

## **The Relationship Between Health Education and Knowledge Elderly People About Hypertension at the Sayur Matua Elderly Posyandu, Saran Padang Village, Simalungun Regency**

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### **ABSTRACT**

Hypertension is the leading cause of heart failure, stroke, and kidney failure. Hypertension is a risk factor for morbidity and mortality, influenced by emotional disturbances, obesity, excessive alcohol consumption, excessive coffee consumption, and heredity. The majority of respondents were aged 65–70 years (38.4%), while a minority were aged over 70 years (30.3%). The majority of respondents were female (67.7%), while a minority were male (32%). The majority of respondents have jobs as retired civil servants, namely 23 people (23.2%), traders/entrepreneurs, namely 23 people (23.2%), farmers, namely 23 people (23.2%), while the minority are private employees, namely 12 people (12.2%). The majority of respondents have junior high school education, namely 36 people (36.4%), high school education, namely 36 people (36.4%), while the minority have college education, namely 13 people (13.1%). The majority of respondents have received health education, namely 54 people (54.5%), while the minority have never received health education, namely 45 people (45.5%). The majority of respondents have sufficient knowledge, namely 44 people (44.4%), while the minority have insufficient knowledge, namely 20 people (20.2%). From the results of the chi-square test of the cross-table of health education with knowledge, the p value is 0.000. It can be concluded that health education has a relationship with the knowledge of the elderly about the relationship of health education with the knowledge of the elderly about how to prevent hypertension at the Sayur Matua Elderly Posyandu, Saran Padang Village, Dolok Silau District, Simalungun Regency in 2020, because the p value <0.05.

**Keywords:** Health Education, Elderly, Hypertension

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## **1. INTRODUCTION**

WHO data from 2007 shows that around 972 million people worldwide, or 26.4%, suffer from hypertension, with a ratio of 26.6% men and 26.1% women. This figure is likely to increase to 29.2% in 2025. Of the 972 million people with hypertension, 333 million are in developed countries and the remaining 639 are in developing countries, including Indonesia (Andra, 2007). Hypertension affects 16 million people in the UK, 34% of men and 30% of women have high blood pressure above 140/90 mmHg and tends to increase in the entire adult population [1].

The prevalence of hypertension sufferers in Indonesia continues to increase. The results of the Household Health Survey (SKRT) in 2000 were 21% to 26.4% and 27.5% in 2001 and 2004. Furthermore, it is estimated to increase again to 37% in 2015 and to 42% in 2025. According to data from the Indonesian Ministry of Health in 2009, the prevalence of hypertension was 29.6% and increased to 34.1% in 2010. Data from the Semarang City Health Office in 2009 stated that the prevalence of hypertension was 12.85% with a total of 2063 cases.

The 2013 Basic Health Research (Riskesdas) showed that hypertension sufferers aged 18 and over reached 25.8% of the total Indonesian population. Of this figure, women suffered from hypertension 6% more than men. Meanwhile, only around 9.4% were diagnosed by health professionals [2]. This means that many people with

hypertension are still not reached and diagnosed by health professionals and are not undergoing treatment as recommended by health professionals. This makes hypertension one of the leading causes of death in Indonesia [3].

Hypertension is a leading cause of heart failure, stroke, and kidney failure [4]. Hypertension is a risk factor for morbidity and mortality, influenced by emotional disturbances, obesity, excessive alcohol consumption, excessive coffee consumption, and heredity. Hypertension is called the "silent killer" because people with hypertension often show no symptoms [5]. Hypertension does not resolve on its own. Clinical studies have shown that people of African descent have higher blood pressure than white people, due to black people having lower renin levels. Hypertension tends to increase with age. Approximately 50 percent of the population over 60 in the UK has high blood pressure [6].

Hypertension remains a health problem in the elderly. Aging is often accompanied by degenerative diseases and health problems in the elderly. Hypertension is one of the degenerative diseases frequently found in the elderly. Aging can lead to hypertension due to structural and functional changes in the peripheral vascular system, which is responsible for blood pressure [7]. The reduced flexibility of the main arteries due to aging causes hardening of the artery walls, thus restricting blood flow. In the elderly, the number of people with high blood pressure increases, with more than half of the population aged 60 and over. Blood pressure fluctuates throughout the day. Hypertension, or high blood pressure, can be problematic, putting strain on the circulatory system and the organs supplied with blood. If high blood pressure is not properly controlled, it can lead to a series of serious complications and cardiovascular disease [8].

The high role of family and community in the care of the elderly and the shift of health services in hospitals to services in the community, presents a unique challenge to nurses in order to provide comprehensive services to the elderly [9]. The targets of community nursing include newborns, preschoolers and toddlers, adolescents, adults, reproductive period (pregnancy, childbirth, postpartum), interval, climacterium within the family and community, which basically uses the principles of community midwifery with the nature of health services namely promotive, preventive, curative, rehabilitative [10]

One of the health services in the community is the Posyandu for the Elderly or Elderly Group (POKSILA) is a service forum for the elderly in the community, where the process of formation and implementation is carried out by the community together with Non-Governmental Organizations (NGOs), across government and non-government sectors, the private sector, social organizations and others, with an emphasis on promotive and preventive services. Elderly Posyandu activities are carried out by health cadres who have received education and training from the community health center on basic health services [11]. To realize the objectives of the Posyandu, it is necessary to be followed by quality health services by Posyandu cadres. Several factors related to cadres' knowledge about Posyandu for the Elderly include support from community leaders, health education, health training and the cadres' own work. The general objective of Posyandu for the Elderly is to improve the welfare of the Elderly through independent Posyandu for the Elderly activities in the community [12].

Saran Padang Village is located in Dolok Silau District, Simalungun Regency. Saran Padang Village has a Posyandu for the Elderly called Sayur Matua, which is a basic health service to provide quality services for the elderly. The activities of the Sayur Matua Posyandu for the elderly in Saran Padang Village that are often carried out are elderly exercise and providing health education through counseling after each elderly exercise with topics related to the lives of the elderly and improving their health. From the data collected by researchers, the number of elderly people at the Sayur Matua Posyandu for the Elderly in Saran Padang Village is 198 people. From the results of routine examinations carried out on the elderly when they come to the Posyandu, by measuring vital signs, it was found that 25 elderly people have hypertensio [13].

Based on the prevalence data found at the elderly posyandu, the researcher is interested in conducting research on the relationship between health education and the elderly's knowledge about how to prevent hypertension at the Sayur Matua elderly posyandu, Saran Padang Village, Dolok Silau District, Simalungun Regency in 2020.

## 2. LITERATURE REVIEW

Health education is a form of independent nursing action to help clients, whether individuals, groups, or communities, overcome their health problems through learning activities in which nurses act as nurse educators. According to Notoatmodjo [14], health education is an effort to persuade or educate the community so that they are willing to take actions to maintain and improve their health [15]. Therefore, it can be concluded that health education is a form of activity that conveys material about health that aims to change the target's behavior.

The main objectives of health education [16] are:

- a. Define their own problems and needs. Understand what they can do.
- b. to their problems, with the resources they have plus external support.
- c. Deciding on the most appropriate activities to improve the standard of living and well-being of the community

According to Notoadmojo [17] health education targets are divided into 3 (three) groups, namely:

#### a. Primary Target

The general public is the direct target of any health education or promotion efforts. Depending on the health issue, these targets can be grouped into: heads of households for general health issues, pregnant and breastfeeding women for maternal and child health (KIA) issues, school children for adolescent health, and so on.

#### b. Secondary Target

These targets include community leaders, religious leaders, traditional leaders, and so on. These are called secondary targets because providing health education to these groups is expected to lead to health education for the surrounding community.

#### c. Tertiary Target

Decision makers or policy makers at both the central and regional levels. With the policies or decisions issued by this group, it will have

According to Notoatmodjo [18] knowledge is the result of knowing, and this occurs after a person senses a particular object. Sensing occurs through the five human senses: sight, hearing, smell, taste, and touch. Most human knowledge is acquired through the eyes and ears.

According to Pudjawidjana in Caiwardana [19] knowledge is a human reaction to stimuli from the surrounding environment through contact with objects and the senses. Knowledge is the result that occurs after someone senses a particular object. According to the Great Dictionary of the Indonesian Language [20] knowledge is something known related to learning that is influenced by internal factors such as motivation and external factors such as information resources.

According to Ngatimin in Caiwardana[21] knowledge is the memory of learned material, and this may involve reconnecting a broad set of materials from detailed theories, but what is given uses memory for appropriate information. Knowledge is the result of human efforts to know. This work of knowing is the result of knowing, being aware, understanding, and being clever.

Aging (getting old) is a process of gradually losing the ability of tissue to repair itself or replace and maintain its normal function so that it cannot withstand infection and repair the damage suffered. The aging process is a continuous (ongoing) process that naturally begins from birth and is generally experienced by all living things. Old age is a natural process that cannot be avoided.

Aging or becoming older is a condition that occurs in human life. The aging process is a lifelong process, not just starting at a certain point, but starting from the beginning of life. Aging is a natural process, which means a person has gone through three stages of life: childhood, adulthood, and old age. These three stages are different, both biologically and psychologically. Entering old age means experiencing decline, for example physical decline characterized by sagging skin, graying hair, tooth loss, impaired hearing, worsening vision, slow movement, and a disproportionate body figure [22].

WHO [23] classifies the elderly based on chronological/biological age into 4 groups, namely:

1. Middle age (middle age) between the ages of 45 to 59
2. Elderly (elderly) aged between 60 and 74 years
3. Old age (old) 75 – 90 years
4. Very old age (over 90 years).

According to the Ministry of Health, the elderly are classified into three groups, as quoted from Azis (2014), namely:

1. Early Elderly Group (55 – 64 years)
2. Elderly Group (65 – 70 years)
3. High Risk Elderly Group (>70 years)

Meanwhile, Nugroho [24] concluded that age division is based on the opinions of several experts, that those who are referred to as elderly are people who are 65 years old and above.

The aging process is normal, occurring continuously and naturally. It begins from birth and even before, and is common to all living things. Aging is the decline of the body's structural functions, followed by a decline in the immune system. Everyone will experience old age, but the rate of aging varies from person to person depending on various influencing factors. These factors can include heredity, nutrition, stress, health status, and others [25]. Hypertension or high blood pressure is a disorder of the blood vessels which results in the supply of oxygen and nutrients carried by the blood being blocked from reaching the body tissues that need it [26].

Hypertension, or high blood pressure, is a heart and blood vessel disorder characterized by elevated blood pressure. The World Health Organization (WHO) defines normal blood pressure as 140/90 mmHg, and blood pressure equal to or above 160/95 mmHg is considered hypertension. These limits do not differentiate between age and gender.

Hypertension can be defined as persistent blood pressure where the systolic pressure is above 140 mmHg and the diastolic pressure is above 90 mmHg. In the elderly population, hypertension is defined as a systolic pressure of 160 mmHg and a diastolic pressure of 90 mmHg [27].

### 3. METHOD

This study is *cross-sectional*, meaning it is a research design that uses simultaneous observations (Hidayat, AA, 2009). This study aims to obtain an overview of the relationship between health education about hypertension and the elderly's knowledge about hypertension at the Sayur Matua Elderly Posyandu, Saran Padang Village, Simalungun Regency in 2020 [28].

The research was conducted at the Sayur Matua Elderly Posyandu, Saran Padang Village, Simalungun Regency. This research will be conducted in September - October 2020. The population in this study was all elderly people at the Sayur Matua Elderly Posyandu, Saran Village, Padang Regency in 2020, namely 198 people.

A sample is a subset (part) of a population that is selected in a certain way so that it is considered to be able to represent the population. The sample size in this study is a portion of the population used as a sample. Based on the book Levenshow, the formula is as follows [29]:

$$n = \frac{N \cdot Z^2_{1-\alpha/2} \cdot P(1-P)}{(N-1) \cdot d^2 + Z^2_{1-\alpha/2} \cdot P(1-P)}$$

Information:

$n$  = Sample size

$N$  = Population size

$Z_{1-\alpha/2}$  = Z value at  $\alpha$  0.05 (1.96)

$d = 0.05$  (95% confidence level)

$P$  = Proportion of events (0.5)

From the 198 elderly people who are part of the population, the following samples can be taken:

$$\begin{aligned} n &= \frac{198 \cdot 1,96 \cdot 0,5(1 - 0,5)}{(198 - 1)0,05^2 + 1,96 \cdot 0,5(1 - 0,5)} \\ &= \frac{97,02}{0,4925 + 0,49} \\ &= \frac{97,02}{0,9825} \\ &= 98,748092 \\ n &= 99 \text{ people} \end{aligned}$$

Yes, the sample in the study was 99 people.

*simple random sampling* technique was used, which is a method of taking samples using a simple random method [30]. In this study, sampling was carried out by drawing lots until the selected sample reached 99 elderly people. Each elderly person selected as a sample was used as a research object.

Data collection is the process of approaching subjects and gathering the characteristics of the subjects needed for a study. The steps in data collection depend on the research design and the instrument techniques to be used in the study. This study used a questionnaire to collect data, which was conducted by the researcher herself. Before distributing the questionnaire to respondents, the researcher first explained the purpose, benefits, and procedures of the study and asked for their willingness to participate as research respondents. If prospective respondents agreed, they were asked to sign an agreement to become respondents.

To collect health education data in this study, a questionnaire was used that provided questions with answer options of having or not received specific health education about hypertension. To measure the knowledge of the elderly, five statements were given, with answer alternatives of having and never. Each answer that answered "yes" was given a score of 1 and an incorrect answer that answered "never" was given a score of 0. Therefore, the highest score was 5 and the lowest score was 0. The knowledge categories were created using the formula [31].

To measure the knowledge of the elderly, 15 statements were presented, with correct and incorrect answer alternatives. Each correct answer was given a score of 1 and an incorrect answer a score of 0. Therefore, the highest score was 15 and the lowest score was 0. Knowledge categories were created using the formula [32].

$$\begin{aligned} P &= \frac{\text{Rentang}}{\text{Banyak Kelas}} \\ p &= \frac{15 - 0}{3} \end{aligned}$$

$$p = 5$$

So the categories are:

- Good knowledge if score : 11 – 15 (70 – 100 %)
- Knowledge is sufficient if the score is: 6 – 10 (40 – 60%)
- Knowledge is poor if score: 1 – 5 (10 – 30%)

The collected data is then processed manually with the following steps:

- Editing* is an activity to check and improve questionnaire content.
- Coding* is coding, namely changing data in the form of sentences or letters into numerical or number data.
- Processing (Data entry)* is the answer from each respondent which is entered into the code. in computer programs.
- Cleaning* is the cleaning of all data that has been entered, it needs to be checked again to see if there are any code errors, incompleteness, then corrections are made (Notoatmodjo, 2010).

Univariate data analysis was conducted to describe the characteristics of each independent and dependent variable. Given the categorical data, the results of the analysis are presented in the form of a frequency distribution table. Bivariate analysis was conducted to see whether there is a relationship between the independent variable (health education) and the dependent variable (knowledge about hypertension ) using a computer with a *Chi Square statistical test* or *Chi Square* ( $\chi^2$ ) table, where  $\alpha = 0.05$  [33].

## 4. RESULTS AND DISCUSSION

### Research result

After conducting research on the relationship between health education and the knowledge of the elderly about how to prevent hypertension at the Sayur Matua elderly health post in Saran Padang Village , Dolok Silau District, Simalungun Regency in 2020, with 99 respondents, the following results were obtained [34].:

### Respondent characteristics by age

The description of the characteristics of respondents according to age at the Sayur Matua elderly health post in Saran Padang Village, Dolok Silau District, Simalungun Regency in 2020, with 99 respondents can be seen in the table below:

**Table 1. Frequency distribution of respondents by age at the Sayur Matua Elderly Posyandu , Saran Padang Village, Dolok Silau District, Simalungun Regency, 2020**

No	Characteristics	Frequency (n)	Percentage ( % )
1	55 – 64 years	31	31.3
2	65 – 70 years old	38	38.4
3	>70 years	30	30.3
<b>Total</b>		<b>99</b>	<b>100</b>

Based on Table 1, the data obtained shows that the majority of respondents are aged 65-70 years, namely 38 people (38.4 %) while minorities have age > 70 years, namely 30 people (30.3 %).

According to Kuswardani (2007), hypertension remains a health problem in the elderly. Increasing age is often accompanied by degenerative diseases and health problems in the elderly. Hypertension is one of the degenerative diseases frequently found in the elderly. Aging can lead to hypertension due to structural and functional changes in the peripheral vascular system, which is responsible for blood pressure (Brunner & Suddarth, 2012).

### Respondent characteristics by gender

Description of respondent characteristics by gender at the Sayur Matua elderly health post in Saran Padang Village, Dolok Silau District, Simalungun Regency in 2020, with 99 respondents can be seen in the table below:

**Table 2. Frequency distribution of respondents by gender at the Sayur Matua Elderly Posyandu, Saran Padang Village, Dolok Silau District, Simalungun Regency in 2020.**

No	Characteristics	Frequency (n)	Percentage ( % )
1	Man	32	32.3
2	Woman	67	67.7
<b>Total</b>		<b>99</b>	<b>100</b>

Based on Table 2, the data obtained shows that the majority of respondents were female, namely 67 people (67.7%) while the minority are male, namely 32 people (32.3%).

According to a survey conducted by the *World Health Organization* (WHO) in 2000, the number of the world's population suffering from hypertension for men was around 26.6% and for women around 26.1% and it is estimated that in 2025 the number will increase to 29.2% (Apriany, 2012).

### Respondent characteristics by occupation

The description of the characteristics of respondents according to their occupation at the Sayur Matua elderly health post in Saran Padang Village, Dolok Silau District, Simalungun Regency in 2020, with 99 respondents can be seen in the table below:

**Table 3. Frequency distribution of respondents according to occupation at the Sayur Matua Elderly Posyandu, Saran Padang Village, Dolok Silau District, Simalungun Regency in 2020.**

No	Characteristics	Frequency (n)	Percentage ( % )
1	Retired civil servants	23	23.2
2	Trader/Entrepreneur	23	23.2
3	Farmer	23	23.2
4	Private employees	12	12.2
5	Doesn't work	18	18.2
<b>Total</b>		<b>99</b>	<b>100</b>

Based on the table, the majority of respondents have jobs as retired civil servants, namely 23 people (23.2%), traders/entrepreneurs, namely 23 people (23.2 %), farmers, namely 23 people (23.2 %) while the minority are private employees, namely 12 people (12.2 %).

According to Rohaendi (2008), as a gerontological consideration, structural and functional changes in the peripheral vascular system are responsible for changes in blood pressure that occur in old age. These changes include atherosclerosis, loss of connective tissue elasticity, and decreased relaxation of vascular smooth muscle, which in turn reduces the distension and tensile strength of blood vessels. Consequently, the aorta and large arteries are less able to accommodate the volume of blood pumped by the heart (stroke volume), resulting in decreased cardiac output and increased peripheral resistance, thus influencing the workload of hypertension in the elderly.

From the results of table 5.7 above, it can be seen that of the 54 respondents (54.5 %) of those who have received health education, the majority have good knowledge, namely 30 people (30.3%) minority have less knowledge, namely 3 people (3 %), out of 45 people (45 %) of those who have never received health education, the majority have sufficient knowledge, namely 23 people (23.2%). minority have good knowledge, namely 5 people (5.1 %).

From the results of the *chi-square test* of the cross-table of health education with knowledge, a p-value of 0.000 was obtained. It can be concluded that health education has a relationship with the knowledge of the elderly at the Sayur Matua elderly posyandu, Saran Padang Village, Dolok Silau District, Simalungun Regency in 2020, because the p-value is 0.000. < 0.05.

According to data from the Indonesian Ministry of Health (2009), the prevalence of hypertension in Indonesia continues to increase. This increase may be due to a lack of individual knowledge about preventing hypertension. This knowledge is obtained from various sources, including health education provided by healthcare workers in hospitals, community health centers, and other health care centers.

### DISCUSSION

Based on the results of research conducted regarding the relationship between health education and the knowledge of the elderly about how to prevent hypertension at the Sayur Matua elderly health post in Saran Padang Village, Dolok Silau District, Simalungun Regency in 2020 with 99 respondents, the following can be discussed:

#### **The Relationship Between Health Education and Elderly Knowledge about Hypertension at the Sayur Matua Elderly Posyandu, Saran Padang Village, Dolok Silau District, Simalungun Regency in 2020.**

From the results of table 5.7 above, it can be concluded that health education has a relationship with the knowledge of the elderly at the Sayur Matua elderly health post, Saran Padang Village, Dolok Silau District, Simalungun Regency in 2020, because the p value <0.05.

Education influences the learning process; the higher a person's education, the easier it is for them to receive information. Higher education tends to increase the likelihood of information being obtained, both from others and from the mass media. Knowledge is closely linked to education, with the expectation that the more educated a person is, the more knowledgeable they will be (Efendi, 2011).

Health education can be useful so that older people can identify their own problems and needs, understand what they can do about their problems, with the resources they have plus external support and decide on the most appropriate activities to improve their standard of living. health and welfare of the community so that the welfare of the elderly is fulfilled.

## 5. CONCLUSION

The majority of respondents were aged 65-70 years, namely 38 people (38.4%), while the minority were aged >70 years, namely 30 people (30.3%). The majority of respondents were female, namely 67 people (67.7%), while the minority were male, namely 32 people (32.2%). The majority of respondents have jobs as retired civil servants, namely 23 people (23.2%), traders/entrepreneurs, namely 23 people (23.2%), farmers, namely 23 people (23.2%), while the minority are private employees, namely 12 people (12.2%). The majority of respondents had a junior high school education, namely 36 people (36.4%), a high school education, namely 36 people (36.4%), while a minority had a tertiary education, namely 13 people (13.1%). The majority of respondents had received health education, namely 54 people (54.5%), while the minority had never received health education, namely 45 people (45.5%). The majority of respondents had sufficient knowledge, namely 44 people (44.4%), while the minority had insufficient knowledge, namely 20 people (20.2%). From the results of the chi-square test of the cross-table of health education with knowledge, a p value of 0.000 was obtained. It can be concluded that health education has a relationship with the knowledge of the elderly about the relationship of health education with the knowledge of the elderly about how to prevent hypertension at the Sayur Matua Elderly Posyandu, Saran Padang Village, Dolok Silau District, Simalungun Regency in 2020, because the p value <0.05.

Based on the results of the study entitled the relationship between health education and the knowledge of the elderly about how to prevent hypertension at the Sayur Matua Elderly Posyandu, Saran Padang Village, Dolok Silau District, Simalungun Regency in 2020, it can be suggested: For the Elderly Integrated Health Post (Posyandu) - Increasing the knowledge of elderly Posyandu cadres about hypertension and how to prevent it, and improving their ability to provide counseling so that counseling for the elderly is more effective. For Educational Institutions : Providing materials on integrated health services for the elderly, which is a basic health service, through courses related to elderly care, both holistically and specifically regarding cases of hypertension in the elderly and how to prevent it. For Further Research . Future researchers who will examine the effect of health education on elderly knowledge can use this study as baseline data to conduct other studies on elderly people with different variables.

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