



The Relationship Between Self Efficacy And Sedentary Behavior Among Early Adult (Aged 20-24 Years) In Medan City

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Abstract

Non-Communicable Diseases (NCDs) cause 74% of all deaths in the world every year. There has been a shift in the pattern of NCDs from previously mostly occurred to the elderly to now many occur to the younger age. NCDs are caused by four risky lifestyle behaviors, one of which is sedentary behavior. Sedentary is an activity that expends very little energy, such as when sitting, lying or leaning. Several factors are considered to be

related to sedentary behavior, including the cognitive factors such as self-efficacy. This study aims to determine the correlation between self-efficacy with sedentary behavior in early adults (aged 20-24 years) in Medan City. The design of this research is cross-sectional. The sampling technique used was accidental sampling with a sample size of 271 respondents. Research data was analyzed using a simple linear regression test. Based on the research results, it was found that 45% of respondents were 20 years old, 87.1% of respondents were female, 90.4% of respondents were students, and 91.5% of respondents had no income. From the results of the data analysis test, it was found that there is a significant negative relationship between self-efficacy and sedentary behavior in early adulthood with a p value $(0.000) < 0.05$, a correlation coefficient value of 0.197 and a regression coefficient of -106.904. It can be concluded that the higher the level of self-efficacy, the lower the sedentary behavior in early adult. Sedentary behavior can be reduced by increasing self-efficacy in reducing sedentary behavior.

Keywords: early adult, sedentary behavior, self efficacy

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Introduction

Data from the World Health Organization (WHO) states that the death rate caused by Non-Communicable Diseases (NCDs) reaches 41 million every year or the equivalent of 74% of all deaths in the world. Every year, there are more than 15 million premature deaths due to NCDs in the age range 30 to 69 years. Of which 85% of premature deaths occur in low and middle income developing countries, including Indonesia. Deaths due to NCDs are mostly caused by cardiovascular disease, reaching 17.9 million deaths every year, followed by cancer (9.3 million), respiratory diseases (4.1 million), and diabetes (1.5 million). These four diseases cause more than 80% of premature deaths due to NCDs. Total deaths due to non-communicable diseases are predicted to continue to increase by 17% per year in the next 10 years (WHO, 2024a).

Globally, reducing deaths due to NCDs is one of the indicators in the Sustainable Development Goals (SDGs) declared in 2015. By 2030, it is targeted that the world can reduce by one third the number of premature deaths due to non-communicable diseases, through prevention and treatment, as well as improving mental health and well-being (Kementerian PPN/Bappenas, 2023). In general, NCDs are caused by preventable risk factors. Most NCDs are caused by four risky lifestyle behaviors, namely tobacco (cigarette) use, lack of physical activity, unhealthy diet and dangerous alcohol use. This behavior triggers metabolic or physiological changes in the body such as increased blood pressure, obesity/overweight, increased blood glucose and cholesterol (WHO, 2024b).

Various studies have shown a shift in the pattern of non-communicable diseases from previously mostly experienced by the elderly group, to now mostly experienced by the productive age group. This is caused by the transition to the era of modernization and encouraging changes in lifestyle in society to become unhealthy. Indonesia is currently also experiencing modernization, where there is rapid progress in technology and providing convenience in all aspects of life. All activities that previously required physical human effort are being replaced by machines and technology. This convenience can trigger a change in people's living habits to a sedentary lifestyle or sedentary behavior (Desmawati, 2019).



Sedentary behavior is an activity that is carried out when conscious or not asleep, but only expends very little energy, namely less than 1.5 METs (Metabolic Equivalent of Task), such as when sitting, lying or leaning (Tremblay et al., 2017) . In modern society, sedentary activities are very difficult to avoid in everyday life. This is because sedentary can be done anywhere without realizing it, whether at home, at work, at school, even while traveling (Arihandayani, 2019).

Sedentary behavior is often carried out by young people, both late adolescents and early adults. This is proven by several studies related to sedentary studies in various countries in the world. As many as 63% of American youth while at school engage in sedentary behavior (Egan, et al, 2019). Several research results also show high levels of sedentary behavior among students (Adhyputri et al., 2021; Meilina & Kusuma, 2022). The prevalence of sedentary behavior among teenagers in Germany while at school is around 49.5% (Kuritz, et al, 2020). The prevalence of sedentary behavior in adolescents with a sedentary period of >2 hours per day in Debre Berhan City, Ethiopia is 65.5% (Mohammed, et al, 2020). Arundell et al., (2019) stated that the average self-reported sedentary behavior among adolescents in Australia is 7.8 hours per day; screen time (time spent in front of computer, television and smartphone screens) 4.4 hours per day; 9.1 hours per day as measured by ActiGraph, and 9.5 hours per day as measured by Physical Activity Level (PAL).

Several factors are considered to be related to the occurrence of sedentary behavior, including cognitive factors. According to the social cognitive theory explained by Bandura (2002), behavior is influenced by three factors that are reciprocally interconnected, namely cognitive factors, behavioral factors, and environmental factors. One of the cognitive factors that influences a person's behavior according to this theory is self-efficacy.

Self-efficacy is a person's confidence in their ability to initiate and carry out a behavior (Bandura, 1997). Self-efficacy is an important factor for initiating and maintaining a health behavior, one of which is reducing sedentary activities. The higher a person's self-efficacy, the more he or she will feel able to remain active and reduce sedentary actions. On the other hand,



someone with low self-efficacy tends to feel unable to actively move and will increase sedentary behavior (Glanz et al., 2015).

Several studies conducted in various countries found a correlation between self-efficacy and sedentary behavior. Studies in Europe state that the higher the self-efficacy, the lower the sedentary behavior (Szczyka et al., 2021; Rollo et al., 2016). Research in Minnesota (USA) and Tokyo also shows a positive relationship between self-efficacy and physical activity and a negative relationship between self-efficacy and sedentary behavior, which shows that self-efficacy is an important psychological factor in reducing sedentary behavior (Schroeder et al., 2019; Jindo et al., 2020).

Indonesia, as a developing country that is experiencing a transition to becoming a modern country, is also experiencing changes in sedentary behavior. This is proven by the increase in the trend of sedentary behavior in Indonesia from 26.12% in 2013 to 33.5% in 2018. Likewise, at the provincial level, North Sumatra also experienced an increase in sedentary behavior. In 2013, the percentage of less physical activity in the 20-24 year age group was 21.6%, then increased to 31.43% in 2018. Meanwhile, sedentary for the city of Medan, from 20% in 2013 increased to 46.95 % in 2018. The early adult group aged 20-24 years is the age group with the second highest percentage of less activity after the adolescents (Ministry of Health of the Republic of Indonesia, 2018).

Researchers have conducted a preliminary survey regarding sedentary behavior, physical activity and self-efficacy in a group of young adults in 11 randomly selected sub-districts in Medan City. Of the 33 respondents who were students and workers, it was found that 29 people (88%) had less physical activity and 25 people (76%) engaged in sedentary behavior for more than 6 hours per day. Regarding self-efficacy, 19 people (58%) felt they did not believe in their ability to deal with unexpected situations, 13 people (40%) said it was difficult to stay focused and consistent in achieving certain goals, 18 people (55%) were not confident in overcoming problems that hinder their goals, and 19 people (58%) have low self-efficacy.



Methods

This is a quantitative study with a cross-sectional design. The research was conducted in Medan City from October 2024 to Desember 2024. The population for this study consists of all Early Adults in Medan. The sample size was calculated using Lemeshow's formula, resulting in a sample of 271 respondents. The sampling technique used was accidental sampling. Data collection was carried out by distributing questionnaires. The questionnaire instruments used for sedentary behavior was based on Screen-based Sedentary by Huang (2022) and for self efficacy, the modified of GSES (General Self Efficacy Scale) by Schwarzer, et al. (1995) was used. Data analysis was conducted using SPSS version 20. The analysis was performed using the univariate analysis and bivariate analysis using the linear regression analysis. The principal researcher received an ethics approval certificate from the Health Research Ethics Committee of Universitas Sumatera Utara (No: 1247/KEPK/USU/2024).

Results

Characteristics of Early Adults in Medan City. This study was conducted in Medan City with 271 respondents, who are early adults residents in the regions of Medan Kota, Medan Baru, Medan Barat, Medan Timur, Medan Polonia, Medan Petisah, and Medan Maimun care units. The respondents' characteristics include gender, age, occupation, and income, Based on the data obtained from the questionnaire, the results are as follows:

Table 1. Frequency Distribution of Early Adults Characteristics in Medan City

Characteristics	Frequency (f)	Percentage (%)
Age		
20 years	122	45.0
21 years	53	19.6
22 years	45	16.6
23 years	39	14.4
24 years	12	4.4
Gender		
Male	35	12.9
Female	236	87.1



Occupation		
Working	23	8.5
Student	245	90.4
Housewife	3	1.1
Income		
No Income	248	91.5
<UMK of Medan	17	6.3
>UMK of Medan	6	2.2

Based on Table 1, the majority of early adults in Medan City are under 20 years old, with a total of 122 individuals (45.0%). Among them, 236 respondents (87.1%) are female, 245 early adults (90.4%) are students, and 248 early adults (91.5%) have no income.

Self Efficacy Among Early Adults in Medan City. The distribution of self efficacy among early adults in Medan City is presented below:

Table 2. Frequency Distribution of Self Efficacy Among Early Adults in Medan City

Kategori	Frekuensi (f)	Persentase (%)
High Efficacy	229	84,5
Low Efficacy	42	15,5
Total	271	100,0

Based on Table 2, the frequency distribution of self efficacy among early adults in Medan City shows that the majority of early adults have high efficacy level, with a total of 229 respondents (84.5%).

Sedentary Behavior Among Early Adults in Medan City. Based on the sedentary calculations using screen-based sedentary questionnaire of Huang (2022), the distribution of sedentary behavior among early adults in Medan City is presented below:

Table 3. Distribution of Sedenatary Behavior Among Early Adults in Medan City

Variable	Mean	Median	SD	Min-Max
Sedentary Behavior	3426,48	3275,00	1234,048	1015-6525



Based on Table 3, the distribution of sedentary behavior among early adults in Medan City indicates that mean value is 3426,48 minutes in a week, with median value of 3275,00 and standard deviation of 1234,048. Additionally, the minimum point of sedentary score is 1015 and the maximum point is 6525.

Table 4. Categories Sedenatary Behavior Among Early Adults in Medan City

Kategori	Frekuensi (f)	Persentase (%)
High Sedentary	201	74,2
Low Sedentary	70	25,8
Total	271	100,0

Based on Table 4, the majority of early adults have high sedentary level, with a total of 201 respondents (74.2%).

Relationship Between Self Efficacy and Sedentary Behavior Among Early Adults in Medan City. The bivariate analysis aims to analyze the relationship between self efficacy and sedentary behavior among early adults in Medan City, which is presented in the following table:

Table 5. Relationship Between Self Efficacy and Sedentary Behavior Among Early Adults in Medan City

Independent variable	Dependent variable	Correlation coefficient (r)	Regression Coefficient	P value
Efikasi Diri	Perilaku Sedentari	0,197	-106.904	0,000

Based on Table 5 above, the relationship between self efficacy and sedentary behavior among early adults in Medan City shows that p value is 0,000 or less than 0,05. This means there is a significant relationship between the two variables. The regression coefficient of -106.904 indicates the negative correlation between self efficacy and sedentary behavior, every 1% increasing of self efficacy will decrease the sedentary behavior by 106.904 minutes per week. The coefficient correlation of 0,197 indicates that the two variables correlating by 19,7%.



Discussion

Self-efficacy is a person's belief in their ability to carry out a task or achieve a certain goal. Self-efficacy is considered one of the most influential predictors of behavior change in several theories. One theory that states this is Bandura's social cognitive theory. In Bandura's social cognitive theory, self-efficacy is one of the cognitive factors that influences a person's behavior. Self-efficacy is an internal thought process which is a person's level of confidence in his ability to control his behavior. Individuals with low self-efficacy tend to be pessimistic and reluctant to try or maintain a behavior. On the other hand, individuals with high self-efficacy will be more confident in their ability to succeed in achieving a desired behavior.

Several theories and research (Bandura, 1997; Rollo, 2016) have shown the influence of cognitive and motivational factors on health behavior, including sedentary behavior. This cognitive factor is a factor that can be modified in an effort to achieve the desired health behavior changes. One of the cognitive factors in individuals that triggers the emergence of certain health behaviors is self-efficacy. Self-efficacy in early adulthood tends to be demonstrated by motivation and self-control in carrying out certain behaviors. Beliefs within an individual will give rise to a person's intention to carry out or avoid certain behavior and can influence the individual's attitude towards a behavior (Brooke et al, 2017).

Self-efficacy is formed and obtained through several sources, including mastery experience, vicarious experience, verbal persuasion, psychological and effective states, and imaginary experiences. Mastery experience is past experience in mastering something or success that has been achieved. A person who experiences success or success will develop high self-efficacy or confidence, and vice versa. Vicarious experience is learning by seeing other people's experiences. The success of other people can influence a person's self-efficacy by giving the assumption that if other people can do it, then they will also be able to do it (Glanz et al, 2015).

Verbal persuasion is support from people around you that can shape self-efficacy. Positive words from other people can increase a person's confidence in their abilities and vice versa. Psychological and affective states are a person's emotional and psychological states that can shape



and influence certain behavior. Imaginal experiences are how someone visualizes and imagines their success when carrying out certain activities or behaviors, such as reducing sedentary behavior. The art of visualizing oneself successfully reducing sedentary behavior can effectively form self-confidence in reducing sedentary behavior (Glanz et al, 2015).

Self-efficacy is one of the factors that influences a person's behavior. In research by Schroeder et al (2019), it was shown that self-efficacy is one of the internal factors that influences young people to remain active. This is in line with research by Wilkerson et al (2023) which states that the level of self-efficacy is used to increase respondents' self-confidence in reducing sedentary behavior on weekdays.

Based on the results of this research, it can be concluded that self-efficacy is significantly related to sedentary behavior with p value = 0.000 and r value = 0.192 in bivariate analysis. This is in line with Szczuka's (2021) research on the relationship between self-efficacy and sedentary behavior with a value of $r = -0.158$. This shows that there is a significant relationship between an individual's belief in his ability to reduce sedentary behavior (self-efficacy) and lower sedentary behavior. The results of this research are in line with Bandura's social cognitive theory which states that self-efficacy can influence changes in a person's health behavior, including sedentary behavior.

Students, as the group that dominates the young adult population in this study, tend to have good self-efficacy regarding sedentary behavior. Pachu et al (2020), in their research stated that students have quite good self-confidence in reducing sedentary behavior. Most of them stated that they were confident that they would be able to reduce their time lazing or sitting around. However, some students also stated that they were not confident in being able to do the recommended physical activities or sports because of several obstacles.

Several obstacles that reduce self-confidence or self-efficacy in reducing sedentary behavior among young people include lack of time, self-motivation, facilities, and costs and knowledge. Some individuals also tend to view that reducing sedentary behavior can divert focus when studying or working and is not very beneficial for their health. So it can be concluded that



self-efficacy in reducing sedentary behavior is also influenced by the individual's perception of this behavior.

Apart from students, the early adult age group is also dominated by workers, especially office workers. Routines and demands on office workers cause them to carry out many sedentary activities. Research conducted by Jindo et al (2020) regarding the relationship between self-efficacy in reducing sitting time and sedentary behavior in office workers stated that there was a significant relationship between self-efficacy for moving every 30 minutes and sedentary behavior in office workers. This research concluded that self-efficacy is an important psychological factor in reducing sedentary behavior in office workers.

Self-efficacy is one of the cognitive factors that influences a person's health behavior. Rollo (2016) in his research regarding cognitive and motivational factors related to sedentary behavior stated that one of the cognitive factors related to sedentary behavior is self-efficacy for sedentary behavior. This research summarizes several studies that state that self-efficacy for reducing sedentary behavior is significantly related to lower sedentary behavior. This is different from research by De Cocker, et al (2014) which stated that there was no relationship between self-efficacy for sedentary behavior and sedentary behavior.

Conclusion and Recommendation

The characteristics of the early adult group in this study include the majority of respondents aged 20 years, namely 122 people (45%). The majority of respondents were female, namely 236 people (87.1%). Then the majority of respondents were students, namely 245 people (90.4%) and 248 people (91.5%) of respondents had no income. Sedentary behavior in the early adult group in Medan City has a mean value of 3426.48 minutes per week with the lowest value being 1015 and the highest value being 6525. Then, 128 respondents (47.2%) have high sedentary behavior and 143 respondents (52.8%) have high sedentary behavior. low sedentary. There is a significant negative relationship between self-efficacy and sedentary behavior in early adulthood (aged 20-24



years) with a p value of 0.000, a regression coefficient value of -106.904 and a correlation coefficient value of 0.197.

High self-efficacy in reducing sedentary behavior can reduce sedentary behavior if combined with good mental condition and adequate facilities. Some technical obstacles should be overcome first, such as limited facilities, lack of time for physical activity, and work demands that require a person to carry out sedentary activities which can increase sedentary behavior even though the individual has high self-efficacy.

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