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The Relationship Between Sedentary Lifestyle and The Incidence of Hypertension in Early Adulthood at The Ciracas Sub-District Health Center in East Jakarta

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Abstract: Hypertension is one of the leading causes of death in the world. A sedentary lifestyle is one of the factors that can cause hypertension because the development of current technology makes it easier for someone to carry out their activities quickly. Sedentary lifestyle is an activity with minimal movement that is dominated by sitting or lying down for a long time. This is inseparable from the life of early adulthood today, which allows spending time watching television, using gadgets or computers, sitting or lying down for a long time, and using transportation. Purpose: This study aims to determine the relationship between sedentary lifestyle and the incidence of hypertension in early adulthood at the Ciracas District Health Center, East Jakarta. Method: This study design uses observational analytics with a quantitative approach and a cross-sectional design in data collection. A total of 97 respondents aged 18–40 years were selected using a purposive sampling technique. Data were collected using the Sedentary Behavior Questionnaire (SBQ) questionnaire and blood pressure measurements with a digital Sphygmomanometer which were then analyzed using the Chi-Square test. Test Results: The results of the study showed a significant relationship between sedentary lifestyle and the incidence of hypertension (p-value 0.000 < a 0.05). Conclusion: Sedentary lifestyle is significantly associated with an increased risk of hypertension in early adulthood. Educational and preventive efforts are needed to increase public awareness of the importance of physical activity in preventing hypertension from a young age

Keywords- *About Sedentary Lifestyle, Hypertension, Early Adulthood*

I. INTRODUCTION

Hypertension, or high blood pressure, is a global public health problem. This condition acts as a major risk factor in the development of cardiovascular disease. Hypertension is often dubbed the silent killer because it often does not show clear symptoms but can cause sudden death if left uncontrolled. Generally, hypertension is only detected after repeated blood pressure measurements are taken over a certain period of time. A person is said to have hypertension if the systolic pressure is ≥140 mmHg and/or the diastolic pressure is ≥80–90 mmHg (Kowalski, 2010).

Based on a report from the World Health Organization (WHO, 2023), the number of people with hypertension globally has doubled in the last three decades, from 650 million to 1.3 billion people or around 46% of the total population. The African region recorded the highest prevalence of 36%, followed by Southeast Asia which is in third place with a prevalence of 32%. It is estimated that the number of people with hypertension will increase to 1.5 billion people by 2025. In Indonesia, data from the Indonesian Health Survey (2023) shows that hypertension is the fourth highest risk factor for death, contributing 10.2%. The prevalence of hypertension in the population aged ≥18 years reached 638,178 cases, with the highest incidence recorded in DKI Jakarta Province at 12.6%. Iqbal's research (2025) stated that East Jakarta is the area with the highest number of cases, reaching 214,011 cases or equivalent to 31%. Data from the Ciracas District Health Center noted that people with hypertension in the early adult age group reached 17,126 cases, or around 65% of the total cases registered.

Although hypertension is more common in the elderly, the trend of increasing prevalence among young adults (aged 18–40 years) is increasingly worrying. SKI (2023) reported that the prevalence of hypertension in this age group reached 45.2%. The increase is influenced by non-modifiable risk factors such as age, gender, and family history, as well as modifiable risk factors such as smoking, stress, obesity, alcohol consumption, lack of physical activity, high-salt diet, and individual knowledge level (Nurhaliza et al., 2024). The development of technology that offers convenience in various aspects of life has changed people's activity patterns, which originally involved physical activity, to be more passive or known as a sedentary lifestyle.

Data from the Basic Health Research (2018) shows that 47.81% of early adults in Jakarta do not meet physical activity standards. Sedentary behavior refers to behavior characterized by low energy expenditure, such as sitting for long periods of time while working, driving, watching television, or using electronic devices (Wulandari et al., 2024). Lack of physical activity can indirectly increase the risk of chronic diseases such as hypertension. Low physical activity causes an increase in heart rate and heavier work of the heart muscle, thus contributing to increased blood pressure (Merthayani et al., 2020). In addition, a sedentary lifestyle can also reduce cardiac output, systemic blood flow, and blood vessel sensitivity due to activation of the sympathetic nervous system.

A sedentary lifestyle has been shown to significantly increase the risk of hypertension compared to physically active individuals. Regular physical activity plays an important role in controlling blood pressure, strengthening heart function, and preventing other chronic diseases (WHO, 2023). Therefore, activity management is an important component in controlling hypertension (Platini et al., 2024). Research by Ferencia et al. (2023) supports this by showing that 93.8% of respondents who have a sedentary lifestyle tend to experience increased heart rate, which then puts pressure on the arteries and causes increased blood pressure.

Through these various studies, it can be concluded that hypertension in early adulthood is a health issue that needs more attention. Moreover, changes in activity patterns to a sedentary lifestyle have been a significant factor in the increasing prevalence of hypertension. Most previous studies have focused more on the elderly age group, so further studies are still needed that focus on the early adult group. Based on this, the author is interested in conducting research with the title: "The Relationship between Sedentary Lifestyle and the Incidence of Hypertension in Early Adulthood at the Ciracas District Health Center, East Jakarta"

II. METHOD

This study is a quantitative study with an observational analytical research type through a cross-sectional approach. The population in this study were all patients aged 18-40 years who came to have a health check-up at the Ciracas District Health Center. The sample in this study amounted to 97 respondents. Sampling used a non-probability sampling technique with a purposive sampling method. The study was conducted in May 2025 at the Ciracas District Health Center, East Jakarta. The independent variable in this study is sedentary lifestyle, while the dependent variable is the incidence of hypertension. The tools used to collect data were demographic data questionnaires and Sedentary Behavior Questionnaire (SBQ) questionnaires by Rosenberg, et al., (2010) which were designed to determine the duration of time a person spends in doing sedentary activities. The questionnaire used in the study had previously been tested for validity and reliability with 32 respondents with the results of all questions being declared valid and reliable.

The data analysis technique used in this study used univariate analysis in the form of a frequency distribution table for each variable, and bivariate analysis used the chi square statistical test to analyze the relationship between variables. In this study, respondents were protected by ethical principles in research that had met ethical standards and passed the ethical review of the Jakarta Ministry of Health Polytechnic Health Research Ethics Commission with number No. DP.04.03 / F.XIX.13 / 3480/2025

III. RESULTS AND DISCUSSION

The first paragraph under each heading or subheading should be flush left, and subsequent paragraphs should have a five-space indentation. A colon is inserted before an equation is presented, but there is no punctuation following the equation. All equations are numbered and referred to in the text solely by a number enclosed in a round bracket (i.e., (3) reads as "equation 3"). Ensure that any miscellaneous numbering system you use in your paper cannot be confused with a reference [4] or an equation (3) designation. (10)

Table 1 Distribution of Respondents Based on Age, Gender, Education, and Occupation at the Ciracas District Health Center, East Jakarta in 2025 (n=97)

No	Variables	Frequency (n)	Percentage (%)
Respondent Characteristics			
1	**Age**		
	18-31 Years	50	51,5
	32-40 Years	47	48,5
2	**Gender**		
	Male	29	29,9
	Female	68	70,1
3	**Education**		
	Primary-Junior High School	11	11,3
	High School	69	71,2
	College (D3/D4/S1/S2/S3)	17	17,5
4	**Employment**		
	Working	36	37,1
	Not Working	61	62,9

Based on Table 1 above, most of the respondents are in the early adulthood age group (18-31 years) as many as 50 respondents (51.5%), with the majority of female gender as many as 68 respondents (70.1%), the last level of education taken by the respondents was mostly high school with a total of 69 respondents (71.2%), with the majority of respondents not working as many as 61 people (62.9%).

Table 2 Distribution of Respondents Based on Sedentary Lifestyle at the Ciracas District Health Center in 2025

Variables	Frequency (n)	Percentage (%)
Sedentary Lifestyle		
Low	17	17,5
Medium	36	37,1

High	44	45,4

Based on the table above, the level of sedentary lifestyle practiced by the majority of respondents is a high sedentary lifestyle of 44 respondents (45.4%), while respondents with a low sedentary lifestyle are 17 respondents (17.5%).

Table 3 Distribution of Respondents Based on Hypertension Incidents at Ciracas District Health Center in 2025

Variables	Frequency (n)	Percentage (%)
Hypertension Incident		
No Hypertension	33	34
Hypertension	64	66

Based on the table above, data was obtained that some respondents experienced hypertension, amounting to 64 respondents (66%), and those who did not experience hypertension were 33 respondents (34%).

Table 4 Relationship between Sedentary Lifestyle and Hypertension Incidence in Early Adulthood at Ciracas District Health Center in 2025

Variables	Hypertension Incident				Total		*p-Value*
	No Hypertension		Hypertension				
	N	**%**	**N**	**%**	**N**	**%**	
Sedentary Lifesyle							
Low	15	88,2	2	11,8	17	100	0,000
Medium	11	30,6	25	69,4	36	100	
High	7	15,9	37	84,1	44	100	

Based on the results of the analysis using the Chi-square test, a p-value of 0.000 (<0.05) was obtained, indicating a significant relationship between sedentary lifestyle and the incidence of hypertension in early adulthood individuals in the Ciracas District Health Center area, East Jakarta.

The majority of respondents were individuals who did not have formal jobs, such as housewives, who are known to have different daily activity patterns compared to office workers. So far, sedentary lifestyle is often associated with formal workers who spend a lot of time at their desks (Thorp et al., 2012), but the results of measurements using the Sedentary Behavior Questionnaire (SBQ) in this study showed that the group who did not work also had a fairly high sedentary duration.

This is due to the daily routine of housewives and unemployed individuals who tend to do light physical activities, such as domestic work (washing, cooking, and caring for children), and fill their free time with passive activities such as watching television, using cellphones, sitting relaxed, or lying down. Although physical activity is still carried out, the intensity and energy expenditure are relatively low, so that sedentary time remains high and if not balanced with sufficient physical activity can increase the risk of hypertension (Steeves et al., 2015).

Meanwhile, the formal worker group showed a relatively stable sedentary activity pattern between weekdays and weekends. On weekdays, they generally spend more than 6–8 hours sitting, either when working in front of a computer or commuting (Bailey, 2021). On weekends, the dominant rest time makes the sedentary duration remain high (Thorp et al., 2012). Therefore, dividing time between Monday–Friday and Saturday–Sunday is important to describe variations in activity patterns based on days, both in working and non-working groups (Zhao et al., 2023).

In theory, high sedentary behavior has a negative impact on the cardiovascular and metabolic systems, so it is one of the triggers for hypertension, especially when compared to individuals who have higher levels of physical activity (WHO, 2020). Merthayani (2020) explained that long sedentary duration causes an increase in heart rate, forcing the heart muscle to work harder, so that pressure on the artery walls increases and triggers an increase in blood pressure.

The results of this study are reinforced by the findings of Wijaya (2021) in the Cakung Health Center area, East Jakarta, which showed a significant relationship between sedentary lifestyle and hypertension (p-value = 0.039), as well as Sa'pang's research (2024) at the Antang Health Center, Makassar, which showed that sedentary lifestyle affects blood pressure in hypertensive patients (p-value = 0.004).

Based on this explanation, the researcher concluded that sedentary lifestyle has a major contribution to the risk of hypertension, especially in early adulthood. Individuals with a high sedentary lifestyle are at higher risk of developing hypertension than those who are more active. Therefore, efforts are needed to change lifestyle by increasing physical activity such as walking, stretching regularly, using stairs, jogging, and exercising regularly, especially on weekends.

IV. CONCLUSION

The results of the study conducted at the Ciracas District Health Center, East Jakarta, showed that the majority of respondents were in the early adulthood age group with an age range of 18-31 years, with female gender, and had a final education of high school, and the majority of respondents' employment status was unemployed, with most respondents often having a high sedentary lifestyle and experiencing hypertension.

The results of this study also showed that there was a significant relationship between sedentary lifestyle and the incidence of hypertension in early adulthood with a p-value of 0.000. This finding confirms that a high frequency sedentary lifestyle can be a trigger for hypertension. Therefore, there needs to be further understanding regarding sedentary lifestyle both through educational media and through healthy movement programs in early adulthood as an effort to reduce the incidence of hypertension early on

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REFERENCES

[1] Kowalski, Robert. Terapi Hipertensi: Program 8 Minggu Menurunkan Tekanan Darah Tinggi dan Mengurangi Risiko Serangan Jantung dan Stoke Secara Alami. Bandung: PT Mizan Pustaka; (2010).
[2] WHO. Global report on hypertension. Switzerland: World Health Organization; 2023.
[3] Badan Kebijakan Pembangunan Kesehatan. Survei Kesehatan Indonesia Tahun 2023 Dalam Angka. Jakarta: BKPK; 2023.
[4] Iqbal, M. F., & Unggul, U. E. Analisis Kejadian Hipertensi Dengan Pendekatan Epidemiologi Deskriptif Pada Data Surveilans Daerah Khusus Ibukota Jakarta. Jurnal Ilmiah Keperawatan. 2025; 13(1):159–169. https://doi.org/10.52236/ih.v13i1.697.
[5] Nurhaliza et al. Relationship Between Stress Levels And Sedentary Behavior With The Incidence Of Hypertension. JKEP (Jurnal Keperawatan). 2024; X(X), 1–11.
[6] Wulandari et al., Pengaruh Pola Hidup Sedentari terhadap Tingginya Tekanan Darah pada Lansia Kelurahan Jambangan. Journal of Education Research. 2024; 5(3), 3340–3345.

[7] Margaretha, T. G., & Yuli Mulyani. The Relationship between Sedentary Lifestyle and Body Mass Index with the Risk of Endometriosis in Adolescent Girls at X Senior High School Jakarta. JKEP (Jurnal Keperawatan). 2024;9(1),1–12.

[8] Merthayani, N., & Puji Lestari, F. W. Hubungan Aktifitas Kurang Gerak (Sedentary) Dengan Kejadian Hipertensi Pada Pekerja Pabrik Garment Di Kelurahan Candirejo, Ungaran Barat. Jurnal Keperawatan Univesitas Ngudi Waluyo. 2020;3(2017), 54–67.

[9] Rosenberg et al. Reliability and validity of the Sedentary Behavior Questionnaire (SBQ) for adults. J Phys Act Kesehatan. 2010; 7(6):697-705. doi: 10.1123/jpah.7.6.697.

[10] Thorp, A. et al.Prolonged sedentary time and physical activity in workplace and non-work contexts: A cross-sectional study of office, customer service and call centre employees. International Journal of Behavioral Nutrition and Physical Activity. 2010;9(10) 1–9. https://doi.org/10.1186/1479-5868-9-128.

[11] Steeves, J et al. Women workers and women at home are equally inactive: Nhanes 2003-2006. Medicine and Science in Sports and Exercise.2015;47(8),1635–1642. https://doi.org/10.1249/MSS.0000000000000582.

[12] Bailey, D. P. Sedentary behaviour in the workplace: Prevalence, health implications and interventions. British Medical Bulletin. 2021;137(1), 42–50. https://doi.org/10.1093/bmb/ldaa039.

[13] Zhao, B., et al. Day-of-the-Week *and Time-of-the-Day Patterns of Sedentary Behavior in the Hispanic Community Health Study/Study of Latinos. Medicine and Science in Sports and Exercise*. 2023; *55*(12),2203–2213. https://doi.org/10.1249/MSS.0000000000003266.

[14] WHO. *WHO Guidelines on physical activity and sedentary behaviour.* Switzerland: W*orld Health Organization*. In *Routledge Handbook of Youth Sport*;2020. https://www.who.int/publications/i/item/9789240015128.

[15] Wijaya, N. R. Hubungan *Self Care* Dan S*edentary Lifestyle* Dengan Kejadian Hipertensi Di Wilayah Puskesmas Kecamatan Cakung Jakarta Timur Tahun 2021. *NursingResearch*. 2021; 47(4), 124-134.

[16] Sa'pang *et al.* Pengaruh *Self Management* Dan S*edentary Life Style* Terhadap Tekanan Darah Pasien Kota Makassar. *JIMPK : Jurnal Ilmiah Mahasiswa & Penelitian Keperawatan*. 2024;*4*(5), 14–19.