

Factors Related With The Incidence of Hypertension Among Elderlyin The Coastal Area Eithin The Working Area of Tanjung Kemuning Health Center, Kaur Regency

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ARTICLE HISTORY

Received [30 July 2026]

Revised [11 September 2026]

Accepted [14 September 2026]

Keywords :

Hypertension, Knowledge,
Obesity, Famili Support.

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ABSTRACT

Hypertension is a major causal factor for stroke and heart attack. Considering the vulnerability of the elderly to these conditions, it is highly recommended that older individuals proactively manage it to prevent the development of more severe diseases. The purpose of this study was to determine the factors related to the occurrence of hypertension in the elderly in the Coastal Area within the Working Area of Tanjung Kemuning Health Center, Kaur Regency.. The method used was a cross-sectional study design. Data were collected as primary data by distributing questionnaires to 84 elderly people at the health center using Simple Random Sampling technique. Data analysis was performed using the Chi-Square test.. Univariate analysis results showed that nearly some of the elderly (39.3%) had poor knowledge, a small portion of the elderly (28.6%) were obese, more than half of the elderly (53.6%) had unsupportive families and more than half of the elderly (53.8%) experienced hypertension. Bivariate analysis results showed there was a relationship between knowledge and the occurrence of hypertension ($p=0.002$), there was a relationship between obesity and the occurrence of hypertension ($p=0.034$) and there was a relationship between family support and the occurrence of hypertension ($p=0.010$). The researchers suggest that the health center increase promotive and preventive activities related to hypertension in the elderly, especially through health education focused on increasing knowledge, controlling obesity, and strengthening the role of the family in elderly care. In addition, the health center is expected to optimize elderly posyandu activities, screening of hypertension risk factors, as well as periodic monitoring of blood pressure and nutritional status of the elderly, especially in coastal areas.

INTRODUCTION

Hypertension is a medical condition in which a person's blood pressure consistently exceeds normal limits, contributing to increased morbidity and mortality. A systolic pressure of 140 mmHg indicates the pressure when the heart pumps blood, while a diastolic pressure of 90 mmHg represents the pressure when blood returns to the heart (Triyanto, 2018). In general, hypertension is categorized as blood pressure exceeding 140/90 mmHg, and is classified as severe if it reaches above 180/120 mmHg. There is a genetic predisposition to hypertension, so it is often found in family history, and is more prevalent in the elderly population. This condition can also occur in individuals aged 40 years and older (Junaidi, 2019). The medical condition known as hypertension, or high blood pressure, has been identified as a leading cause of death globally. The majority of cases, approximately 90-95%, are specifically related to primary hypertension. This condition is more common in the elderly population, regardless of gender. If not properly managed, high blood pressure can lead to more serious medical problems. Persistent high blood pressure causes the heart to work beyond its normal limits, which ultimately has the potential to damage blood vessels in the heart, kidneys, brain, and eyes. Hypertension is a major contributing factor to strokes and heart attacks. Given the elderly's vulnerability to these conditions, it is highly recommended that older individuals proactively manage their hypertension to prevent the development of more severe conditions (Hardianti, 2022).

Old age is the final phase of the human life cycle, a natural, unavoidable process that every individual will experience. Individuals aged 60 and over are at high risk of developing high blood pressure, or hypertension. As a person ages, blood pressure tends to increase, resulting in increases in both systolic and diastolic blood pressure. Hypertension in the elderly is strongly correlated with the development of various diseases, including heart disease, kidney disease, stroke, and other blood vessel disorders (Ministry of Health of the Republic of Indonesia, 2021).

Several risk factors contribute to the development of hypertension, some controllable and some uncontrollable. Controllable factors include excess weight, physical activity level, diet, smoking habits, knowledge, and stress levels. Uncontrollable factors, on the other hand, include family history, gender, and age. One unmodifiable risk factor for hypertension is family history or genetics, where individuals with parents with hypertension are at greater risk of developing the condition (Ministry of Health of the Republic of Indonesia, 2019). Knowledge is the result of human sensing, or the result of a person's knowledge of an object through their senses (eyes, ears, nose, and so on). Most of a

person's knowledge is obtained through the sense of hearing (ears) and sight (eyes). (Notoatmodjo, 2019). An adequate level of knowledge in the elderly facilitates their ability to absorb input from other individuals, which in turn supports the elderly's ability to take preventive measures against hypertension (Amalia & Soesanto, 2024).

Besides knowledge, obesity is another factor that can contribute to hypertension. The development of obesity-induced hypertension can occur through several mechanisms: insulin resistance, changes in adipokines, inappropriate sympathetic nervous system function and activation of the renin-angiotensin-aldosterone system, structural and functional abnormalities in the kidneys, changes in the heart and blood vessels, and immune maladaptation. Changes in uric acid and incretin or dipeptidyl peptidase 4 also contribute to the development of hypertension in the context of obesity (Ministry of Health of the Republic of Indonesia, 2021).

Family support is also a contributing factor to hypertension. A supportive family can help older adults adhere to medication, adopt a healthy lifestyle, and regularly monitor their blood pressure. Without family support, older adults may struggle to manage their hypertension, which can worsen their health, according to Wahyuni et al., 2022. A review of hypertension cases at the Tanjung Kemuning Community Health Center in Kaur Regency shows that hypertension diagnoses based on age group among outpatients included 119 cases in the elderly group aged 60 and over. A preliminary survey conducted by researchers through interviews with 10 elderly people at the Tanjung Kemuning Community Health Center indicated that 7 of the 10 were unaware of the main factors causing hypertension and its treatment methods. Furthermore, 3 other elderly people were obese and lacked family support.

RESEARCH METHODS

This study uses a Cross Sectional research design, which is a study to study the dynamics of the correlation between risk factors and effects, by conducting momentary measurements, observations and data collection simultaneously at one time (point time approach) (Notoatmodjo, 2018). This study was conducted from November 2025 to January 2026. This study was conducted in the Coastal Area of the Tanjung Kemuning Health Center Working Area, Kaur Regency. The population in this study were all elderly people in the Coastal Area of the Tanjung Kemuning Health Center Working Area, Kaur Regency, totaling 523 elderly people. The sample in this study was the elderly in the Coastal Area of the Tanjung Kemuning Health Center Working Area, Kaur Regency, taken using the Simple Random Sampling technique, namely each member or unit of the population has an equal opportunity to be selected as a sample with a total of 84. The analysis used to see the relationship between the dependent and independent variables simultaneously. It was carried out using the Chi square (χ^2) statistical test, with a 95% confidence level and a significance value (p) of 0.05

RESULTS

Univariate analysis was conducted to determine the characteristics of each research variable, including the independent variables (knowledge, obesity, and family support) and the dependent variable (hypertension incidence). The results of the univariate analysis are presented as follows:

Tabel 1. Frequency Distribution

No	Variabel	Frekuensi	Persentase (%)
Knowledge			
1	Not enough	33	39,3
2	Enough	27	32,1
3	Good	24	28,6
Obesity			
1	Obesity	24	28,6
2	Not Obese	60	71,4
Family Support			
1	Does not support	45	53,6
2	Support	39	46,4
Hypertension Occurrence			
1	Ya	46	54,8
2	Not	38	45,2

Sumber: Data Diolah, 2026

Table 1 shows that almost half of the elderly (39.3%) have insufficient knowledge. It is known that a small portion (28.6%) of the elderly are obese. It is known that more than half (53.6%) of the elderly have unsupportive families. It is known that more than half (54.8%) of the elderly experience hypertension in the Coastal Area of the Tanjung Kemuning Health Center Work Area, Kaur Regency. Of the 46 elderly who experience hypertension, there are 26 (56.5%) women and 20 (43.5%) men. This means that more than half of the elderly who experience hypertension are male.

Bivariate analysis was conducted to determine the relationship between independent variables (knowledge, obesity and family support) and dependent variables (incidence of hypertension) in the Coastal Area of the Tanjung Kemuning Community Health Center Work Area, Kaur Regency.

Tabel 2. The Relationship between Knowledge and the Incidence of Hypertension in the Elderly in Coastal Areas of the Tanjung Kemuning Community Health Center Work Area, Kaur Regency

Knowledge	Hypertension Occurrence				Total		X ²	p
	Yes		Not					
	f	%	f	%	f	%		
Not enough	26	78,8	7	21,2	33	100	12,775	0,002
Enough	10	37,0	17	63,0	27	100		
Good	10	41,7	14	58,3	24	100		
Total	46	54,8	38	45,2	84	100		

Sumber: Data Diolah, 2026

Based on Table 2, it is known that of the 33 elderly with insufficient knowledge, 26 experienced hypertension and 7 did not experience hypertension. Of the 27 elderly with sufficient knowledge, 10 experienced hypertension and 17 did not experience hypertension. Of the 24 elderly with good knowledge, 10 experienced hypertension and 14 did not experience hypertension in the Coastal Area of the Tanjung Kemuning Community Health Center, Kaur Regency.

To determine the relationship between knowledge and the incidence of hypertension in the elderly in the Coastal Area of the Tanjung Kemuning Community Health Center, Kaur Regency, a Chi-Square (χ^2) test was used. The Chi-Square test result was 12.775 with a value of 0.002. Since the p-value <0.05, there is a significant relationship between knowledge and the incidence of hypertension in the elderly in the Coastal Area of the Tanjung Kemuning Community Health Center, Kaur Regency.

Tabel 3. The Relationship between Obesity and the Incidence of Hypertension in the Elderly in Coastal Areas of the Tanjung Kemuning Community Health Center Work Area, Kaur Regency

Obesity	Hypertension Occurrence				Total		X ²	p
	Yes		Not					
	f	%	f	%	f	%		
Obesity	18	75,0	6	25,0	24	100	4,470	0,034
Not Obese	28	46,7	32	53,3	60	100		
Total	46	54,8	38	45,2	84	100		

Sumber: Data Diolah, 2026

Based on Table 3, it is known that of the 24 obese elderly, 18 experienced hypertension and 6 did not. Furthermore, of the 60 non-obese elderly, 28 experienced hypertension and 32 did not experience hypertension in the Coastal Area of the Tanjung Kemuning Community Health Center, Kaur Regency. To determine the relationship between obesity and hypertension in the elderly in the Coastal Area of the Tanjung Kemuning Community Health Center, Kaur Regency, a Chi-Square (χ^2) test was used. The Chi-Square test result was 4.470 with a value of 0.034. Since the p-value <0.05 indicates a significant relationship between obesity and hypertension in the elderly in the Coastal Area of the Tanjung Kemuning Community Health Center, Kaur Regency.

Tabel 4. The Relationship between Family Support and the Incidence of Hypertension in the Elderly in the Coastal Area of the Tanjung Kemuning Community Health Center Work Area, Kaur Regency

Family Support	Hypertension Occurrence				Total		χ ²	p
	Yes		Not					
	f	%	f	%	f	%		
Ya	31	68,9	14	31,1	45	100	6,628	0,010
Not	15	38,5	24	61,5	39	100		
Total	46	54,8	38	45,2	84	100		

Sumber: Data Diolah, 2026

Based on Table 4, it is known that of the 45 elderly with unsupportive families, 31 experienced hypertension and 14 did not. Furthermore, of the 39 elderly with supportive families, 15 experienced hypertension and 24 did not experience hypertension in the Coastal Area of the Tanjung Kemuning Community Health Center, Kaur Regency.

To determine the relationship between family support and the incidence of hypertension in the elderly in the Coastal Area of the Tanjung Kemuning Community Health Center, Kaur Regency, a chi-square (χ^2) test was used. The chi-square test result was 6.628 with a value of 0.010. Since the p-value <0.05 indicates a significant relationship between family support and the incidence of hypertension in the elderly in the Coastal Area of the Tanjung Kemuning Community Health Center, Kaur Regency

DISCUSSION

The Relationship between Knowledge and the Incidence of Hypertension in the Elderly in Coastal Areas of the Tanjung Kemuning Community Health Center Work Area, Kaur Regency

Bivariate analysis results showed that of the 33 elderly with insufficient knowledge, 7 still did not experience hypertension. This is due to biological and genetic factors such as relatively good blood vessel elasticity or the absence of a family history of hypertension. Furthermore, high levels of physical activity, especially among elderly in coastal areas who are still actively working as fishermen, farmers, or informal workers, help maintain normal blood pressure. A natural diet, such as consuming fresh seafood or minimally processed agricultural products, indirectly reduces the risk of hypertension even without good health knowledge. Therefore, even if elderly people are classified as lacking in knowledge, other protective factors can still play a role in preventing hypertension.

The results of statistical tests using the Chi-Square test indicate a significant relationship between knowledge and the incidence of hypertension in the elderly in the Coastal Area of the Tanjung Kemuning Community Health Center, Kaur Regency. This means that the better the elderly's knowledge, the greater the likelihood of experiencing hypertension. Conversely, the less knowledgeable the elderly, the lower the likelihood of experiencing hypertension.

Knowledge is a predisposing factor that plays a crucial role in shaping an individual's health attitudes and behaviors. According to Notoatmodjo (2019), health knowledge is the result of a learning process that influences how individuals understand health problems, determine attitudes, and make decisions regarding disease prevention behaviors. In the context of hypertension, knowledge includes understanding risk factors, symptoms, complications, and methods for preventing and controlling blood pressure.

The results of this study align with research conducted by Kurniawati et al. (2022), which found that knowledge is significantly associated with the incidence of hypertension, with older adults with good knowledge tending to be more aware of blood pressure checks and risk factor management. The researchers emphasized that knowledge plays a crucial role in hypertension prevention efforts, although it cannot stand alone without the support of other factors.

The Relationship between Obesity and the Incidence of Hypertension in the Elderly in Coastal Areas of the Tanjung Kemuning Community Health Center Work Area, Kaur Regency

Bivariate analysis results showed that of the 24 obese elderly, 6 did not experience hypertension. This could be due to several factors, including variations in body fat distribution, where elderly with peripheral obesity (subcutaneous fat) have a lower risk of hypertension than those with central obesity. Relatively good physical activity, especially in coastal elderly who are still active at work or carry out daily activities, helps maintain stable blood pressure despite being overweight. The relatively short duration of obesity means that the metabolic impact on the cardiovascular system has not yet occurred significantly. Genetic and physiological factors, such as good insulin sensitivity and

relatively well-maintained blood vessel function, contribute. Therefore, the presence of these protective factors can reduce the impact of obesity on increasing blood pressure in some elderly.

Statistical results using the Chi-Square test indicate a significant association between obesity and hypertension among the elderly in the coastal area of the Tanjung Kemuning Community Health Center (Puskesmas) in Kaur Regency. This means that obese elderly people are more likely to experience hypertension, while non-obese elderly people are less likely to experience hypertension.

Obesity is a major risk factor for hypertension, particularly in the elderly. According to the WHO (2021), obesity contributes to increased blood pressure through various physiological mechanisms, including increased blood volume, insulin resistance, activation of the sympathetic nervous system, and impaired endothelial function. These conditions increase the workload of the heart and stress on blood vessel walls.

The results of this study align with research conducted by Kurniawati and Handayani (2022) on elderly people in rural areas, which showed that obesity is a dominant factor associated with hypertension. Elderly people with a BMI ≥ 25 kg/m² were more likely to develop hypertension than non-obese elderly people. This supports the fact that obesity remains a major risk factor even in non-urban areas.

The Relationship between Family Support and the Incidence of Hypertension in the Elderly in the Coastal Area of the Tanjung Kemuning Community Health Center Work Area, Kaur Regency

Bivariate analysis results showed that of the 45 elderly with unsupportive families, 14 still did not experience hypertension. This is due to several factors, including the elderly's independence in maintaining their health, such as the ability to regulate diet, physical activity, and healthy lifestyle habits independently even without optimal family support. High physical activity, especially among elderly in coastal areas who are still actively working or carrying out daily activities, helps maintain normal blood pressure. Biological and genetic factors, such as no history of hypertension in the family or relatively healthy blood vessels, also contribute. Good psychological adaptation, where the elderly are able to manage stress and life pressures despite minimal family support. This condition indicates that individual and environmental factors can act as protective factors, even if family support is not optimal.

The results of statistical tests using the Chi-Square test indicate a significant relationship between family support and the incidence of hypertension in the elderly in the coastal area of the Tanjung Kemuning Community Health Center in Kaur Regency. This means that elderly people who lack family support are more likely to experience hypertension, while those who do receive family support are less likely to experience hypertension.

Family support is a social determinant that significantly influences the health status of the elderly, particularly in managing chronic diseases such as hypertension. According to Notoatmodjo (2019), family support is a reinforcing factor that influences a person's health behaviors, such as medication adherence, regular health check-ups, and adopting a healthy lifestyle.

The success of hypertension control in the elderly is strongly influenced by the social and family environment, not solely by medical factors. Therefore, theoretically, it can be explained that elderly people who lack family support are more likely to experience hypertension, while those with good family support tend to have a lower risk (WHO, 2021).

The results of this study align with research conducted by Kurniawati and Handayani (2022), which found that older adults who lack adequate family support are more likely to experience uncontrolled hypertension. This study demonstrated that family involvement in reminding them to take medication, maintaining a low-salt diet, and encouraging regular check-ups significantly impacts blood pressure stability in older adults.

CONCLUSIONS AND RECOMMENDATIONS

Based on the research results and discussion outlined above, the following conclusions can be drawn:

1. Nearly half of the elderly (39.3%) have insufficient knowledge in the coastal area within the Tanjung Kemuning Community Health Center, Kaur Regency.
2. A small proportion of the elderly (28.6%) are obese in the coastal area within the Tanjung Kemuning Community Health Center, Kaur Regency.
3. More than half of the elderly (53.6%) have unsupportive families in the coastal area within the Tanjung Kemuning Community Health Center, Kaur Regency.

4. More than half of the elderly (53.8%) experience hypertension in the coastal area within the Tanjung Kemuning Community Health Center, Kaur Regency.
5. There is a significant relationship between knowledge and the incidence of hypertension in the elderly in the coastal area within the Tanjung Kemuning Community Health Center, Kaur Regency.
6. There is a significant relationship between obesity and the incidence of hypertension in the elderly in the coastal area within the Tanjung Kemuning Community Health Center, Kaur Regency.
7. There is a significant relationship between family support and the incidence of hypertension in the elderly in the Coastal Area of the Tanjung Kemuning Health Center Work Area, Kaur Regency.

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