ASSOCIATION BETWEEN ANXIETY SYMPTOMS AND DEGREE OF HYPERTENSION IN RURAL INDONESIA

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ABSTRACT
Background: Hypertension is responsible for at least 45% of deaths caused by heart disease and 51% of deaths due to stroke. Hypertension is a condition that is often found in primary health care. There are complex psychological processes involved in connecting between psychological factors and hypertension that are still not fully understood. Because symptoms of anxiety or hypertension pose a significant challenge as a public health problem, the relationship between the two also attracts the attention of researchers.
Objective: This study aims to determine the association between anxiety symptoms and degree of hypertension in Rural Indonesia. Method: This study used descriptive analytical method with cross sectional design. Data is processed using the SPSS Chi-Square test. Results: Most of the respondents are male, consist of 37 people (61.7%) and the age category of 36-45 years is the highest by 28 people (46.7%). As for the demographic characteristics of marital status, 51 people (85%) of all respondents were married. Most of respondents' blood pressure category was found in the hypertension stage 1 group of 23 people (38.3%), and the moderate anxiety category was as many as 23 people (38.3%). The association between anxiety symptoms and degree of hypertension in rural Indonesia showed a p value of 0.0001 (p <0.05). Conclusion: There is a significant association between anxiety symptoms and degree of hypertension in Rural Indonesia.

Keywords: Degree of hypertension, anxiety symptoms.

INTRODUCTION
Heart disease in the world causes death for more than 17 million deaths per year, close to one-third of the total. Of all these, complications from hypertension are the reason for 9.4 million deaths worldwide each year. Hypertension is responsible for at least 45% of deaths caused by heart disease and 51% of deaths due to stroke.[1] Until now, hypertension is still a big challenge in Indonesia. Hypertension is a condition that is often found in primary health care. This is a health problem with a high prevalence of 25.8%, in accordance with the 2013 Riskesdas data.[2] The definition of hypertension or high blood pressure is an increase in systolic blood pressure $\geq$ 140 mmHg and diastolic blood pressure $\geq$ 90 mmHg on two measurements with an interval of five minutes in a state of adequate rest.[3] Hypertension has a multifactorial etiology, where genetic, psychological and environmental roles also have important contributions in this disease. Nevertheless, there are complex psychological processes involved in connecting between psychological factors and hypertension that are still not fully understood. Because anxiety or hypertension is a significant challenge as a public health problem, the relationship between the two also attracts the attention of researchers.[4] In Indonesia alone, research conducted at Bahu Puskesmas, Manado, showed that there were anxiety symptoms with hypertension of 87.2% in research correspondents.[5] Explanations related to anxiety and hypertension can be suspected by biological processes that occur such as hypothalamic-pituitary-adrenal reactivity, inflammatory processes, and other neuro-endocrine responses. Patients with anxiety/depression symptoms become vulnerable populations associated with a high risk of hypertension. Patients with comorbid hypertension and mental disorders are populations that have a high risk of mortality that occurs in connection with cardiovascular disease.[6] Anxiety can be described as negative emotions that are felt as psychological and somatic symptoms. Psychological symptoms arise such as feeling tense, worried and feeling alert, while somatic symptoms can arise such as palpitations, sweating, trembling and chest pain.8 Factors that influence anxiety one of which is the precipitation factor of anxiety, namely the threat to self-

integrity, the occurrence of impending physiological inability or decreased capacity to carry out daily living activities.[7] The researchers were interested in examining the relationship of the degree of hypertension with anxiety symptoms in Tegal Sari Mandala Village, Medan, with the aim to see the relationship between anxiety symptoms that arise with varying degrees of hypertension in the population in Tegal Sari Mandala Village, Medan.

METHODS

This type of research is descriptive analytic with cross sectional design where data collection is only taken one time to analyze the relationship between anxiety symptoms and the degree of hypertension in Tegal Sari Village Mandala Medan starting from August 2018 to January 2019. This study has received ethical research health approval from the Faculty of Medicine, University of Muhammadiyah North Sumatera No. 200/KEPK/FKUMSU/2019. The sample in this study was community Tegal Sari Mandala Medan District that fulfills the inclusion criteria. Sampling using consecutive sampling technique. The research subjects consisted of 60 people with details of 23 women and 37 men. The sample inclusion criteria in this study were the people of Tegal Sari Mandala Medan District, both men and women aged 15-55 years, had a history of hypertension and were willing to be examined for blood pressure and interviewed and cooperative.

While the sample exclusion criteria in this study were the people of Tegal Sari Mandala Medan Village who had a history of anxiety disorders or other psychiatric disorders, or had a history of hyperthyroid disease and addictive substance use. The measuring instrument used in this study was the Reister brand sphygmomanometer and the Littmann brand stethoscope. While for measuring the degree of anxiety, use the Beck Anxiety Inventory (BAI) questionnaire. The patient had two blood pressure measurements using the Riester brand sphygmomanometer. Data retrieval is done by using questionnaires. For the BAI questionnaire, data collection will be carried out by interview, which the researchers will fill in the questionnaire based on sample information.

In this study data was collected in the form of primary data. The primary data collected included the values of community blood pressure in Tegal Sari Mandala District Medan and the symptoms of community anxiety Tegal Sari Mandala Village Medan. Data was collected on all samples that were recorded for their blood pressure values and filled out the BAI questionnaire, and re-examined the collected data. The researchers totaled the scores found throughout the questionnaire with the help of the computer statistics program, the SPSS program. After finding the results of blood pressure levels and anxiety symptoms from each respondent of the study, the researchers wanted to know whether or not there were significant differences between these variables, it would be tested by statistical test analysis using the Chi Square Table 3x3 method with expected cells should not be more than 20 % fulfilled.

RESULTS

The frequency distribution of the research respondents was the community of Tegal Sari Mandala Village, Medan Denai District, Medan City based on gender, age, and marital status.

Table 1 Demographic Characteristics of Research Respondents

Demographic Characteristics	Frequency (n)	Percentage (%)
Gender		
Male	37	61.7%
Female	23	38.3%
Age		
15-25	3	5%
26-35	18	30%
36-45	28	46.7%
46-55	11	18.3%
Marital Status		
Married	51	85%
Not married	9	15%
Total	60	100%

Based on table 1 above, out of 60 respondents, the majority of respondents were found as many as 37 people (61.7%) and as many as 23 women (38.3%). For age, the most age group was found at the age of 36-45 years as many as 28 people (46.7%), followed by ages 26-35 years as many as 18 people (30%). The age group 46-55 as many as 11 people (18.3%) and the age group 15-25 as many as 3 people (5%). On the demographic characteristics of marital status, 51 people (85%) of the total respondents were married, while 9 people (15%) were unmarried.

Table 2. Frequency Distribution Based on Blood Pressure

Categories	Frequency (n)	Percentage (%)
Prehypertension	19	31.7%
Hypertension Stage 1	23	38.3%
Hypertension Stage 2	18	30%
Total	60	100%

Based on the table above, it can be seen that the highest blood pressure category found in the first grade hypertension group was 23 people (38.3%), followed by prehypertension as many as 19 people (31.7%) and second degree hypertension as many as 18 people (30%).

Table 3. Frequency Distribution Based on Anxiety Symptoms

Categories	Frequency (n)	Percentages (%)
Mild Anxiety	18	30%
Moderate Anxiety	23	38.3%
Severe Anxiety	19	31.7%
Total	60	100%

Based on table 3, it was found that the anxiety category was being the most common, namely as many as 23 people (38.3%), followed by severe anxiety as many as 19 people (31.7%), and mild anxiety as many as 18 people (30%).

Table 4. Association Between Hypertension Degrees And Anxiety Symptoms

Anxiety Symptoms	Hypertension Degrees			p-value
	Prehypertension n (%)	Hypertension Stage 1 n (%)	Hypertension Stage 2 n (%)	
Mild Anxiety	16 (88.9%)	2 (11.1%)	0 (0%)	0.0001
Moderate Anxiety	3 (13%)	20 (87%)	0 (0%)	
Severe Anxiety	0 (0%)	1 (5.3%)	18 (94.7%)	
Total	19 (31.7%)	23 (38.3%)	18 (30%)	

In table 4, it appears that respondents with prehypertension blood pressure with mild anxiety were 16 people (88.9%), prehypertension with moderate anxiety as many as 3 people (13%) and no prehypertension was found with severe anxiety. Whereas with grade 1 hypertension blood pressure, moderate anxiety was found in as many as 20 people (87%) followed by mild anxiety of 2 people (11.1%) and severe anxiety as many as one person (5.3%).
While respondents with hypertension in grade 2, found severe anxiety as many as 18 people (94%) and none were found by respondents with mild and moderate anxiety.

The level of significance used is $\alpha = 0.05$. The p value is found to be 0.0001. Variables will be said to be significantly related if the value of $p < 0.05$. This means that there is a significant relationship between the degree of hypertension and anxiety symptoms in Tegal Sari Mandala Village, Medan.

DISCUSSIONS

In this study, the association between the degree of hypertension and anxiety symptoms showed a p value of 0.0001 ($p < 0.05$). Variables will be said to be significantly related if the value of $p < 0.05$. This means that there is a significant relationship between the degree of hypertension and anxiety symptoms in Tegal Sari Mandala Village, Medan. This is in line with the research conducted by Zhang in 2018 which examined the relationship between psychological impact and hypertensive patients, where the relationship with anxiety symptoms had a strong correlation ($p = 0.0001$). This can also explain that the higher the level of hypertension, the higher the psychological symptoms such as anxiety.[8]

This relationship can also be explained by a study conducted by Maharaj in 2005, which found that patients with hypertension tended to develop symptoms of anxiety, in which the patient felt an uncertain and anxious feeling about his condition and illness.[9] Sometimes, anxiety and a sense of uncertainty this is manifested as a comorbid of anxiety symptoms.[10]

Hypertension is often associated with psychological factors and patient personality characteristics, which are associated with high risk factors in the old age group. This also indicates the higher the blood pressure, the more serious symptoms of anxiety in someone.[11] Moderate anxiety that most researchers find in this study is described in relation to the ego defense mechanism. As Negi discovered in 2014, hypertensive patients tend to use neurotic ego defense more often, such as intellectualization. Intellectualization relates to feelings to connect events that are experienced for logical reasons, where through these mechanism patients tend to focus on facts and try to accept them according to logic.[12]

In a study by Bahro in 2018, another mechanism used was humor. Where patients often use forms of support such as friends and associations around them to be more calm and try to accept the situation.[13] Another study by Wei in 2006 found the reason for high blood pressure and its relationship with the development of anxiety symptoms was due to unhealthy behavior, like smoking, which has an impact on one's emotional control.[14] This habit can increase the basal level of the stress hormone cortisol.[15]

The effect is the same as the effects of psychostimulants. Acute nicotine exposure, whether obtained by smoking or intravenous infusion of nicotine, has an effect on elevating the amount of cortisol in the human body and animals.[16] Long-term smoking can cause persistent dysregulation of hormonal regulation.[17] Hypertensive patients also experience increased sympathetic tone, where can increase the intensity of anxiety symptoms in patients.[18]

CONCLUSION

From the results of this study that there is a significant association between anxiety symptoms and degree of hypertension in rural indonesia in Tegal Sari Mandala Village, Medan.

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