

Sedentary Life Style and Risk of Metabolic Syndrome during the Covid-19 Pandemic

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Abstract— The Covid-19 pandemic has had an impact on various aspects including increased anxiety and reduced physical activity due to the overload of work for health workers including inpatient puskesmas nurses. Both of these increase the risk of metabolic syndrome. Purpose: To describe the sedentary life style and risk of metabolic syndrome in nurses working at the inpatient health center in Sleman Regency, Yogyakarta. **Method:** This research method is descriptive quantitative. This research was conducted in August 2020. The instrument in this study used a questionnaire. The population of this research study is all nurses who work at the Inpatient Health Center of Sleman Regency, Sleman Regency, Yogyakarta. The study sample totaled 99 nurses. The data is presented in the form of percentages. The ethics test was carried out at the Kepk Poltekkes of the Ministry of Health Yogyakarta with a letter worthy of ethics No. e-KEPK /POLKESYO/0516/VI/2020. **Results:** the results showed that the characteristics of female respondents were more than men, namely 76 people (76.76%) while men were 30 people (30.30%). Based on the age of the respondents, respondents aged less than 30 years as many as 20 people (47.62%) 31 to 40 years as many as 31 people (31.31%) while the age of 41 to 50 years as many as 19 people (19.19%) and more than 50 years as many as 19 people (19.19%). There were 28 people (28.28%) with the habit of exercising while 71 people (71.71%) were not used to exercising. Based on the body mass index (BMI), respondents in the normal category were 63 people (63.63%) while including the obesity category as many as 36 people (36.36%). Based on the central obese category, 52 people (52.52%) were found to be normal and 47 people (47.47%) were found. Meanwhile, based on blood sugar levels in the normal category, there were 74 people (74.74%) while the pre DM and DM categories were 25 people (25.26%). Based on blood pressure 47 (47.47%) people at normal limits while including pre-hypertension and hypertension as many as 52 people (52.52%). Metabolic syndrome based on abdominal circumference, blood pressure and blood sugar. While the condition without metabolic syndrome was found in 29 people (29.29%) and metabolic syndrome 70 people (70.70%). From the results of data analysis, sedentary lifestyle with metabolic syndrome had an odds ratio of 1.5 with 95% ci: 0.49-4.27, and p valued > 0.05 so that people with a sedentary lifestyle had a 1.5 times risk of experiencing metabolic syndrome. There was a relationship between sedentary lifestyle and metabolic syndrome. **Conclusion:** Most respondents do not have the habit of exercising and most are at risk of developing metabolic syndrome.

Keywords— Nurse, sedentary life style, syndrom metabolic.

I. INTRODUCTION

Coronavirus Disease (Covid-19) is an important disease in public health globally. In early November 2019, a disease such as pneumonia appeared in Wuhan, China, which the World Health Organization later called Coronavirus Disease 2019 or

Covid-19. The Covid-19 outbreak is testing global and national healthcare systems [1]. The outbreak has not only crippled the health defense systems of developed countries but developing countries in Southeast Asia have also been affected. Globally, confirmed cases of the disease have reached 16,114,449, with 646,641 confirmed deaths with the highest incidence rate in the United States of 4,376,053 confirmed cases on July 28, 2020 [2].

Nurses battling the Covid-19 disease pandemic are under tremendous pressure, with an increasing number of confirmed cases and the number of deaths from Covid-19. Nurses are indispensable in a hospital as someone who is professional in an effort to provide nursing care to patients with varying work demands because health services are provided based on a bio-psycho-social-spiritual approach [3]. As one part of the health care provider, nurses have the longest time on the patient's side, allowing work fatigue to occur. During the Covid-19 pandemic, nurses who are directly involved in treating patients affected by Covid-19 experience a period of stress that can affect the improvement of sedentary lifestyles [4].

Sedentary lifestyle is a type of lifestyle where a person does less movement or lacks significant physical activity [5]. Sedentary in workers can be caused by several things, including the type of work, hobby or pleasure, facilities that support sedentary behavior and lack of exercise [6]. Nurses who experience fatigue after providing services take a long time to rest so that their bodies get back in shape before work the next day. The Covid-19 pandemic has had an impact on various aspects including increased anxiety and reduced physical activity due to the overload of work for health workers including inpatient puskesmas nurses. Both of these things increase the risk of metabolic syndrome in nurses.

A sedentary lifestyle has a major impact on overall health. Many people around the world are involved in a lifestyle of lack of physical activity so that the prevalence of non-communicable diseases will increase including the metabolic syndrome: Diabetes mellitus, Hypertension, Obesity, and Dyslipidemia. Metabolic syndrome is a collection of risk factors for various metabolic diseases such as Coronary Heart Disease (CHD), stroke and type 2 diabetes mellitus. The main components of metabolic syndrome based on the International Diabetes Federation (IDF) of 2005 are central obesity, dyslipidemia (high triglycerides, low HDL cholesterol), hypertension and hyperglycemia. A person is declared to have metabolic syndrome if there is central obesity with at least 2 other positive criteria [7]. High metabolic syndrome in

workers is associated with risk factors such as low physical activity, high stress levels, high food intake of carbohydrates and fats, and low company attention to the health and wellness of workers [8].

Regular physical activity is one of the most effective ways to prevent premature death, WHO recommends at least 150 minutes of moderate physical activity, 75 minutes of vigorous activity and a combination of both per week [8]. It is important to increase physical activity to reduce the prevalence of physical inactivity behavior in order to assess sedentary behavior [2].

Physical activity activities such as daily activities will burn calories but cannot replace exercise. Sports activities provide therapeutic benefits and reduce the risk of various health problems. When exercising, must meet the frequency, intensity, type, and time in order to meet the benefits. The busy work of a nurse, especially during the Covid-19 pandemic, has caused nurses to miss exercising to reduce their sedentary lifestyle. The purpose of this study was conducted to describe the sedentary life style and risk of metabolic syndrome in nurses working at inpatient health centers in Sleman Regency, Yogyakarta.

II. METHOD

This research method is descriptive quantitative which was carried out in August 2020. The instrument in this study used a questionnaire. The population of this research study is all nurses who work at the Inpatient Health Center of Sleman Regency, Yogyakarta. The study sample totaled 99 nurses. The ethics test was carried out at the Kepk Poltekkes of the Ministry of Health Yogyakarta with a letter worthy of ethics No. e-KEPK /POLKESYO/0516/VI/2020.

III. RESULT

Characteristics of Respondents

TABLE 1. Characteristics of Respondents

Variable	n=99	%
Age (th)		
<30	30	29.2
31-40	31	29.2
41-50	19	20.8
>50	19	20.8
Gender		
Man	33	25
Woman	76	75
Marital status		
Unmarried/widowed/widower	6	6.2
Marry	93	93.8
Education		
D1 to D3	89	87.5
D4/S1	10	12.5

The results showed the characteristics of respondents based on age, respondents aged less than 30 years as many as 20 people (47.62%) 31 to 40 years as many as 31 people (31.31%) while aged 41 to 50 years as many as 19 people (19.19%) and more than 50 years as many as 19 people (19.19%). There were more women than men, namely 76 people (76.76%) while men were 30 people (30.30%). respondents with the highest marital status were 93 (93.8%) married, while 6 other respondents had the status of

married/widowed/widowed women. The highest level of education in the respondents was D1 to D3 as many as 89 (87.5) and 10 (12.5) other respondents were D4 / S1 educated.

Sedentary Lifestyle

TABLE 2. Frequency Distribution based on Sedentary Lifestyle

Variable	n=99	%
Exercise Habits		
Yes	28	28,28
Not	71	71,71
Length of sleep per day		
<7 hours	37	37,37
7-8 hours	59	59,59
>8	3	3

The results showed that 28 people (28.28%) with exercise habits while 71 people (71.71%) were not used to exercising. The length of sleep of respondents was less than 7 hours as many as 37 people (37.37%), sleeping between 7-8 hours as many as 59 people (59.597%) and those whose length of sleep was more than 8 hours there were 3 people (3%).

Metabolic syndrome

TABLE 3. Frequency Distribution based on Metabolic Syndrome

Variable	n=99	%
IMT		
Usual	63	63,63
Obese	36	36,36
Central Obese		
Usual	52	52,52
Obese	47	47,47
Blood Sugar Levels		
Usual	74	74,74
Obese	25	25,25
Blood pressure		
Usual	47	47,47
Prehypertensive/hypertension	52	52,52
Metabolic syndrome (LP, TD, GDS)*		
Does not suffer from BC	29	29,29
Suffering from BC	70	70,70

Based on the body mass index (BMI), respondents in the normal category were 63 people (63.63%) while including the obesity category as many as 36 people (36.36%). Based on the central obese category, 52 people (52.52%) were found to be normal and 47 people (47.47%) were found. Meanwhile, based on blood sugar levels in the normal category, there were 74 people (74.74%) while the pre DM and DM categories were 25 people (25.26%). Based on blood pressure 47 (47.47%) people at normal limits while including pre-hypertension and hypertension as many as 52 people (52.52%). Metabolic syndrome based on abdominal circumference, blood pressure and blood sugar. While the condition without metabolic syndrome was found in 29 people (29.29%) and metabolic syndrome 70 people (70.70%).

The risk of developing Metabolic Syndrome in people with a Sedentary Lifestyle

TABLE 4. Analysis of the Risk of Sedentary Lifestyle with Metabolic Syndrome

Variable	OR	P	CI95%
Sedentary Lifestyle (Sports)	1.5	0.50	0.49-4.27

From the results of the analysis of sedentary lifestyle data,

it has an Odds ratio value of 1.5 with 95%CI: 0.49-4.27, as well as a p value of >0.05. From the results of data analysis, sedentary lifestyle with metabolic syndrome had an odds ratio of 1.5 with 95% ci: 0.49-4.27, and p valued > 0.05 so that people with a sedentary lifestyle had a 1.5 times risk of experiencing metabolic syndrome. There was a relationship between sedentary lifestyle and metabolic syndrome.

IV. DISCUSSION

The majority of respondents were in the age group of 31-40 years. Age the body's ability to secrete insulin and the ability to work insulin receptors will decrease so that it is at risk of metabolic syndrome. Other studies state that the prevalence of metabolic syndrome increases at the age of over 40 years [8]. Based on the results of the study, the majority of respondents were female and the majority were married. In women there is an increase in central obesity which is commonly found after pregnancy and during menopause due to an increase in adipose tissue [9]. The majority of respondents were educated D1 to D3. One of the efforts to improve public health is education. Improving a good education will increase good knowledgeable people as well. The level of education has no influence on the incidence of metabolic syndrome. This means that groups with higher and low education have an equal chance of developing metabolic syndrome [10].

Based on the results of the analysis of the relationship between *sedentary lifestyle* and metabolic syndrome, there is a relationship between *sedentary lifestyle* and metabolic syndrome. *Sedentary lifestyle* or sedentary lifestyle 1.5 times affects metabolic syndrome (OR 1.45; 95% CI : 0.49-4.27). Several factors of worker behavior are known to also contribute to the onset of metabolic syndrome. These factors include work factors that trigger workers to tend to behave sedentary, unhealthy diet, smoking behavior, stress, and others [11]. Nurses with health problems due to sedentary behavior should access a lot of health information through social media. Based on the results of research in Idaho Village, United States, the results of health campaigns on Facebook social media get 85.8% of the total number of reactions so that the use of Facebook seems appropriate to reach individuals with health problems [12]. Meanwhile, the results of research in Indonesia show that the social media platforms that have the most potential for health promotion are websites and Instagram with a giveaway health promotion strategy that can attract public interest [13].

In this study, it showed that 28 people (28.28%) with exercise habits while 71 people (71.71%) were not used to exercising. Physical activity of nurses in working hours was classified as light activity, the form of activity carried out was monitoring patients, sitting, writing, reading reports, walking carefree indoors, and operating a computer. High sedentary behavior, inadequate physical activity, and a diet that tends to be high in carbohydrates and fats are at risk of suffering from cardiovascular disease at a young age [14]. Sedentary in workers can be caused by several things, including the type of work, hobby or pleasure, facilities that support sedentary behavior and lack of exercise [6]. In addition, the availability

of access is a support for sedentary activities. Sedentary activities are found in sitting behaviors that occur in various domains, namely, recreation, work and transportation including working/playing on a computer, driving a car, and watching television [11]. Efforts that can be made to overcome sedentary life in order to reduce health risks to employees are conducting campaigns and implementing light exercise by doing total body stretch on the sidelines of work [8]. Sport here means doing physical movement with the aim of improving health with the frequency, intensity, time, and type of exercise that is in accordance with the abilities and targets chosen. While physical activity is an activity using muscles to move the body from waking up to sleeping again. Sport is part of physical activity but exercise has a different meaning from physical activity [15]

The results showed that based on the body mass index (BMI), respondents included the obesity category as many as 36 people (36.36%). Based on the central obese category, 47 people (47.47%) were found. Sedentary lifestyle coupled with a bad diet that is high in fat and carbohydrates (*fast food*) and is not balanced with adequate amounts of fiber (vegetables and fruits), causes a buildup of fat with symptoms of overweight (obesity), especially in the abdomen [16]. Central obesity is a risk factor that is closely related to several chronic diseases [5]. Individuals with light physical activity are 0.4 times more likely to be overweight than people who exercise regularly [11], obese patients tend to be less mobile so that increasing activity levels is a treatment strategy that can be used in the treatment of obesity [11]. This study showed based on blood sugar levels in the pre DM and DM categories as many as 25 people (25.26 %). Meanwhile, based on blood pressure, including prehypertension and hypertension, as many as 52 people (52.52%). Central obesity became a risk factor for coronary heart disease because it caused susceptibility to diabetes mellitus, hypertension, dyslipidemia, and heart swelling [17]. Central obesity is also the main component that triggers insulin resistance which is the beginning of metabolic syndrome [7].

V. CONCLUSION

Most of the respondents did not have the habit of exercising and had 7-8 hours of rest every day. The subject's lifestyle can be said to be a sedentary lifestyle which can be seen from the low physical activity and activities carried out while at work. Most respondents are at risk of developing metabolic syndrome because there is a central obesity that triggers insulin resistance which is the beginning of metabolic syndrome. People with a sedentary lifestyle have 1.5 times the risk of developing metabolic syndrome.

REFERENCES

- [1] Hu, B., Huo, G., Zhou, P., & Zhi, Z.-L. (2019). Characteristics of SARS-CoV-2 and COVID-19. *Nature Reviews Microbiology*, 19(2), 139–147.
- [2] World Health Organization. (2020). *World Health Statistics 2020: Monitoring Health For The SDGs Sustainable Development Goals..*
- [3] Pusat Data dan Teknologi Informasi Kementerian Kesehatan Republik Indonesia. (2017). *Situasi Tenaga Keperawatan Indonesia*
- [4] Mulyani, S., & Prastikasari, V. A. (2020). Hubungan Antara Kecenderungan Alexithymia dengan Hubungan Dekat pada Dewasa Awal. *Journal Communicate*, 6(1), 7–12.

- [5] Kementerian Kesehatan Indonesia. (2012). *Pedoman Pencegahan dan Penanggulangan Kegemukan dan Obesitas pada Anak Sekolah*.
- [6] Ila, F. (2016). Relasi Perilaku Sedentary, Gizi Lebih, dan Produktivitas Kerja Masyarakat Perkotaan. *Journal Kesehatan Masyarakat*.
- [7] International Diabetes Federation. (2016). *The IDF consensus worldwide definition of the metabolic syndrome*.
- [8] Zahtamal, Rochmah, W., Prabandari, Y. S., & Setyawati, L. K. (2014). Prevalensi Sindrom Metabolik Pada Pekerja Perusahaan. *Jurnal Kesehatan Masyarakat Nasional*, 9(2).
- [9] Misnadiarly. (2007). *Obesitas sebagai Faktor Resiko beberapa Penyakit*. Pustaka Populer.
- [10] Solechah, S. A., Briawan, D., & Kustiyah, L. (2014). Proporsi Dan Faktor Risiko Sindrom Metabolik Pada Pekerja Wanita Di Pabrik Garmen Di Kota Bogor (Proportion And Risk Factors Of Metabolic Syndrome Among Female Workers In Textile Factory In Bogor City). *Penelitian Gizi Makan*, 37(1), 21–32.
- [11] Raynor, H. A., Bond, D. S., Freedson, P. S., & B., S. (2011). Sedentary Behaviors, Weight, and Health and Disease Risks. *National Library of Medicine*, 1. <https://doi.org/10.1155/2012/852743>.
- [12] Woods, T. M., Rn, M. S. N., Lewis, H. K., Rn, D. N. P., Nies, M. A., & Faan, R. N. (2022). *Using Social Media Engagement to Raise Pre-Diabetes Awareness for Rural Idaho Hispanics / Latinos*. 11(1), 1–4.
- [13] Vionita, L., & Prayoga, D. (2021). Penggunaan Media Sosial selama Pandemi Covid-19 dalam Promosi Kesehatan di Rumah Sakit Kabupaten Tangerang. *Media Kesehatan Masyarakat Indonesia*, 20(2), 126–133.
- [14] Zulkifli, Z., Rahayu, S. T., & Akbar, S. A. (2019). Hubungan Usia, Masa Kerja dan Beban Kerja Dengan Stres Kerja Pada Karyawan Service Well Company PT. ELNUSA TBK Wilayah Muara Badak. *KESMAS UWIGAMA: Jurnal Kesehatan Masyarakat*, 5(1), 46–61. <https://doi.org/https://doi.org/10.24903/kujkm.v5i1.831>.
- [15] Bayudamai, C. P., Keolahragaan, S. I., Olahraga, F. I., & Surabaya, U. N. (n.d.). *Tingkat Motivasi Berolahraga Dan Aktivitas Fisik Pada Remaja Di Masa Pandemi Covid 19 Dita Yuliastrid*. 7–12.
- [16] Syah, A. (2007). *Gagal Ginjal*. Gramedia Pustaka Utama.
- [17] Aulia, S. (2008). *Gaya Hidup dan Penyakit Modern*. Kanisius.