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Research Article

The Utilization of Herbal Plants for Hypertension Patients in Langsa City Aceh Province

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Abstract

One of the hypertension treatment can be done by herbal treatment which is antihypertension herbs. Mostly herbal treatment used to minimize the side effects of antihypertension drugs that are generally used for a long time. This study aims to analyze the dominant factors that influence the utilization of antihypertension herbs. The population of this study was 15.701 people and 99 of them were sample. The sampling technique was cluster random sampling. The data were collected by using questionners which are designed for hypertension patients. The dominant factor which affecting to utilize of antihypertension herbs was analyzed by using multiple logistic regression test with 95% confidence level. The results showed that most of hypertension suffers choose starfruit as an antihypertension herbal plant (32%). There was a relationship between the knowledge level with antihypertension herbs utilization (p-value 0,001). There was also a significant relationship between the attitude level with antihypertension herbs utilization (p-value 0,012). Besides, the knowlegde level is the most dominant factor of antihypertension herbs utilization (p-value 0,001). After all, hypertension patients who have good knowledge level 9,834 times greater (rounded up to 10 times greates) tendency to use antihypertension herbal plants compared to patients with less knowledge level.

Keywords: antihypertension herbs, dominant factor affecting, herbal medicines, hypertension patients

Introduction

Hypertension is one of the most common cardiovascular diseases in Indonesian people. The results of Basic Health Research 2018 reported that the prevalence of hypertension in 2013 was 25.8% while in 2018 the prevalence of hypertension was 34.1%. This shows that there has been and hypertension prevalence enhancement in the last five years. This enhancement prevalence was motivated by lifestyle including smoking, consumption of fruits and vegetables and physical activity (Health, 2018).

Aceh's health profile in 2016 showed that there were 80.178 people with hypertension. The results of Basic Health Research Riskesdas 2018, Aceh Province was ranked 10th province in Indonesia in terms of the prevalence of hypertension according to the doctor's diagnosis (Ministry Of Health, 2018). (Ministry Of Health, 2018).

Langsa is one of the municipality in Aceh Province with a fairly high number of hypertension sufferers, amounting to 15,701 patients in 2018, with number of male sufferers is 6.615 and women are 9.086 people. Based on non communicable disease report of Langsa Public Health Office, the high number of people with hypertension influenced by various things, one of the factor dominat affected by bad lifestyle and stress (Langsa Public Health Office, 2019).

Hypertension is called the silent killer because hypertension often occurs without symptoms that is why the patient does not know and only feel the symptoms after complications occur, such as heart disease, kidney failure, stroke, diabetes and stroke. All cardiovascular organs will be damaged by hypertension so that these

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complications occur. Therefore, it's a must to make efforts sustainably to minimize the occurrence of complications of hypertension (Ministry Of Health, 2019).

Hypertension treatment can be done in two ways, by drugs and non-drugs. Drugs treatment commonly done by utilizing chemical drugs conventionally. Treatment of hypertension by utilizing chemical drugs is usually done by patients with hypertension complications such as: coronary heart disease, diabetes mellitus, stroke and so on. Non-drug treatment hypertension can be done by implementing a healthy lifestyle such as health diet, physical activity, not obese, do not smoke, do not drink alcoholic beverages and stay away from drugs (Gusmira, 2012).

Non-drugs hypertension treatment can be done through herbal therapy by utilizing certain plants that are believed can control blood pressure. This treatment generally done as an complementary therapy by hypertension patients. Most antihypertension herbs contain potassium, diuretic antioxidants, anti and gengen, and vasodilators (Dafriani, 2019).

Langsa is one of the city in Aceh Province with lots of various herbal plants which can be used as hypertension treatment. The utilization of antihypertension herbal plants needs to be developed, due to the increasing of cost treatment. In addition, hypertension is a cardiovascular disease that requires the consumption of chemical drugs for a long time period, so that the side effects of using chemical drugs will accumulate as much as body expossure. Besides, back to nature movement also motivates the hypertension patients to use antihypertension herbal plants (Syaifuddin, Sudaryanto, & Maliya, 2013).

Method

The research design was correlational quantitative analytic research. According to the data collection, this study belong to the cross sectional study, namely the data collection and measurement carried out simultaneously. This research was conducted in Langsa City area of Aceh Province. The study was conducted from September to October 2019. The population in this study were all patients with hypertension in Langsa City which were 15.701 people. Sampling is done by cluster random sampling. Cluster random sampling technique is a random collection of groups, and usually done for research with large areas (Hamzah, 2019). The inclusion criteria research sample were all hypertension patients who have no complications or were not undergoing treatment, patients with first-degree blood pressure according to JNC VIII which ranged from 140-159 mmHg (systolic) and 90-99 mmHg (diastolic), patients treated to health centers in the Langsa city and patients who are able to communicate in Indonesian. After obtaining the samples number, the samples were adjusted according to the inclusion criteria Large sample withdrawals are carried out with the following Slovin formula.

$$n = \frac{N}{1+Nd^2}$$

$$n = \frac{15.701}{1+(15701)(0,01)}$$

$n = 99{,}3 \approx 99$ patients

The value of the margin of error in this study is 10% with the consideration that the tolerable error is 10%. The total sample drawn by calculated based on 5 districts in Langsa City which were randomized using simple random sampling technique. The number of samples by district as follows.

Langsa Barat $= \frac{3582}{15701} \; x \; 99 = 22.5 \approx 23$

Langsa Baro $= \frac{4975}{15701} \times 99 = 31.3 \approx 33$

Langsa Lama $= \frac{426}{15701} \times 99 = 2.6 \approx 3$

Langsa Kota $= \frac{3879}{15701} \times 99 = 24.4 \approx 24$

Langsa Timur $= \frac{2839}{15701} \times 99 = 17.9 \approx 18$

Data collection techniques were carried out by directly interview using questionnaire that had been designed by researcher. The validity and reliability of the questionnaire used have been tested in Kuala Simpang City by considering the similarities in community characteristics. The Data was analyzed by univariate analysis,

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bivariate analysis using the chi-square test and multivariate analysis using multiple logistic regression tests. The data analysis method in this study was carried out in several stages, including: editing, coding, scoring and tabulating.

Results

The utilization of herbal plants for hypertension patients in Langsa City can be influenced by several characteristics which are presented in the form of univariate analysis.

Characteristics

The results showed that hypertensive patiens devided into some characteristics. The majority of hypertensive patients using herbal plants were 51 women (51.5%).

Table 1. Characteristics of Hypertension Patients in Langsa City

Charateristics	n	%
Gender		
Male	48	48.5
Female	51	51.5
Age		
Late Teens	3	3.0
Early adulthood	21	21.2
Late Adulthood	30	30.3
Early Elderly	22	22.2
Late Elderly	17	17.2
Seniors	6	6.1
Level of Education		
Elementary school	13	13.1
Junior high school	22	22.2
Senior high	27	27.3
College	37	37.4
Occupation		
Civil cervant	26	26.3
Private	21	21.2
Housewife	32	32.3
The other	20	20.2
Income Level		
Sufficient	69	69.7
Less	30	30.3
Total	**99**	**100**

The table above also showed that the majority of hypertension patients come from the late adult group of 30 people (30.3%) with ages 36 years to 45 years. In general, respondents who suffer from hypertension degrees I come from the late adult group of 30 people (30.3%) with ages 36 year to 45 year. It can be seen that most are commonly classified as late adulthood, which were women who will enter menopause. Beside, most of the hypertensive patients were college (37,4%). For occupation majority of respondents were housewives (32%). The level of income of hypertension patients in using herbal medicines mostly have a sufficient income level or above the Aceh Province minimum salary in Rp 2.900.000 (69.7%).

Antihypertension Herbs Utilization

Antihypertension herbs Utilization divided into several elements. It can be seen in this following table.

Table 2. Elements of antihypertension patients utilization

Elements	n	%
Types of Herbal Plants		
Cucumber	9	9.1
Star Fruit	32	32.3
Noni	26	26.3
Bay Leaf	13	13.1
None	19	19.2
Knowledge Level		
Good	53	53.5
Less	46	46.5
Attitude Level		
Negative	38	38.6
Positive	61	61.6
Utilization		
Yes	81	81.8
No	18	18.2
Motivation For Using		
Cheap and Easily Available	39	40.2
Minimal Side Effect	25	25.3
Belief	26	26.3
Do Not Know	9	9.1
Total	**99**	**100**

The table above shows that, most of the people of Langsa City choose starfruit as an antihypertensive herbal plant (32%). Starfruit (Averrhoa bilimbi) is a tropical plant that grows in all seasons and easily found and planted in Langsa City area. The table above also showed that most

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hypertension patients have good knowlede in using antihypertension herbal plants (53.5%). Beside, attitude is another variable after knowledge that supports someone in health behavior. From table we seen that the majority of respondents were positive (61%). In using antihypertension herbal plants, there are 81.8% hypertension patients used antihypertension herbal plants as their effort to manage their heatlthy, especially in hypertension. It is motivated by some reasons. In table 2 showed the most respondents chose antihypertension herbs because they were cheap and easily avalaible to get (40.2%).

Bivariate Analysis

Herbal plants have been trusted by many people which is contributed to the treatment of various diseases, one of which is hypertension. This research showed a significant relationship between knowledge and attitude with the utilization of antihypertension herbal plants.

a. The relationship between knowledge level with the utilization of antihypertension herbal plants

Table 3. The relationship between knowledge levels with antihypertension herbal plants utilization

Knowledge Level	Antihypertension Herbs Utilization				Total		*p-value*
	Yes		No				
	n	%	n	%	n	%	
Good	50	94,3	3	5,7	53	100	0,001
Less	31	67,4	15	32,6	46	100	

Table 3 showed that there is a significant relationship between knowledge with the utilization of antihypertension herbs with p-value = 0.001.

b. The Relationship between attitude level of hypertension patients with the utilization of antihypertension herbal plants

Attitude is one of the determining factors in decision making, including in hypertension treatment.

Table 4. The relationship between attitude of hypertension patients with antihypertension herbal plants utilization

Attitude	Antihypertension herbs Utilization				Total		*p-value*
	Yes		No				
	n	%	n	%	n	%	
Negative	23	60,5	15	39,5	38	100	0,000
Positive	58	95,1	3	4,9	61	100	

Table 4 it showed that, attitudes are significantly related in using of antihypertension herbs with p-value = 0,000. The table above showed that the majority of Langsa people have a positive attitude, which means that some people choose herbs as an antihypertension treatment.

Multivariate Analysis

Multiple logistic regression test is a test used for research that has one dependent variable and several independent variables. Conclusions can be drawn from the p-value <0.25 which means that the independent variable tested has an influence on the occurrence of the dependent variable.

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Tabel 5. Multivariate test analysis

Variable	B	Sig.	Exp (B)
Gender	0.785	0,072	0.986
Education	0.117	0,781	1,124
Occupation	0,267	0,520	1,307
Age	0,003	0,356	1,506
Income Level	-0,195	0,758	0,823
Attitude	3,330	0,012	0,036
Motivation	1,345	0,044	0,046
Type of herbs	0,156	0,687	0,986
Knowledge	2,286	0,001	9,834

The results showed that from all independent variables, motivation of using, attitude, and knowledge were the most dominant independent variable influencing the utilization of antihypertension herbal plants, with a p-value less from 0.25. The knowledge variable has the highest odds ratio compared to other independent variables, which can be seen in the Exp (B) column which is 9,834 or can be rounded to 10.

Discussion

Characteristics Respondents

Table 1 showed that most hypertension sufferers are female (51%). In general, women are more at risk in hypertension when these women will enter menopause. Women who will or have entered menopause run into a decrease esterogen hormone. Esterogens function is increasing HDL levels which are very instrumental in maintaining blood vessel stability. Therefore, a decrease in estrogen levels will be in line with a decrease in HDL levels if women do not adopt a healthy lifestyle. Because of the decrease in HDL levels, there will be automatically increasing LDL levels which can trigger atherosclerosis so that blood pressure will be high (Sari, 2016).

Age that occurs annually in the human body results a significant decline in organ function, where specifically degeneration the body in shape and function of the organs (Hamzah, 2017). The table above shows that the majority of hypertension patients come from the late adult group of 30 people (30.3%) with ages 36 years to 45 years. In general, respondents who suffer from hypertension degrees I come from the late adult group of 30 people (30.3%) with ages 36 year to 45 year. It can be seen that most are commonly classified as late adulthood, which were women who will enter menopause. On the other hand, The results in table 1 seen that most of hypertension patients who use anti-hypertensive herbal plants have higher education, namely graduates of bachelor or tertiary institutions with a total of 37 people (38.1%). The level of education play an important role in synthesizing information that can ultimately change someone's thinking potency. Education is able to help someone to develop someone's personality and ability to process things into knowledge (Febrianty, Andriane, & Fitriyana, 2018).

Job type analysis aims to determine the level of someone physical activity. From table 1 we can see that, the majority of respondents are housewives (32%). Generally, housewives have quite compact physical activities, such as cleaning the house, cleaning the yard, taking care of family members, cooking, and so on. Physical activity is also an important factor that is able to control one's blood pressure. Most housewives have a lot of time at home to process herbal plants so that it becomes an antihypertension treatment effort (Hamzah, 2019).

Table 5 shows that the majority of respondents have a sufficient income level or above the Aceh Province minimum salary in Rp 2,900,000 (69.7%). The level of income is often associated with economic status. Economic status basically affects to one's lifestyle, especially in a healthy lifestyle. A healthy lifestyle certainly affected to the decision making in medicine. This research adequately awared us that the utilization of herbal plants is no longer a trend of treatment in the lower economic circles but also in the middle-upper economy (Hamzah, 2019).

Antihypertension Herbs Utilization

Table 2 showed that the majority of respondents have a sufficient income level or above the Aceh Province minimum salary in Rp 2,900,000 (69.7%). The level of income is often associated with economic status. Economic status basically affects to one's lifestyle, especially in a healthy lifestyle. A healthy lifestyle certainly affected to the decision making in medicine. This

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research adequately awared us that the utilization of herbal plants is no longer a trend of treatment in the lower economic circles but also in the middle-upper economy (Hamzah, 2019).

Several types of plants can be used as antihypertension herbal medicines which are relatively easy to get. There are so many types of herbal plants that are usually used as antihypertension herbal treatment (Jabbar, Asriullah; Musdalipah; Nurwati, 2017).

The table 2 showed that, most of the people of Langsa City choose starfruit as an antihypertension herbal plant (32%). Starfruit *(Averrhoa bilimbi)* is a tropical plant that grows in all seasons and easily found and planted in Langsa City area.

In terms of utilization, starfruit is not only used as an herbal medicinal plant but also a spice in cooking namely "belimbing wuluh". Ripe starfruit fruit, rich in fiber and minerals such as calcium, phosphorus, iron and potassium. Potassium is a micronutrient that is very useful in reducing blood pressure. Potassium is able to widen the size of endothelial cells and increase the production of nitric oxide which can trigger a reaction of dilatation and vascular reactivation so that blood pressure can drop. In addition, starfruit is also a source of vitamin C which is rich in antioxidant content of polyphenols (flavonoids, tannins, phenolic acids and saponins). Flavonoids and tannins are primary antioxidant compounds that have the potential to reduce the risk of hypertension and heart disease (Safitri, 2015).

In using antihypertension herbs, someone must be affected by their behavior. One of behaviour component is Knowloedge. Knowledge is a person's ability to process information received. Table 2 showed that most hypertension patients have good knowledge in using antihypertension herbal plants (53.5%). Good knowledge, of course, influences someone in their behavior, especially in making decisions, especially for treatment (Astuti, 2016).

In general, someone who has a good level of knowledge will tend to look for healing efforts that provide many benefits both in terms of health and economics. The utilization of herbal plants, of course, bring positive effects where the use of herbs tends to minimal side effect and affordable prices (Astuti, 2016).

Attitude is another variable after knowledge that supports someone in health behavior, especially in terms of treatment efforts. Table 2 showed that the majority of respondents were positive (61%). The majority of Langsa City citizens agreed to use herbal plants as an effort to treat hypertension. This is influenced by several factors, namely: personal experience, culture, and family support (Hamzah, 2017).

The existence of attitude formation takes a long time. Attitudes occur because of the ongoing social interaction between one individu and another individu around them so that it influences treatment decision making. Beside, the majority of respondents used herbal plants as an effort to manage hypertension (81.8%). This showed that majority respondents already know the benefits of herbs that can be used as an antihypertensive with minimal side effects (Safitri, 2015).

The utilization of antihypertension herbal plants certainly motivated by several motivations. Table 10 shows that most hypertensionpatients in Langsa City chose antihypertension herbal plants because they were cheap and easily available to get (40.2%).

Langsa City is one of the regions in Aceh Province which is rich in natural potential that can be used as a treatment. The majority of sufferers have herbal plants which are made in the form of family medicinal plants garden.

Bivariate Analysis

The relationship between knowledge levels with the utilization of antihypertension herbal plants

Table 3 showed that there is a significant relationship between knowledge with the utilization of antihypertension herbs, with p-value = 0.001. Knowledge of the utilization of herbal plants, historically developed by certain social contexts. In the transition period, the content of people's knowledge in the utilization of herbal plants, experienced a significant change due to the experience and new interpretations, this is also supported by the existence of the latest research findings.

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Research conducted by Picking et al (2011) in Astuti (2016), regarding knowledge of the use of antihypertensive herbal plants showed a significant relationship between knowledge and use of herbal plants. Knowledge of the utilization of antihypertension herbs is based on hereditary experience and skills that have been passed down from generation to generation (Astuti, 2016).

Most of the people of Langsa City have been well-informed in using of antihypertension herbal plants. The majority of the people of Langsa City already have good experience and knowledge in knowing the utilization of herbal plants, how to make antihypertensive herbs from herbal plants, and the doses of their use. This was also supported by the community's participation in educational activities organized by health service facilities in collaboration with social security administrator (Syaifuddin et al., 2013).

In educational activities in several government health facilities, the public was given counseling about the utilization of herbal plants, in this case antihypertension herbal plants where the most commonly used herbal medicine was starfruit, which was 32.3%. Starfruit is an herbal plant which is widely available in Langsa City and used by the majority of Langsa city citizents (Syaifuddin et al., 2013).

The Relationship between attitude levels of hypertension patients with the utilization of antihypertension herbal plants

Attitude is one of the determining factors in decision making, including in hypertension treatment. From table 4 it can be seen that, attitudes are significantly related in using of antihypertension herbs with p-value = 0,000. The table 4 showed that the majority of Langsa people have a positive attitude, which means that some people choose herbs as an antihypertension treatment.

This research showed that knowledge and attitudes are in line in the good category. Attitude is the next factor after knowledge which is very influential on treatment, especially the treatment of hypertension. The existence of attachment between attitude and the utilization of antihypertension herbs in Langsa mostly supported by several reasons, including: social factors, cultural factors, and economic factors.

Social factors are the factors which can related to experiences passed down from generation to generation. Great belief by most people in using of herbal plants is one of the motivations for using antihypertension herbal plants. The cultural factors also play a role in this case such as the utilization of antihypertension herbs, which is starfruit. It is typical recipe used in almost every Acehnese cuisine. In addition, the positive attitude in using of antihypertension herbs is also supported by economic factors. The availability of many antihyprtension herbal plants makes the main reason for the majority respondents to use starfruit as an antihypertension treatment. This is of course related to economic factors, that modern antihypertension drugs are much more expensive (Astuti, 2016).

Multivariate Analysis

The table 5 showed that attitude and knowledge variables were the most dominant independent variable influencing the utilization of antihypertension herbal plants, with a p-value less from 0.25. Generally, herbal plants utilization in Langsa city nfluenced by several reasons. Based on the results of the interview, the background of the use of antihypertension herbal plants is due to the knowledge and attitudes in using herbal plants. The majority of the people Langsa City use herbal plants motivated by the availability of herbal plants which are generally owned by hypertension patients. In addition, in the way of using antihypertension herbal plants is also motivated by the hereditary trust that is obtained from parents to family members. This is in line with the research of Jefrin et al. (2016) that plants that will be used to treat a disease are ideally available both in the yard or in the neighborhood and are not influenced by differences in seasons, so that there are no obstacles for sufferers to obtain these plants. Then information on cultivation and how to use herbal plants generally comes from hereditary inheritance from parents to family members (Jefrin Sambara, Ni Nyoman Yuliani, 2016).

Attitude is one of the variables in determining health behavior. In this study, attitude was an independent variable that influenced patients to use antihypertension herbal plants (p value 0.012). Based on the results of the interview, most hypertension sufferers had a positive attitude. This illustrated that there is a possibility that the frequency of treatment to health service is getting less frequent. In general, people with hypertension who use herbal plants are patients who experience mild complaints, so they rarely do examinations with doctors or other health workers. Most of the respondents believed that using herbal plants to treat hypertension had few side effects. This is supported by Eleonara's (2019) statement that attitude is one of the aspects in determining someone to use traditional medicine as an independent treatment. The attitude that emerges from each individual in handling a disease cannot be separated from the influence of that person's level of knowledge (Joru, 2019).

The knowledge variable has a significant effect to the utlization of antihypertension herbs (p-value 0,001). Knowledge variable is the highest odds ratio compared to other independent variables, which can be seen in the Exp (B) column which is 9,834 or can be rounded to 10. This means that, hypertension sufferers who have good knowledge about antihypertension herbal plants, 10 times possible in using antihypertension herbs as a treatment for hypertension. Because of the B value on the knowledge variable is positive, it can also be concluded that knowledge has a positive relationship with the utilization of antihypertension herbal plants.

Basically knowledge is the main raw material for someone in digesting information. Knowledge is also an essential ingredient for someone to behave, especially health behavior. Health behavior is closely related to disease treatment decision making. One important factor of health behavior is predisposing factors. One of predisposing factor that influences decision making is knowledge level. The level of knowledge is influenced by age and educational level. In this study the majority of respondents were in the productive age and the level of education was classified as good. It easier to respondents to digest and remember information that has been received (Jefrin Sambara, Ni Nyoman Yuliani, 2016).

The results of this study are in line with the research of Oktalina et al (2018) which concluded that there is a relationship between family knowledge and the utilization of traditional medicine in Nunggalrejo Village, Punggur District, Central Lampung Regency (Oktarlina et al., 2018). In addition, the results of this study are also in accordance with the results of Jabbar's research (2017), which shows that knowledge is a very influential factor in treatment especially the utilization of antihypertension herbal plants (Jabbar, Asriullah; Musdalipah; Nurwati, 2017). Therefore, the level of knowledge is the main control in decision making, especially in using antihypertension herbal plants as treatment.

Conclusion

Based on the results of the study, the following conclusions can be drawn. Most of hypertension suffers choose starfruit as antihypertension herbal plants (32%). antihypertension herbs There was a significant relationship between attitude (p-value 0,012) and knowledge with the utilization of in hypertension patients in Langsa City (p-value 0,001).

The level of knowledge is the most dominant independent variable influencing the utilization of antihypertension herbal plants in Langsa City (p-value 0,000). After all, Hypertension patients in Langsa City who have good knowledge level, 9,834 times greater (rounded up to 10 times greater) tendency to use antihypertension herbal plants compared to patients with less knowledge level.

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