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OVERVIEW OF HEALTH CHARACTERISTICS OF BLOOD PRESSURE, CHOLESTEROL, URIC ACID AND BLOOD SUGAR LEVELS IN AN-NUR WOMEN'S MARINDAL VILLAGE 1 KEC. PATUMBAK KAB. DELI SERDANG

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Abstract

Non-communicable diseases are quite serious public health problems and require more comprehensive and multidisciplinary care. The high mortality rate caused by heart disease, stroke, gout and diabetes mellitus is caused by unhealthy eating patterns, unhealthy habits, lack of physical activity and stress. Indonesia is the 4th country with people with diabetes mellitus after China, India and the USA. Hypertension or high blood pressure is a cause of increased risk of stroke, heart and kidney. The number of Majelis Taklim assemblies and Pengajian can be used maximally by health workers to socialize health programs in improving community health status. Perwiritan An-Nur, Marindal Village 1 Kec. Patumbak Kab. Deli Serdang is thought to have a high risk of non-communicable diseases such as hypertension, stroke, gout and diabetes mellitus. Observation of the habits of the community has an unhealthy lifestyle. This community service carried out 2 activities namely promotion and prevention with 30 samples. Educational activities are education about hypertension, stroke, gout and diabetes mellitus as well as activities. Preventive activities include checking cholesterol, uric acid and blood sugar levels. From the results of the implementation of community service found the majority of respondents aged> 50 years as many as 22 people (27%), the majority of low levels of education 17 people (57%), the majority do not work 27 people (90%), the majority of Javanese 20 people (67%), the majority of married women 28 people (93%) and the majority with a history of passive smoking as many as 20 people (67%), the majority of normal blood pressure as many as 21 people (70%), the majority of normal cholesterol levels as many as 27 people 27 (90%) , the majority of normal uric acid levels were 26 people (87%), the majority of normal blood sugar levels were 28 people (93%). To improve health status and reduce the incidence of non-communicable diseases by conducting counseling and health checks.

Keyword: Blood Pressure, Cholesterol Levels, Uric Acid Levels, Uric Acid Levels and Blood Sugar Levels

1. INTRODUCTION

Hypertension is widely known as cardiovascular disease where the sufferer has blood pressure above normal. The disease is estimated to have caused an increase in global morbidity by 4.5%, and the prevalence is almost as large in developing countries and in developed countries. According to the World Health Organization (WHO, 2011) and the International Society of Hypertension (ISH), there are currently 600 million hypertensive sufferers worldwide, and 3 million of them, die every year. Some risk factors that can cause high blood pressure are old age and a history of high blood pressure in the family, obesity, high salt levels, and life habits such as smoking and alcoholic beverages. In adition there are also factors that can cause high blood pressure, namely being overweight followed by a lack of exercise, and eating fatty foods and high salt. For those who have these risk factors

should be more vigilant and early in making preventive efforts, for example the simplest is routine blood pressure control more than once, and try to avoid the trigger factors of hypertension.

2. METHODS

Community service is carried out in two stages, namely promotional and preventive actions. Stage 1 Promotion of education about hypertension, stroke, gout and diabetes mellitus and stage 2 of blood pressure, uric acid, cholesterol and blood sugar levels. This was done on 10, 17, 24 July 2019.

3. RESULT AND DISCUSSION

3.1. Characteristics of the Community Service Subjects in An-Nur District

In this Community Service, it was found that the majority of respondents aged> 50 years were 22 people (27%), the majority of low education levels were 17 people (57%), the majority did not work 27 people (90%), the majority of Javanese were 20 people (67%) , the majority of married women married 28 people (93%) and the majority with a history of passive smoking as many as 20 people (67%) can be seen in table 1 below.

Table 1. Characteristics of Respondents in the Perwiritan An-Nur

	Frequency (%)
Ages	
• < 50 years	8 (27 %)
• > 50 years	22(73%)
Educations	
• High education	13(43 %)
• Low education	17(57%)
Employments	
• Unwork	27(90%)
• Work	3(10%)
Ethnics	
• Batak	6(20 %)
• Padang	3(10%)
• Bugis	1(3 %)
• Java	20(67%)
Marital status	
• Married	28(93%)
• Widow	2(7 %)
Smoking history	
• No smoking	10(33%)
• Passive smoking	20(67%)
Total	**30(100%)**

Measurement Results of Blood Pressure, Cholesterol, Uric Acid and Blood Sugar Levels of Community Service at Perwiritan An-Nur.

In this Community Service, the majority of normal blood pressure results are 21 people (70%), the majority of normal cholesterol levels are 27 people 27 (90%), the majority of normal uric acid levels

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are 26 people (87%), the majority of normal blood sugar levels are as much 28 people (93%). Can be seen in table 2 below.

Table 2. Measurement Results of Blood Pressure, Cholesterol, Uric Acid and Blood Sugar Levels of Community Service at Perwiritan An-Nur.

	Frekuensi (%)
Blood pressure	
• Normal	21 (70%)
• Low	0 90%)
• High	9 (30%)
Cholesterol levels	
• Normal	27 (90%)
• Low	0 90%)
• High	3 (10%)
Uric acid levels	
• Normal	26 (87%)
• Low	0 90%)
• High	4 (13%)
Blood sugar levels	
• Normal	28 (93%)
• Low	0 90%)
• High	2 (7%)
Total	30 (100%)

Measurement Results of the Characteristics of Respondents on the Results of Measuring Blood Pressure Community Service in Perwiritan An-Nur.

In this Community Service, the majority of high blood pressure results in the age range> 50 years (6%), the majority of high blood pressure at the level of tertiary education is 6 (20%), the majority of high blood pressure with no work status of 9 people (30%), the majority of high blood pressure in Javanese is 4 people (13%), the majority of high blood pressure with married status is 7 people (23%) and the majority of high blood pressure in the status of passive smokers is 5 people (17%) can be seen in table 3 below.

Table 3. Measurement Results of the Characteristics of Respondents on the Results of Measuring Blood Pressure Community Service in Perwiritan An-Nur.

	Measurement Results of Blood Pressure			
	Normal (%)	Low (%)	High (%)	Total (%)
Ages				
• < 50 years	17 (57%)	0 (0%)	3 (10%)	20 (67%)
• > 50 years	4 (13%)	0 (0%)	6 (20%)	10 (33%)
Educations				
• High education	10 (33%)	0 (0%)	3 (10%)	13 (43%)
• Low education	11 (37%)	0 (0%)	6 (20%)	17 (57%)

Employments				
• Unwork	18 (60%)	0 (0%)	9 (30%)	27 (90%)
• Work	3 (10%)	0 (0%)	0	3 (10%)
Ethnics				
• Batak	3 (10%)	0 (0%)	3 (10%)	6 (20%)
• Padang	2 (7%)	0 (0%)	1 (3 %)	3 (10%)
• Bugis	0	0 (0%)	1 (3 %)	1 (3 %)
• Java	16 (53%)	0 (0%)	4 (13%)	20 (67%)
Marital status				
• Married	21 (70%)	0 (0%)	7 (23%)	28 (93%)
• Widow	0 (0%)	0 (0%)	2 (7%)	2 (7%)
Smoking history				
• No smoking	6 (20%)	0 (0%)	4 (13%)	10 (33%)
• Passive smoking	15 (50%)	0 (0%)	5 (17%)	20 (67%)
Total				**30 (100%)**

Measurement Results of the Characteristics of Respondents on the Results of Measuring Cholesterol Level Community Service in Perwiritan An-Nur.

In this Community Service, the majority of high cholesterol levels in the age range <50 years (7%), the majority of high cholesterol levels at low levels of education as many as 3 people (10%), the majority of high cholesterol levels with the status of not working as many as 3 people (10%), the majority of high cholesterol levels in the Javanese tribe were 2 people (7%), the majority of high cholesterol levels with married status were 3 people (10%) and the majority of high cholesterol levels in the status of passive smokers were 3 people (10%) can be seen in table 4 below.

Table 4. Measurement Results of the Characteristics of Respondents on the Results of Measuring Cholesterol Level Community Service in Perwiritan An-Nur.

	Measurement Result of Cholesterol Level			
	Normal (%)	**Low (%)**	**High (%)**	**Total (%)**
Ages				
• < 50 years	18 (60%)	0 (0%)	2 (7%)	20 (67%)
• > 50 years	9 (30%)	0 (0%)	1 (3 %)	10 (33%)
Educations				
• High education	13 (43%)	0 (0%)	0 (0%)	13 (43%)
• Low education	14 (47)	0 (0%)	3 (10%)	17 (57%)
Employments				
• Unwork	24 (80%)	0 (0%)	3 (10%)	27 (90%)
• Work	3 (10%)	0 (0%)	0 (0%)	3 (10%)
Ethnics				
• Batak	6 (20%)	0 (0%)	0 (0%)	6 (20%)
• Padang	2 (7%)	0 (0%)	1 (3 %)	3 (10%)
• Bugis	1 (3 %)	0 (0%)	0 (0%)	1 (3 %)
• Java	18 (60%)	0 (0%)	2 (7%)	20 (67%)
Marital status				

• Married	25 (83%)	0 (0%)	3 (10%)	28 (93%)
• Widow	2 (7%)	0 (0%)	0 (0%)	2 (7%)
Smoking history				
• No smoking	10 (33%)	0 (0%)	0 (0%)	10 (33%)
• Passive smoking	17 (57%)	0 (0%)	3 (10%)	20 (67%)
Total				**30 (100%)**

Measurement Results of the Characteristics of Respondents on the Results of Measuring Uric Acid Level Community Service in Perwiritan An-Nur.

In this Community Service, the result is the same high uric acid levels in the age range <50 and> 50 years as many as 2 people (7%), the majority of high uric acid levels in the low education level are 4 people (13%), the majority of the levels high uric acid with a status of not working as many as 4 people (13%), the majority of uric acid levels in the Javanese tribe as many as 3 people (10%), the majority of high uric acid levels with married status as many as 4 people (17%) and the majority of uric acid levels high in the status of not smoking as much as 3 people (10%) can be seen in table 5 below.

Table 5. Proportion of Characteristics of Respondents to the Measurement Results of Uric Acid level Community Service in Perwiritan An-Nur.

	Measurement of Result of Uric Acid Level			
	Normal (%)	**Low (%)**	**High (%)**	**Total (%)**
Ages				
• < 50 years	18 (60%)	0 (0%)	2 (7%)	20 (67%)
• > 50 years	8 (27%)	0 (0%)	2 (7%)	10 (33%)
Educations				
• High education	13 (43%)	0 (0%)	0 (0%)	13 (43%)
• Low education	13 (43%)	0 (0%)	4 (13%)	17 (57%)
Employments				
• Unwork	23 (77%)	0 (0%)	4 (13%)	27 (90%)
• Work	3 (10%)	0 (0%)	0 (0%)	3 (10%)
Ethnics				
• Batak	6 (20%)	0 (0%)	0 (0%)	6 (20%)
• Padang	2 (7%)	0 (0%)	1 (3 %)	3 (10%)
• Bugis	1 (3%)	0 (0%)	0 (0%)	1 (3 %)
• Java	17 (57)	0 (0%)	3 (10%)	20 (67%)
Marital status				
• Married	24 (80%)	0 (0%)	4 (13%)	28 (93%)
• Widow	2 (7%)	0 (0%)	0 (0%)	2 (7%)
Smoking history			0 (0%)	
• No smoking	7 (23%)	0 (0%)	3 (10%)	10 (33%)
• Passive smoking	19 (63)	0 (0%)	1 (3 %)	20 (67%)
Total				**30 (100%)**

Measurement Results of the Characteristics of Respondents on the Results of Measuring Blood Suger Level Community Service in Perwiritan An-Nur.

In Community Service this results in the same high blood sugar levels in the age range> 50 years as many as 2 people (7%), the majority of high blood sugar levels at low education level of 2 people (7%), the majority of high blood sugar levels with no status working as many as 2 people (7%), the majority of high blood sugar in the Javanese tribe and the Batak tribe respectively as many as 1 person (3%), the majority of high blood sugar levels with married status and widow status respectively as many as 1 person (3%) and the majority of high blood sugar levels in non-smoking status and passive smoking status respectively as many as 1 person (3%) can be seen in table 6 below.

Table 6. Proportion of Characteristics of Respondents to the Measurement Results of Blood Suger level Community Service in Perwiritan An-Nur.

	Measurement Result of Blood Sugar Level			
	Normal (%)	**Low (%)**	**High (%)**	**Total (%)**
Ages				
• < 50 years	20 (67%)	0 (0%)	0 (0%)	20 (67%)
• > 50 years	8 (27%)	0 (0%)	2 (7%)	10 (33%)
Educations				
• High education	13 (43%)	0 (0%)	0 (0%)	13 (43%)
• Low education	15 (50%)	0 (0%)	2 (7%)	17 (57%)
Employments				
• Unwork	25 (83%)	0 (0%)	2 (7%)	27 (90%)
• Work	3 (10%)	0 (0%)	0 (0%)	3 (10%)
Ethnics				
• Batak	5 (17%)	0 (0%)	1 (3 %)	6 (20%)
• Padang	3 (10%)	0 (0%)	0 (0%)	3 (10%)
• Bugis	1 (3 %)	0 (0%)	0 (0%)	1 (3 %)
• Java	19 (63%)	0 (0%)	1 (3 %)	20 (67%)
Marital status				
• Married	27 (90%)	0 (0%)	1 (3 %)	28 (93%)
• Widow	1 (3 %)	0 (0%)	1 (3 %)	2 (7%)
Smoking history				
• No smoking	9 (30%)	0 (0%)	1 (3 %)	10 (33%)
• Passive smoking	19 (63%)	0 (0%)	1 (3 %)	20 (67%)
Total				**30 (100%)**

4. DISCUSSIONS

4.1 Proportion of Respondents' Characteristics to Results of Blood Pressure Measurement

The subjects in this community service were 30 AN-Nur women who were in the Marindal Village, Patumbak District, Deli Serdang District. The general characteristics of respondents in this study can be seen in table 3, namely age, education level, type of work, ethnicity, marital status, and smoking history. This is in line with the statement of Notoatmodjo (2012) which states that there are several social aspects that affect a

person's health status, including: age, sex, occupation and socio-economic. This means that the four social aspects can affect the health status of respondents one of which is compliance with taking hypertension medication. Hypertension is a condition where systolic blood pressure ≥ 140 mmHg and diastolic pressure ≥ 90 mmHg in two measurements with an interval of five minutes in a state of rest.1 In general hypertension does not provide complaints and symptoms that are typical so that many sufferers do not realize it. Therefore, hypertension is said to be the silent killer.

This situation is in line with the trend of hypertension where hypertension occurs in 60-80% of the elderly population.7 In Indonesia, the conditions found are also not much different. Based on table 2 it can be seen that the majority who have high blood pressure in the age range> 50 years, with the majority of tertiary education with the majority of unemployed status and in the majority of Javanese with the majority married status and the majority as passive smokers. According to Singalingging (2011) the average woman will experience an increased risk of high blood pressure (hypertension) after menopause, which is over 45 years of age. Women who are not yet menopausal are protected by the hormone estrogen which plays a role in increasing levels of High Density Lipoprotein (HDL). Low HDL cholesterol levels and high LDL cholesterol (Low Density Lipoprotein) affect the occurrence of the process of atherosclerosis (Anggraini et al, 2009).

Most of the research was elderly with a high level of education. Education levels indirectly affect blood pressure in the elderly because the level of education affects a person's lifestyle, such as smoking habits, (Anggara & Prayitno, 2013). Smoking is a habit of smoking cigarettes and having smoked in the life of the respondent. The data are categorized into two, namely smoking if the respondent currently has a habit of taping and has had a previous smoking habit whether it is light smokers, moderate smokers or heavy smokers. And do not smoke if the respondent states he does not have habits of smoking and have never had a habit of smoking before. Toxic chemicals such as nicotine and carbon monoxide inhaled through cigarettes that enter the bloodstream can damage the endothelial lining of arteries, and result in the process of atherosclerosis, and high blood pressure. In the autopsy study, it was proven that the close relationship between smoking and the presence of atherosclerosis in all blood vessels. Smoking also increases heart rate and the need for oxygen to be supplied to the heart muscles. Smoking in people with high blood pressure further increases the risk of damage to the arterial bloodstream. The results of this community service that the elderly who have a smoking habit or are often exposed to cigarettes have a greater risk of hypertension than the elderly who do not have smoking habits.

4.2 Proportion of Characteristics of Respondents to Results of Cholesterol Levels

Based on table 4 it can be seen that the majority who experience high cholesterol levels in the age range <50 years, with the majority of high cholesterol levels at low education levels with the majority of unemployed status and in the majority of Javanese tribes with the majority married status and the majority as passive smokers. Total cholesterol is the amount of cholesterol carried in all cholesterol-carrying particles in the blood, including HDL, LDL, and VLDL. Total cholesterol levels are very parallel with LDL levels in most. Cholesterol is a steroid that is in the usual concentration assessed throughout the body. Most of the cholesterol the body needs, is synthesized endogenously from acetyl CoA through ß-methyl glutamyl CoA. Cholesterol produced by the liver is transported in plasma as LDL. Cholesterol released from the peripheral tissue in esterification in plasma with fatty acids derived from lecithin by lesitololesterol is transported to the liver as HDL. These

cholesterol esters are commonly transported to other lipoproteins by exchange for triglycerides. Cholesterol levels increase with age, and up to age 50 is higher in men. Cholesterol esters are 65-75% of total plasma cholesterol (Baron, 2011).

Hypercholesterolemia is a condition where high blood cholesterol levels. Hypercholesterolemia caused by obesity is a major risk factor for the occurrence of atherosclerosis and although in the absence of other factors this condition alone is sufficient to stimulate the development of lesion formation. Nonetheless, obesity is considered a risk factor that can be modified by regular diets and regular exercise (Kumar, et al., 2007). Some that affect cholesterol levels are age and sex, heredity, smoking, obesity, exercise, hormonal contraception and diabetes mellitus.

Women have a greater risk for experiencing increased cholesterol levels. Before menopause, women tend to have lower total cholesterol levels than men of the same age. Cholesterol levels in women and men naturally increase with age. Menopause is often associated with an increase in cholesterol in women. This is also supported by the presence of high cholesterol food intake which is widely consumed which is currently circulating in the community. Even people with a young age are more likely to consume these foods. Diet and lifestyle are factors involved in stimulating an increase or decrease in cholesterol levels, so it can be concluded that hypercholesterolemia is a risk factor that can be controlled (Kumar, et al., 2007).

In theory, age and sex factors influence blood cholesterol levels. In childhood, women have higher cholesterol values than men. Men show a significant decrease in cholesterol during adolescence, due to the influence of the hormone testosterone which has increased during that time. The existence of research results that are not in line with the theory can occur because, during the study did not consider other causes that can affect cholesterol levels. Blood cholesterol level is the best indicator to determine whether someone will suffer from heart disease or not. Cholesterol levels in plasma can increase if there is a lot of fat. When saturated fats in food are replaced with unsaturated fats, blood cholesterol will decrease. Most cholesterol in food is obtained from egg yolks and animal fats (Pusdiknekes, 2001).

The results show that hypertension is a multicausal disease, meaning that it is caused by several factors. Education is not the only factor that causes hypertension, but is supported by other risk factors, one of which is lifestyle. In the non-working group, the highest group who suffer from hypertension shows that the majority of respondents who are <50 years old have low productivity levels. , like the elderly. The possibility of the high rate of married respondents is caused by the level of stress experienced, which arises from the demands of greater responsibility and also work. With smoking will increase cholesterol levels, which according to research by quitting smoking HDL cholesterol can increase on average 4 mg / dl. In this study half of the 8 respondents (50%) smoked.

4.3 Proportion of Characteristics of Respondents to Results of Uric Acid Levels

At Community Service this results are the same as high uric acid levels in the age range <50 and >50 years, the majority of high uric acid levels at low education level, the majority of high uric acid levels with no work status, the majority of uric acid levels in the Javanese tribe, the majority High uric acid levels with married status and the majority of high uric acid levels in the non-smoking status can be seen in Table 5.

Hyperuricemia is above normal uric acid levels if uric asthma levels in men are more than 7.0 mg/dl and in women more than 6.0 mg/dl.17 many factors can affect nutritional status, namely age, education, marriage, smoking status and sleep duration

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were found to affect body mass index (Asil et al., 2014).

Foods high in purines are said to contribute to increased blood uric acid. Limiting high purine consumption or by using a low purine diet will be able to prevent or reduce uric acid levels in the blood. This proves that as we age, the risk of increasing blood uric acid levels gets higher. This result is caused by a decrease in kidney function which causes decreased uric acid excretion resulting in an increase in the incidence of hyperuresemia at the age of more than 65 years.

According to Krisnatuti, et all (2008) food with high purine content can increase uric acid levels in the blood between 0.5-0.75 g / ml of purine consumed. 13 The occurrence of gouty arthritis in sufferers is a matter that is still unknown the cause. Allegedly one of the causes is due to intake of purines, which causes excessive accumulation of purine crystals in certain joints which can increase the attack of gouty arthritis.

Research shows that excessive intake of purine contributes to increased occurrence of arthritis gout, and animal purine provides a large contribution in increasing uric acid compared to plant-derived purines (Yuqing, 2012). After menopause, the amount of estrogen in a woman's body also decreases. Estrogen hormones function in helping to release uric acid through urine. Elisabeth in her research found that serum uric acid levels of women increased from the age of 50 to 59 and so on and the increase was extended to the highest age category of 70 years, in addition to decreasing estrogen levels, a decrease in various organ functions in the elderly also caused impaired uric acid metabolism. This is what causes uric acid levels to increase with increasing age (Hak& Choi, 2008).

4.4 Proportion of Characteristics of Respondents to Results of Blood Sugar Levels

In this Community Service we get the same results of high blood sugar levels in the age range> 50 years, the majority of high blood sugar levels at the level of low education as much, the majority of high blood sugar levels with status not working, the majority of high blood sugar in the Javanese and Batak tribes respectively - respectively, the majority of high blood sugar levels with marital status and widow status respectively and the majority of high blood sugar levels in non-smoking status and passive smoking status respectively.

These results are consistent with the findings of Wong et al (2005) showing that diabetes mellitus is more common in women. Individual and group behavior determines different health and disease in different groups. Different culture from people around will make someone's behavior different too. The risk of suffering from glucose intolrenation increases with age. This is caused by changes in body composition, decreased physical activity, decreased tissue sensitivity to insulin. Cigarettes contain an addictive substance called nicotine. This nicotine can result in dependence and loss of control (West, 2006).

Smoking is a risk factor for type 2 diabetes mellitus. In women, the risk is around 74%. Smoking can cause a temporary increase in blood glucose levels. Besides smoking can also damage the sensitivity of organs and tissues to the action of insulin. When compared to nonsmokers, smokers become less sensitive to insulin. Nicotine intake can increase hormone levels, such as cortisol, which can interfere with the effects of insulin (Ko, Gary & Cocram, 2005). Smoking behavior also has an important role in influencing sugar levels of people with type 2 diabetes. A number of studies have examined the relationship between smoking and the incidence of glucose abnormalities and have shown that

smoking is associated with glucose intolerance, fasting glucose abnormalities, and type 2 diabetes mellitus.

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