi Lebih pada Anak Sekolah Dasar. Amerta Nutrition, 4(1), 79. https://doi.org/10.20473/amnt.v4i1.2020.79-84.

Steffen N, Zemel BS, Kumanyika S, Stallings VA. Infant Weight Gain and Chilhood Overweight Status in a Multicenter, Cohort Study. Journal of The American Academy of Pediatrics. 2019; 20(109): 94-109.

Tremblay, M. S., LeBlanc, A. G., Kho, M. E., Saunders, T. J., Larouche, R., Colley, R. C., Goldfield, G., & Connor Gorber, S. (2011). Systematic review of sedentary behaviour and health

indicators in school-aged children and youth. The international journal of behavioral nutrition and physical activity, 8, 98. https://doi.org/10.1186/1479-5868-8-98.

World Health Organization (2018). Physical Activity, Key Facts. http://www.who.int/News-Room/Fact-Sheets/Detail/Physical-Activity.

Zarei M, Taib MN, Zarei F, Saad AH. Faktors Associated with body weight status of Iranian Postgraduate Students in University of Putra Malaysia. Nurs Midwifery Stud. 2019; 2(4): 97-102.