Characteristics of Hypertensive Patients at Medan Johor Community Health Center: An Analysis Based on Age, Occupation, and Body Mass Index

Rosa Zorayatamin Damanik[1], Mayasari Rahmadhani[2]
[1]Departement of Clinical Pathology, Medicine Faculty, Universitas Islam Sumatera Utara, Medan City, North Sumatera, Indonesia
[2]Departement of Public Health, Medicine Faculty, Universitas Islam Sumatera Utara, Medan City, North Sumatera, Indonesia

Article Info	ABSTRACT
  Corresponding Author: Rosa Zorayatamin Damanik Departement of Clinical Pathology, Medicine Faculty, Universitas Islam Sumatera Utara, Medan City, North Sumatera, Indonesia Email: rosadamanik@fk.uisu.ac.id	According to the World Health Organization (WHO), approximately 1.13 billion people worldwide suffer from hypertension. In Indonesia alone in 2018, the prevalence of hypertension reached 34.1% in people over 18 years of age. Knowledge of the relationship between hypertension characteristics and the degree of hypertension in the Medan Johor area will help the community health center in the prevention and management of hypertension. This study used a cross-sectional design with hypertension patients who participated in the referral program at the Medan Johor health center. The data collection technique used secondary data in the form of medical record data at the Medan Johor health center. Data analysis was performed using chi-square analysis. The results showed that gender (p=0.131) and uric acid levels (p=0.182) did not have a significant relationship with the degree of hypertension. While age (p=0.008), occupation (p<0.001), body mass index (p=0.013), total cholesterol level (p<0.001) and blood sugar level (p=0.031) have a significant relationship with the degree of hypertension. *Keywords:* Hypertension, characteristic, degree of hypertension

1. INTRODUCTION

According to data from the World Health Organization (WHO), in 2019, approximately 1.13 billion people worldwide suffered from hypertension.[1] In Indonesia, hypertension is also a serious health problem. Based on the results of the Basic Health Research (Riskesdas) in 2018, the prevalence of hypertension in Indonesia reached 34.1% in people over 18 years of age. It is shows that hypertension has a significant impact on the health of the Indonesian people.[2]

Puskesmas (Community Health Center) is a first-level health care unit that has an important role in detecting, managing, and providing education about hypertension to the community. Puskesmas Medan Johor, as one of the public health service centers in Medan City, North Sumatra, is an important place in terms of prevention and management of hypertension in the region.

Despite the efforts made in managing hypertension at the Medan Johor Health Center, a deeper understanding of the characteristics of hypertensive patients who come to the health center is still needed. With a better understanding of the profile of hypertensive patients, health services can be customized to individual needs, preventive interventions can be more targeted, and more effective education can be provided to the community.

Therefore, this study aims to analyze the characteristics of hypertensive patients that came to Medan Johor Community Health Center. Therefore, the results of this study are expected to provide a more comprehensive understanding of the profile of hypertension patients in the region, thus helping to improve public health services, disease management, and prevention efforts.

2. METHOD

This study used observational cross-sectional research design with the study population in the form of hypertensive patients registered in the Referral Back Program (PRB) at the Medan Johor health center. The sample will be randomly selected from the population with the number determined according to the calculation results of the slovin formula and obtained 76 samples from the total population of 313 people. Data will be collected through medical record data of Medan Johor health center in the period January 2019 to March 2024. Chi-square analysis was used to evaluate the relationship between the variables and the severity of hypertension.

3. RESULTS AND DISCUSSION

Table- 1. Distribution of Characteristics of Hypertension Patients

Gender	Frequency	Percentage (%)
Man	30	39.5
Woman	46	60.5
Age Level	Frequency	Percentage (%)
Middle aged	31	40.8
elderly	45	59.2
Occupation	Frequency	Percentage (%)
House wife	35	46.1
Retired	22	28.9
Self-employed	9	11.8
Private employee	10	13.2
Hypertension level	Frequency	Percentage (%)
Normal	12	15.8
Pre-Hypertension	28	36.8
1st degree hypertension	23	30.3
2nd degree hypertension	13	17.1
BMI Level	Frequency	Percentage (%)
overweight	16	21.1
Normal	19	46.1
Obese	41	53.9
Uric Acid Level	Frequency	Percentage (%)
Normal	43	56.6
Hiperuricemia	33	43.4

Based on table-1 there were 76 samples of hypertensive patients with the majority of female gender with a percentage of 60.5%. At age, the highest age was found in the elderly group at 59.2%, followed by middle adulthood. No young adults or children were found. The majority of people with hypertension work as housewives followed by retirees. Only a few samples worked as self-employed or private employees.

Most patients were at the pre-hypertension level (36.6%) followed by grade 1 hypertension. However, there were also patients who belonged to the normal blood pressure group. This is because the study population was hypertensive patients who participated in the Referral Program (PRB) who were scheduled to receive routine anti-hypertensive treatment. More than half of the sample were obese (53.9%) followed by normal weight (46.1%). There were more normal uric acid levels (56.6%)

in this sample compared to those with hyperuricemia. The majority had normal blood sugar levels (77.6%) and most of them also had normal cholesterol levels.

Table-2. Sex, Age and Occupation with Hypertension degree

	Hypertension Degree					Chi-square
	Normal	Pre-hipertensi	1st Degree hypertension	2nd Degree Hypertension	Frequency	p
Sex						0.131
Male	4	14	5	7	30	
Female	8	14	18	6	46	
Age Level						0.008
Middle Aged	2	17	5	7	31	
elderly	10	11	18	6	45	
Occupation						<0.001
House Wife	2	12	13	8	35	
retired	8	5	7	2	22	
Self employee	0	9	0	0	9	
Private employee	2	2	3	3	10	

Based on the table-2, The degree of pre-hypertension was the most common level with the same gender distribution, namely 14 men and 14 women. In the first degree of hypertension, the majority were found to be female, but in normal blood pressure, the majority were found to be female. In accordance with the Chi-square test, there was no significant relationship between gender and the degree of hypertension with a p value = 0.131. the results of this study are the same as research conducted by Chasinah and Syarifah (2017). In this study there were 35 female samples and 20 male samples. However, the results of the statistical analysis test showed that the p value = 0.522, so it was concluded that there was no relationship between gender and the degree of hypertension.[3]

In pre-hypertension, there are more middle-aged adults (45-64 years) compared to the elderly (>64 years). In the first degree of hypertension is dominated by the elderly age group. Statistical test results showed a significant relationship between age level and degree of hypertension (p=0.008). This result may show a relationship between the age of the elderly and the degree of hypertension, especially in grade 1 hypertension. The results of this study are in line with research conducted by tamamilang, kandou and nelwan (2018). In this study classified age into 3 groups, namely 36-45 years of age, 46-55 years and 56-65 years. In the study, it was found that 90.9% of people with grade 1 hypertension were people aged 56-65 years. The statistical test results showed a significant relationship with a value of p=0.003. The results of this study indicate that increasing age also affects the level of hypertension.[4]

Housewives are the most common profession where most of them have 1st degree hypertension followed by pre-hypertension. The majority of retirees have normal blood pressure and a few have 2nd degree hypertension. All self-employed have pre-hypertension while private employees are almost evenly distributed. Another study found that most people with hypertension in primary care were housewives. However, this result may be influenced by the sample size in that study which had a higher number of women.[5] Research by raza, et al (2019) found that out of 300 housewives, only 96 people (32%) had normal blood pressure. The study also found that there was a relationship between the incidence of hypertension and housewives occupation. The study attributed this result to the housewives' sedentary lifestyle habits when compared to career women.[6]

The results of this study illustrate that the self-employed have a lower tendency to have higher degrees of hypertension when compared to private employees. Freedom of decision-making at work is associated with a lower risk of developing hypertension.[7] So the results of this study may be

attributed to the greater freedom of decision-making in the self-employed compared to private sector employees.

Table-3. BMI, Uric Acid, Total Cholesterol, And Blood Glucose Level with Hypertension Degree

	Hypertension Degree					Chi-square
	Normal	Pre-hypertension	1st Degree hypertension	2nd Degree Hypertension	Total	p
BMI						
Overweight	6	6	1	3	16	0.013
Normal	0	11	5	3	19	
Obese	6	11	17	7	41	
Uric Acid						
Normal	6	15	17	5	43	0.182
Hiperuricemia	6	13	6	8	33	
Total Cholesterol						
Normal	8	24	10	0	42	<0.001
Upper Limit	4	4	4	6	18	
High	0	0	9	7	16	
Blood Glucose						
Normal	12	25	15	7	59	0.031
Pre-Diabetes	0	0	3	3	6	
Diabetes	0	3	5	3	11	

Based on table-3, The majority of the normal BMI were at the pre-hypertension level. Most samples with overweight had the same number of normal and pre-hypertension degrees. Based on the chi-square statistical test, there was a significant relationship with p=0.013 on the degree of hypertension with body mass index. Research by Azzubaidi, et al (2023) showed a relationship between body mass index and the incidence of hypertension. In this study with student population, it was found that obese people tended to experience hypertension with a significance of p=0.003.[8] Another study by Herdiani (2019) showed that patients with grade 2 hypertension were entirely experienced by elderly people with obesity when compared to other BMI levels. The study also found a correlation between BMI and the degree of hypertension with value of p<0.001.[9]

Most samples with uric acid levels were in grade 1 hypertension, while the majority of samples with hyperuricemia were in pre-hypertension. However, the statistical test results showed insignificant results with a value of p=0.182. The results of this study indicate no relationship between uric acid levels and the degree of hypertension. The relationship between uric acid levels and the incidence of hypertension was found in a study by Mansur, Wantania and Surachmanto (2015). In this study, it was found that abnormal uric acid levels were significantly related to systole blood pressure (p=0.019) and diastole blood pressure (p=0.02).[10] In a study based in the city of Athens in Greece by Chatzistamatiou, et al (2015) found an association between high uric acid levels and high blood pressure. In this study, there were also many people with hyperuricemia at a higher blood pressure level. The study used a sample of 660 people who were newly diagnosed, had never taken antihypertensives and were free from other systemic diseases. Differences in these factors, as well as differences in ethnicity may have contributed to the different results found in this study.[11]

In the normal total cholesterol category, the majority of samples had pre-hypertension. However, this is different in the normal and high upper limit categories. In the category of normal upper limit, there was an almost even distribution with most samples in this category having grade 2 hypertension. In the category of high total cholesterol levels, all samples were in grade 1 hypertension and grade 2 hypertension. The statistical test results showed a significant relationship between total cholesterol

levels and the degree of hypertension (p<0.001). The results of this study indicate that high cholesterol levels affect the degree of hypertension. The results in this study are in line with research by Maryani (2017). In this study, there was a significant relationship (p = <0.001) between the degree of hypertension and total cholesterol levels. In this study, it was found that all patients with the highest degree of hypertension were experienced by people with moderate and high cholesterol levels. While the majority of patients with grade 1 hypertension are experienced by people with normal total cholesterol levels.[12]

In the category of blood glucose levels, the majority of hypertensive patients have normal blood sugar levels and most are in the pre-hypertension stage and followed by respondents who have had diabetes most are in the grade 1 hypertension stage, the statistical test results show a value of p = 0.031 where there is a significant relationship in the degree of hypertension with blood sugar levels. Where the results of this study are in line with research by Axel, priyana and tantoso (2023). In this study, uncontrolled blood sugar was found to be associated with the incidence of hypertension (p = <0.001), where as many as 76.4% of samples who had uncontrolled blood sugar were hypertensive.[13]

4. CONCLUSION

This study analyzed the characteristics of hypertensive patients attending the Medan Johor Community Health Center, revealing several significant findings. The results indicate that age and occupation are strongly associated with the degree of hypertension among the population studied. Specifically, older individuals and those in certain occupations, such as housewives, exhibited higher levels of hypertension. Additionally, the analysis demonstrated a significant relationship between body mass index (BMI), total cholesterol levels, and blood sugar levels with the degree of hypertension. These findings underscore the importance of targeted public health interventions aimed at managing hypertension, particularly among vulnerable groups. In light of these results, it is essential for healthcare providers to develop tailored prevention and management strategies that address the specific needs of hypertensive patients in the community. Continued research is necessary to further explore the underlying factors contributing to hypertension and to improve health outcomes in affected populations.

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