TRANSPUBLIKA INTERNATIONAL RESEARCH IN EXACT SCIENCES (TIRES)

DETERMINANTS OF HYPERTENSION IN KRUENG BARONA JAYA HEALTH CENTER, ACEH BESAR DISTRICT

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Abstract

This research was conducted to investigate the factors influencing the development of hypertension among patients at the Krueng Barona Jaya Health Center in Aceh Besar District. Employing a quantitative cross-sectional research design, the study analyzed data from a sample of 87 individuals selected from a total population of 641. The study focused on several potential determinants of hypertension, including gender, age, family history, physical activity levels, dietary habits, and smoking status. Statistical analysis using the chi-square test revealed significant associations between hypertension and three factors: gender, age, and diet. These findings suggest that being female, older, and having specific dietary patterns increased the likelihood of developing hypertension in this population. Conversely, family history and physical activity levels were not found to be significantly associated with hypertension in this particular study. These results highlight the importance of considering gender, age, and dietary modifications in hypertension prevention and management strategies for the population served by the Krueng Barona Jaya Health Center.

Keywords: *Hypertension, Gender, Age, Family History, Physical Activity*

1. INTRODUCTION

Hypertension, or high blood pressure, is a widespread health issue affecting both developed and developing nations, including Indonesia. Characterized by persistently elevated systolic and diastolic blood pressure readings, hypertension can be categorized as either primary (with an unknown cause) or secondary (resulting from underlying conditions like kidney, endocrine, or heart disease). While hypertension often presents no noticeable symptoms, its long-term effects can be severe. Early detection through regular blood pressure checks is crucial for preventing complications.

Hypertension is a major global health crisis with a rising prevalence. It is a leading cause of premature death worldwide. The World Health Organization predicts that by 2025, a staggering 1.5 billion people will be affected annually. A particularly concerning aspect of hypertension is its silent nature, often undetected until a blood pressure check is performed (Umbas et al., 2019).

Hypertension, or high blood pressure, is defined as systolic pressure of 140 mmHg or higher and/or diastolic pressure of 90 mmHg or higher. There are different stages of hypertension based on blood pressure readings. Hypertension is a prevalent global health issue, affecting approximately 15-20% of the population. The condition is particularly common among middle-aged adults aged 40 to 64. In Asia, hypertension rates have been

estimated at 8-18% in 1997, with a prevalence of 4,400 cases per 10,000 people (Sidabutar, 2020).

Hypertension occurs when blood pressure consistently exceeds normal levels (140/90 mmHg or higher). This elevated pressure forces the heart to work harder to circulate blood, supplying the body with essential nutrients and oxygen. Over time, this increased strain can weaken the heart, leading to heart failure. Additionally, high blood pressure damages vital organs such as the brain and kidneys (Hasyim, 2021).

Blood pressure is the force exerted by blood against artery walls as the heart pumps blood through the body. Higher blood pressure indicates a harder-working heart. Hypertension is diagnosed when systolic blood pressure consistently measures 140 mmHg or higher, and/or diastolic pressure reaches 90 mmHg or above. Systolic pressure is the primary indicator for diagnosing hypertension (Amalia et al., 2022).

Hypertension is also called the silent disease, which means that people affected by hypertension do not immediately known if they have hypertension before the person checks their blood pressure. Hypertension in general is a disease that is mostly suffered by Indonesians by seeing the sufferers of this disease increasing day by day. In addition, only half of the total number of people with hypertension can be detected, and among them half are taking regular treatment (Prang et al., 2021). Hypertension is an increase in blood pressure adrenaline through arterial contraction (Vasoconstriction) and an increase in heart rate, thus people will experience stress. If the stress continues, the blood pressure will remain high so that the person develops hypertension (Yathurramadhan, 2019).

Based on the causative factors, hypertension is divided into 2 types, namely: Essential Hypertension or Primary Hypertension The cause of this hypertension is not yet known, but the risk factors that are strongly suspected are the following factors such as: Gender, Age, Family history of hypertension, Diet, Physical Activity, Smoking habit. Secondary Hypertension or Renal Hypertension The causes of this type of hypertension are specifically such as the use of ecstrogens, kidney disease, renal vascular hypertension, hypertension associated with pregnancy. In renal failure itself is caused because the human ability fails to maintain metabolism and fluid and electrolyte balance, causing uremia (blood retention). Hypertension associated with pregnancy itself has risk factors in mothers whose age is> 30 years, occurs in the first pregnancy, there is a history in the family, a history of hypertension in the mother herself, excessive body weight and kidney disorders (Fitriayani, 2020).

Several lifestyle factors contribute to the development of hypertension in adolescents. These include obesity, genetic predisposition, ethnicity, gender, birth weight, excessive salt intake, smoking habits, physical inactivity, and a lack of knowledge. Knowledge plays a crucial role in shaping adolescent behavior and is a key factor influencing the adoption of bad lifestyles (Siswanto dkk., 2020).

Based on data from basic health research in Aceh, the number of cases for general hypertension in 2018 amounted to 172,213 cases, while in Aceh Besar District the data for general hypertension in 2019 were 33,502 cases (Riskesdas, 2018 in Nuriani et al., 2021). Based on hypertension data in 2022 obtained from the Krueng Barona Jaya Health Center, Krueng Barona Jaya Subdistrict, there is data on the number of cases of hypertension sufferers in 12 villages in Krueng Barona Jaya Subdistrict, the total number of people experiencing hypertension from these 12 villages is 641 people (Puskesmas Krueng Barona Jaya, 2022).

The results of interviews with the Head of the Health Center that the achievement of cases of hypertension from January-October reached 641 people in the Krueng Barona Jaya Health Center working area, there are still many who experience hypertension recorded in the Krueng Barona Jaya health center working area. This research was conducted to investigate the factors influencing the development of hypertension among patients at the Krueng Barona Jaya Health Center in Aceh Besar District.

2. RESEARCH METHODS

This type of research uses quantitative research with a cross sectional approach. Data collection variables are gender, age, family history, physical activity, diet, and smoking habits that suffer from a history of hypertension at the Krueng Barona Jaya Health Center, Aceh Besar Regency. The population used in this study were all hypertensive people in Krueng Barona Jaya District, Aceh Besar Regency, totaling 641 people. Sampling in this study was carried out by purposive sampling, namely 87 people.

Primary data obtained from questionnaires with interview techniques, where the questionnaire is a measuring tool in the form of a questionnaire with several questions. This measuring instrument is used on respondents. Conducted by giving questionnaires to patients who experience hypertension at the Krueng Barona Jaya Health Center. For secondary data collection, in this study conducted by taking data from the Krueng Barona Jaya Health Center, Aceh Besar Regency.

3. RESULTS AND DISCUSSION

The results of this study were obtained through the distribution of questionnaires which were carried out on May 20 to June 20, 2023 in the working area of the krueng barona jaya health center, aceh besar district. The number of samples used as research respondents was 87 people. Based on the results of data processing, the following results were obtained:

a. Respondent Characteristics

Table 1. Frequency Distribution of Respondent Characteristics

Gender	Frequency	%
Male	23	26,4%
Female	64	73,6%
Total	**87**	**100%**
Age	**Frequency**	**%**
Adults	23	26,4%
Elderly	40	46,0%
Seniors	24	27,6
Total	**87**	**100%**

Based on table 1, it is known that the largest number of respondents based on gender is female, namely 64 respondents (73.6%), while based on age, the largest number is in the elderly, namely 40 respondents (46.0%).

b. Description of research variables

Table 2. Distribution of Respondents Based on the Relationship Between Gender and Determinants of Hypertension

Gender	Blood Pressure						Total
	Lightweight		Medium		Weight		
	n	%	n	%	n	%	
Male	6	6,9%	13	14,9%	4	4,6%	0.013
Female	39	44,8%	21	24,1%	4	4,6%	
Total	**45**	**51,7%**	**34**	**39,1%**	**8**	**9,2%**	

Table 2 shows that respondents at the Krueng Barona Jaya Health Center obtained a p value = 0.013 with a p value = ($\alpha < 0.05$), it can be concluded that the hypothesis is accepted, which means that there is a relationship between gender and the incidence of hypertension at the Krueng Barona Jaya Health Center.

Table 3. Distribution of Respondents Based on the Relationship between Age and Determinal Hypertension

Age	Blood Pressure						Total
	Lightweight		Medium		Weight		
	n	%	n	%	n	%	
Adults	17	19,5%	4	4,6%	2	2,3%	
Elderly	21	24,1%	15	17,2%	4	4,6%	0.029
Seniors	7	8,0%	15	17,2%	2	2,3%	
Total	**45**	**51,7%**	**34**	**39,1%**	**8**	**9,2%**	

Table 3 shows that respondents at the Krueng Barona Jaya Health Center obtained a p value = 0.029 with a p value = ($\alpha < 0.05$), it can be concluded that the hypothesis is accepted, which means that there is a relationship between gender and the incidence of hypertension at the Krueng Barona Jaya Health Center.

Table 4. Distribution of Respondents Based on Family History Relationship with Determinants of Hypertension

Family History	Blood Pressure						Total
	Lightweight		Medium		Weight		
	n	%	n	%	n	%	
Family History	29	54,7%	19	35,8%	5	9,4%	0.739
No Family History	16	47,1%	15	44,1%	3	8,8%	
Total	**45**	**51,7%**	**34**	**39,1%**	**8**	**9,2%**	

Table 4 shows that respondents at the krueng barona jaya health center suffered from hypertension obtained a p value = 0.739 with a p value < (α = 0.05), it can be concluded that the hypothesis is not accepted, which means that there is no relationship between family history and determinants of hypertension at the krueng barona jaya health center.

Table 5. Distribution of Respondents Based on the Relationship of Physical Activity with Determinants of Hypertension

Physical Activity	Blood Pressure						Total
	Lightweight		Medium		Weight		
	n	%	n	%	n	%	
Good	16	18,4%	16	18,4%	2	2,3%	0.405
Less Good	29	33,3%	18	20,7%	6	6,9%	
Total	**45**	**51,7%**	**34**	**39,1%**	**8**	**9,2%**	

Table 5 shows that respondents at Puskesmas krueng barona jaya obtained a p value = 0.405 with a p value> (α = 0.05), it can be concluded that the hypothesis cannot be accepted, which means that there is no relationship between physical activity and the incidence of hypertension at Puskesmas krueng barona jaya.

Table 6. Distribution of Respondents Based on Relationship of Diet with Determinal Hypertension

Diet	Blood Pressure						Total
	Lightweight		Medium		Weight		
	n	%	n	%	n	%	
Good	17	19,5%	17	19,5%	4	4,6%	0.046
Less Good	28	32,2%	17	19,5%	4	4,6%	
Total	**45**	**51,7%**	**34**	**39,1%**	**8**	**9,2%**	

Table 6 shows that respondents at the Krueng Barona Jaya Health Center obtained a p value = 0.046 with a p value < (α = 0.05), it can be concluded that the hypothesis is

accepted, which means that there is a relationship between diet and the incidence of hypertension at the Krueng Barona Jaya Health Center.

Table 7. Distribution of Respondents Based on Relationship Smoking Habits with Determinants of Hypertension

Smoking Habit	Blood Pressure						
	Lightweight		Medium		Weight		Total
	n	%	n	%	n	%	
No Smoking	39	44,8%	21	24,1%	4	51,7%	0.013
Smoking	6	6.9%	13	14,9%	4	39,1%	
Total	**45**	**51,7%**	**34**	**39,1%**	**8**	**9,2%**	

Table 7 shows that respondents at the Krueng Barona Jaya Health Center obtained a p value = 0.013 with a p value < (α = 0.05), it can be concluded that the hypothesis is accepted, which means that there is a relationship between smoking and the incidence of hypertension at the Krueng Barona Jaya Health Center.

4. CONCLUSION

Based on a study of 87 respondents at the Krueng Barona Jaya health center in Aceh Besar Regency, the following conclusions can be drawn regarding factors associated with hypertension determinants:

1. Gender: A significant relationship exists ($p = 0.013 < 0.05$).
2. Age: A significant relationship exists ($p = 0.029 < 0.05$).
3. Family history of hypertension: No significant relationship found ($p = 0.739 > 0.05$).
4. Physical activity: No significant relationship found ($p = 0.405 > 0.05$).
5. Diet: A significant relationship exists ($p = 0.046 < 0.05$).
6. Smoking habits: A significant relationship exists ($p = 0.013 < 0.05$).

In summary, gender, age, diet, and smoking habits showed significant associations with hypertension determinants at the Krueng Barona Jaya health center. However, family history of hypertension and physical activity did not demonstrate significant relationships in this study.

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