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Treatment adherence and quality of life of patients taking antihypertensive medications

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Abstract

Background: Hypertension as The Silent Killer characterized by blood pressure ≥140 mmHg/≥90 mmHg. Hypertensive people have lower quality of life compare to non-hypertensive people and they need an appropriate health behavior. Hypertensive medication without lifestyle modification and routine control of blood pressure increase cardiovascular complication even death that affecting quality of life
Purpose: To identify the characteristic and the dominant health behavior affecting quality of life among hypertensive farmer.
Method: The minimum sample 103 hypertensive farmer ≥18 years old in Gunung Agung Village, Terusan Nunyai District, Central Lampung include in this cross sectional study after measuring the blood pressure. The data was taken by interviewing the participants using health seeking behavior questionnaire and Short Form-36, then multivariate analysis was performed using binary logistic regression.
Results: A total of 103 hypertensive farmer dominant in the 1st grade of hypertension (63,2%), male (56,3%), 45-54 years old (35%), primary school as the last education background (45,6%), income rates ≤7 million/year (68%), and don't take anti-hypertensive medications regularly (98,1%). Preventive and curative treatment as part of treatment efforts were the most dominant variable affecting quality of life (p=0,023; OR=0,096; CI=0,028-0,327).
Conclusion: Quality of life of hypertension farmers was significantly related to attitude towards health (p=0.001; OR=0.218; CI=5.76-42.34), treatment effort (p=0.001; OR=1.86; CI=0.09-0 ,54), first time of treatment (p=0,001; OR=8,473; CI=3,10-23,17), and frequency of examination (p=0,023; OR=14,426; CI=5,81-40,16), where treatment efforts such as routine blood pressure control and taking anti-hypertensive drugs can improve quality of life (OR=4.208).

Keywords: Health behavior; Hypertensive farmer; Quality of life

INTRODUCTION

Hypertension is one of the non-communicable diseases which is still dubbed as The Silent Killer because its symptoms are difficult to recognize and often do not show symptoms and without complaints (Brew et al., 2016). Data the World Health Organization (WHO) in 2019 showed that around 1.13 million people in the world had hypertension and most of them were experienced by low-income countries. Low levels of education, knowledge, and income as well as lack of access to health education programs cause people in low-income countries to have low knowledge of hypertension (Aung et al., 2012). The prevalence of hypertension sufferers in Indonesia as one of the countries with low income, reaches 34.1% with an estimated number of cases of 63,309,620 people (Basic Health Research, 2018). In addition, in 2018, 427,218 Indonesians died from hypertension (Ministry of Health of the Republic of Indonesia, 2017).

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Hypertension often causes complications such as stroke (36%), heart disease (54%), and kidney failure (32%) (Basic Health Research, 2018). These complications occur because people with hypertension do not take adequate treatment related to their disease. The shows that 13.3% of the population diagnosed with hypertension do not take medication. This shows that most people with hypertension do not know that they suffer from hypertension so they do not take treatment, even though people with hypertension require long-term treatment to control blood pressure and prevent complications.

Blood pressure measurement from Lampung Province residents aged 18 years showed that 29.94% suffered from hypertension and 7.32% were farmers (Basic Health Research, 2018). Central Lampung Regency is one of the regencies in Lampung Province with the largest number of farmers, it's about 288,927 people (Central Bureau of Statistics Lampung Province, 2019). The low awareness of the incidence and treatment of hypertension is the cause of farmers suffering from hypertension. Several studies have shown an increase in the prevalence of hypertension that is not accompanied by increased awareness, therapy, and control in farmers (Lyu et al., 2020). In addition, hypertension affects a person's quality of life through the sub-variables of vitality, social function, mental health, emotion, and psychological function of the sufferer. People who suffer from hypertension have a lower quality of life compared to people who are not hypertensive (Zygmuntowicz et al., 2012). Quality of life can be improved through treatment seeking behavior (Abidin, 2019).

Health seeking behavior one of the health behaviors that is carried out when experiencing health problems in the form of self-medicating with traditional or conventional medicine or visiting traditional or modern health services (Notoatmodjo, 2010). Employment status as a farmer affects visits to doctors, where farmers are 0.66 times less likely to visit doctors than non-farmers (Brew et al., 2016). Choices in overcoming health problems lead to different results that have an impact on a person's quality of life. Appropriate treatment behavior can improve quality of life. Patients with grade 1 and grade 2 hypertension who control blood pressure have a higher average quality of life score than those who do not control (de Gusmao et al.,2009). Based on this background, this study aims to determine the characteristics and treatment behavior of hypertension farmers, as well as their relationship with quality of life.

RESEARCH METHOD

This research was conducted in September-December 2020 on 103 farmers with hypertension in Gunung Agung Village, Terusan Nunyai District, Central Lampung Regency aged 18 years who had blood pressure measurements with a cross sectional design. The sample was taken from the prevalence data of hypertension farmers which was calculated using the Lameshow formula. The sample collection used consecutive sampling technique and the number was adjusted to the minimum sample.

The criteria for research respondents were farmers aged 18 years, had blood pressure 140/≥90 mmHg, and were willing to be research respondents with farmers who had other chronic diseases or complications and female farmers who were pregnant were excluded from this study. The variables of attitude towards health, source of treatment, treatment effort, first time of treatment, and frequency of examination were measured to determine the relationship with quality of life. Variables were analyzed bivariately with chi-square and multivariate using logistic regression test. The data collection process was carried out by measuring the respondent's blood pressure three times in accordance with the guidelines International Society of Hypertension 2020 (ISH), the respondent was then interviewed using a medication-seeking behavior questionnaire and Short Form-36 which had been tested for validity and reliability.

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RESEARCH RESULTS

Table 1. Demographic Characteristic of Respondents (N=103)

Characteristics	Results (n/%)
Gender	
Male	58/56.3
Female	45/43.7
Age	
Adult (18-44)	19/18.4
Early elderly (45-54)	36/35.0
Late elderly (55-64)	31/30.1
Elderly (>64)	17/16.5
Education	
Primary school	47/45.6
Junior high school	38/36.9
Senior high school	15/14.5
College	3/2.9
Income Average	
≤7 million/year	70/68.0
>7 million/year	33/32.0
Hypertension Status	
not yet diagnosed	68/66.0
diagnosed	35/34.0
Hypertension Status	
Hipertensi derajat I	65/63.1
Hipertensi derajat II	38/36.9
Anti-Hypertensive Medication Status	
Not routine	101/98.1
Routine	2/1.9

A total of 103 hypertensive farmers were classified by gender, age, last education, average income, previous hypertension status, hypertension status according to ISH, and status of taking anti-hypertensive drugs. The characteristics of the dominant hypertension farmer are male (56.3%). Data shows the number of male population is more than female (Central Bureau of Statistics Lampung Province, 2019). Men experience hypertension more because they tend to carry out risky lifestyle habits such as smoking, consuming alcohol, doing heavy work, all of which can potentially increase blood

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pressure. The age of farmers with hypertension is dominant in the age range of 45-54 years (35.0%). Hypertension tends to increase at the age of >45 years with a risk of hypertension by 90%. This is because there is a degenerative process in the blood vessels where the elasticity of the blood vessel walls decreases so that the arterial pressure increases.

Education background of hypertension farmers was dominant at the elementary education level (45.6%), where the level of education affected the incidence of hypertension because it affected a person in implementing a healthy lifestyle. Higher education increases knowledge to maintain a healthy lifesty. The low education group has a higher prevalence of hypertension than the junior high, high school and college education levels. The average income of 7 million/year is more dominant (68.0%) compared to >7 million/year. Rural communities tend to have low incomes because the majority of them live from agriculture and farmers have the characteristics of a narrow view that causes opportunities for advancement are always limited and reluctant to accept or create new ideas. Recent poverty data show that the average income of Indonesians at the poverty threshold is IDR 28,666/day or around 10 million/year. This shows that the income of farmers in this study is below the income poverty threshold in Indonesia (Jolliffe & Prydz, 2016).

The characteristics of respondents according to their previous hypertension status were dominant in respondents who had not been diagnosed by a doctor as suffering from hypertension (66%). The diagnosis status of hypertension in rural communities is lower than urban communities, which is 14.82%, while in urban areas it is 15.74 (Basic Health Research, 2018). This is due to the low awareness of hypertension in rural communities. Rural communities, especially farmers, have low awareness of hypertension because it is influenced by knowledge and income which tends to be low in rural communities (Lyu et al., 2020). Characteristics of respondents according to hypertension status based on ISH dominant in respondents with hypertension grade I (63.1%). The status of taking antihypertensive drugs was dominant in respondents who did not take medication regularly (98.1%). Most non-adherence to taking medication is caused by boredom in taking antihypertensive drugs.

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Table 2. Analysis of the Relationship between Medicine Behavior and Quality of Life (N=103)

Characteristics	Bad (n/%)	Good (n/%)	p-value	OR	p-value	OR	95% CI
Attitudes towards health							
Positive	7/14.6	41/85.4	0.001	15.619	0.001	0.122	0.039-0.375
Negative	40/72.7	15/27.3					
Treatment Sources							
Medical + CAM	12/38.7	19/61.3	0.599	-	-	-	-
Medical only	26/47.3	29/52.7					
CAM only	9/52.9	8/47.1					
Treatment efforts							
Preventive and Curative	33/71.0	9/29.0	0.001	0.218	0.023	4.208	1.214-14.585
Curative	25/34.7	47/65.3					
First Time of Treatment							
Mild symptoms	6/16.2	31/83.8	0.001	8.473	-	-	3.10 – 23.17
Severe symptoms	41/62.1	25/37.9					
Frequency of exmination							
Routine once a month	6/13.6	38/86.4	0.001	14.426	0.001	0.096	0.028-0.327
Not routine once a month	41/69.5	18/30.5					

Bivariate analysis on treatment behavior with quality of life using the chi-square shows that good quality of life is more dominant in hypertensive farmers who have positive attitudes towards health (85.4 %; p=0.000; OR 0.122), source of medical treatment + CAM (61.3%), curative treatment (65.3%), first time of treatment when symptoms were mild (83.8%), and routine check of blood pressure every month (86.4%).

DISCUSSION

Hypertensive farmers was dominant in male (56,3), fit with the sex ratio data at the Badan Pusat Statistik Provinsi Lampung 2020, which was 103,39 where the ratio showed that the male population was more than the female population (Central Bureau of Statistics Lampung Province, 2019). Jenis kelamin merupakan salah satu faktor yang mempengaruhi tekanan darah. Gender is one of the factors that affect blood pressure. The results of research conducted found that 57.7% of men had hypertension, while 42.3% of women had hypertension. Men experience hypertension more because they tend to carry out risky lifestyle habits such as smoking, consuming alcohol, doing heavy work where all three can potentially increase blood pressure (Livana et al., 2017). The male population at all ages suffers from hypertension more than female

The grouping of age categories in this study refers to the data from Basic Health Research Lampung Province in 2018. This study shows that hypertensive farmer in 45-54 years old was dominant (35.0%). Hypertension farmers are mostly in early elderly (35.0%) and less in >65 years old (elderly) (16.5%).

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The age characteristics of hypertension farmers in this study are different from the age characteristics of hypertension sufferers in the "Basic Health Research Nasional 2018" and "Basic Health Research Provinsi Lampung 2018" where at the "Basic Health Research Nasional 2018", the most hypertension sufferers are aged >75 years and at "Basic Health Research Provinsi Lampung 2018" the most are 65- 74 years. The results of Basic Health Research are different from the results of the study, which can be caused by differences in characteristics, where in this study it was carried out on hypertensive farmers, while in Basic Health Research it was not specifically carried out on farmers. In this study, farmers aged >64 years were very rarely found because of the small number. This can be caused by the people in Gunung Agung Village being 45-54 years old more than >65 years old. The age group >65 years is less engaged in agricultural activities. Hypertension tends to increase at the age of >45 years. This age has a 90% risk of hypertension. This is because there is a degenerative process in the blood vessels where the elasticity of the blood vessel walls decreases so that the arterial pressure increases.

The dominant education level in hypertensive farmer was from primary school education level (45.6%). The level of education affects the incidence of hypertension where according to the data from Basic Health Research 2018, the low education group has a higher prevalence of hypertension than the junior high, high school and college education levels. Chasanah and Syarifah's research also shows that the number of people with hypertension in low education is more than in higher education, namely 31 people (56.4%) in low education and 24 people (43.6%) in higher education. The level of education can affect a person in implementing a healthy lifestyle, the higher the education, the higher the knowledge to maintain a healthy lifestyle (Chasanah & Syarifah, 2017).

Characteristics of respondents according to the average income obtained an average income of 7 million/year is more dominant, namely as many as 70 respondents (68.0%) compared to those >7 million/year. The income of farmers in Gunung Agung Village tends to be erratic, depending on the weather and the market, so that only an average income is obtained with an estimate for the last 1 year. Rural communities tend to have low incomes because the majority of them live from agriculture and farmers have the characteristics of a narrow view that causes opportunities for advancement are always limited and reluctant to accept or create new ideas. Recent poverty data show that the average income of Indonesians at the poverty threshold is IDR 28,666/day or around 10 million/year. This shows that the income of farmers in this study is below the income poverty threshold in Indonesia.

A total of 68 hypertensive farmers (66%) have not been diagnosed by a doctor as suffering from hypertension. The diagnosis status of hypertension in rural communities is lower than urban communities (14.82%: 15.74%) (Basic Health Research, 2018). Although the difference is not very significant, the difference is caused by low awareness of hypertension in rural communities. Research shows that rural communities, especially farmers, have an increased prevalence of hypertension that is not accompanied by increased awareness, therapy, and control. The low awareness of hypertension is influenced by knowledge and income which tend to be low in rural communities (Lyu et al., 2020).

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28,666/day or around 10 million/year. This shows that the income of farmers in this study is below the income poverty threshold in Indonesia.

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Based on the measurement of blood pressure according to ISH guidelines, the subjects in this study were predominantly hypertensive grade I (63.1%). This is in line with previous research that showed more respondents with grade I hypertension status, which was 68.1% compared to grade 2 hypertension and 38.2% (Chasanah & Syarifah, 2017). Hypertension farmers in this study also did not routinely take anti-hypertensive drugs (98.1%). Only 2 people regularly take anti-hypertensive drugs. Research conducted in 2015 showed that adherence to antihypertensive treatment based on age group, occupation, education, average monthly income, degree and duration of hypertension, number of drugs, transportation facilities and distance to health services showed non-adherence in hypertension treatment, which was 77 people (85.6%) (Triguna & Sudhana, 2015). Research on hypertensive patients in India showed that 60% of hypertensive patients reported missing one dose of hypertension medication and 8% missed medication for 7 days. Other studies show that from the high, medium, and low levels of adherence, hypertension sufferers have moderate adherence to taking antihypertensive drugs as much as 41% (Anwar & Masnina, 2019) and 38,5% Most of the non-compliance by respondents was caused by boredom in taking anti-hypertensive drugs (29,7%).

The proportion of hypertensive farmers who have a good quality of life is greater in farmers with a positive attitude towards health (85.4%) compared to a negative attitude towards health (27.3%). The p value of 0.001 indicates the relationship between attitudes towards health and the quality of life of farmers. In this study, hypertensive farmers with a positive attitude towards health were 15,612 times more likely to have a good quality of life compared to hypertensive farmers with a negative attitude towards health. Attitudes towards health in this study include awareness of disease, respondents' perceptions of illness, and motivation related to treatment. The results of this study are in line with previous research which shows that 97% of respondents were not aware that they had high blood pressure, which indicates a negative attitude towards hypertension. The results of previous studies showed that the average results of physical and mental domains in patients with hypertension were higher in patients with hypertension who had awareness of their disease (53.27 and 51.70) than those who did not (48.20 and 50.68) (Aung et al., 2012). The mean quality of life score in hypertensive patients who are aware of their disease is higher than those who are not aware (Mi et al., 2015). Motivasi dan persepsi sebagai komponen sikap mempengaruhi kualitas hidup secara Motivation and perception as an attitude component affect the quality of life directly through the domain of emotional roles and mental health which are included in the mental component (Khoirunnisa & Akhmad, 2020).The research regarding the relationship between attitudes towards health and quality of life in this study indicate a positive opportunity for hypertension farmers with positive attitudes towards health to have a good quality of life.

Hypertension farmers who use medical treatment alone are more than medical+CAM and CAM only, but the proportion of hypertension farmers who have a good quality of life is greater than farmers with medical+CAM sources (61.3%). This study showed that hypertension farmers who used anti-hypertensive drugs combined with herbal or traditional medicines

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were not associated with their quality of life (p=0.599). Basically, there is no literature and previous research that examines the use of combination medical therapy and CAM for hypertension and its relation to quality of life. Explained that the number of drugs used in hypertension therapy significantly affected the quality of life (p<0.000), but did not explain the combination therapy. Other studies only explain the use of medical therapy, CAM, or combination in the treatment of hypertension where medical treatment by visiting health facilities is more preferred (95.4%). The results of another study in India showed that of 112 hypertensive patients, 55% used antihypertensive drugs from hospitals. In hypertensive patients with monotherapy, Nifedipine is more widely used than Amlodipine, Indapamide, and Nitrendipine (Lu et al., 2017). The CAM treatment used by farmers in this study was the consumption of black garlic, boiled bay leaves, decoction of other natural ingredients, cupping, and massage. Based on previous research, the use of complementary therapy (CAM) using dark chocolate, coenzyme Q10, acupuncture, vitamin D, and melatonin is effective in lowering blood pressure. Giving dark chocolate as much as 6.3 grams every day for 18 weeks is effective in reducing systolic blood pressure by 2.9 mmHg and diastolic by 1.9 mmHg. The use of coenzyme Q10 reduced blood pressure by 16.6/8.2 mmHg. While the use of melatonin as much as 3 mg for 3 weeks reduced blood pressure by 3.77/3.63 mmHg. In addition, the use of acupuncture therapy after 6 weeks, was able to reduce blood pressure by 6.4/3.7 mmHg. Based on the census data in China described, it was found that combination therapy in patients with hypertension is more widely used in China than in the USA9. 61.1% of hypertensive patients were dissatisfied with only using antihypertensive drug therapy (Ajayi et al., 2018).

In this study, treatment efforts as the variable that most affected the quality of life of hypertension farmers were more likely to take curative treatment efforts than preventive and curative (69.9%). Curative efforts for people with hypertension in taking treatment are taking medication, while preventive and curative efforts mean taking medication while controlling (checking blood pressure regularly every 1 month), doing a hypertension diet, and exercising to maintain the body fitness (Darnindro & Johannes, 2017). Good quality of life in hypertension farmers is more in curative treatment efforts, which is 65.3% (p = 0.023), but the OR shows a negative chance where hypertension farmers with curative treatment efforts have no chance of having a good quality of life compared to hypertension farmers with treatment efforts preventive and curative. This means that curative treatment efforts are not better than preventive and curative treatment efforts because curative efforts alone do not provide positive opportunities for good quality of life, preventive and curative efforts are needed to improve quality of life. Hypertension farmers who take preventive and curative treatment in the form of routine blood pressure control and taking anti-hypertensive drugs can improve their quality of life. This is suitable with the research, which explains that doctors empower patients and families comprehensively which includes education, skills training, increasing knowledge, and family coping for the proper management of health problems. People with hypertension need to be empowered in the form of routine control with support from their families to empower their health and quality of life.

In line with research conducted in Korea in 2020, it was found that the consumption of antihypertensive drugs without comorbid management and psychological support can still control blood pressure (Lee et al., 2020), but in fact, many hypertensive patients do not comply with treatment. Based on a study conducted in Brojonegoro Village, it was found that only 12.8% of hypertensive patients were obedient to treatment (Abidin, 2019). Another study showed that adherence to antihypertensive treatment based on age group, occupation, education, average monthly income, degree and duration of hypertension, number of drugs, transportation facilities and distance to health services showed non-adherence in hypertension treatment, which was (85,6%) (Triguna & Sudhana, 2015). Upaya More curative treatment efforts are

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carried out by hypertension farmers in Gunung Agung Village due to the low knowledge of farmers regarding preventive measures against hypertension. In line with the results of research conducted in 2018 it was found that as many as 47% of farmers had low knowledge of hypertension. Job status does not directly affect the level of knowledge, but interaction and communication in the workplace has a relationship with one's knowledge. Another study showed that the quality of life in patients with hypertension who did not comply with treatment had a lower score, which was 70 compared to those with good quality of life, which was 85 (Zyoud et al., 2013).

Hypertension farmers who take treatment when symptoms are severe are more than those with mild symptoms (64.1%). Many of the respondents in this study chose to seek treatment if the symptoms they felt were severe, they believed that if the symptoms were still mild, they could still cope on their own by resting and taking medicines purchased at the shop. The research shows that hypertensive patients are motivated to take treatment if they believe they will find the right health worker. The low awareness of hypertension sufferers causes nothing to force them to seek treatment. The results of this study indicate that the proportion of hypertensive farmers who have a good quality of life is greater in farmers with the first time of treatment when symptoms are mild, which is 83.8% compared to when symptoms are severe (37.9%) and the two are significantly related (p = 0.001) (Musinguzi et al.,2018). Many hypertension farmers in Gunung Agung Village already know that they have high blood pressure and are at risk of having high blood pressure, but they delay treatment because they feel they are still healthy and have not felt any symptoms, so they will only take treatment and seek health services when they are ready. In previous studies, hypertension patients who came to hospitals and health centers were found to be in a state of hypertension already grade 2 when it was first recorded in the medical record, as many as 284 people (de Gusmao et al., 2009).

This shows that many people with hypertension come with severe conditions. Another study showed a significant relationship in hypertensive patients with symptoms and length of time suffering from hypertension with a mental component on quality of life (p<0.001) where 83.70% of hypertensive patients took treatment when symptoms were severe and 61.94% of hypertensive patients with less time. than 10 years. This shows that the symptoms and length of time suffering from hypertension affect the quality of life, especially in the mental component Patients with hypertension who do not immediately take anti-hypertensive drugs can cause their health conditions to get worse and even in the long term can cause complications and death. People with hypertension must take medication for life to control blood pressure. The goal of each treatment program for each patient is to prevent comorbid morbidity and mortality by achieving and maintaining blood pressure below 140/90 mmHg (Baharuddin & Wirmawanti, 2018).

Hypertension farmers who do not routine treatment once a month are more than those who routinely every month (57.3%). Patients with hypertension are said to control hypertension if they make a return visit every 1 month after the previous visit. The results of this study indicate that the proportion of hypertensive farmers who have a good quality of life is greater in farmers with routine inspections every month (86.4%) compared to farmers who do not routinely every month (30.5%). The results of statistical tests obtained p value of 0.001 where p <0.05 means that the first time of treatment is related to the quality of life of farmers. Patients with hypertension are said to be obedient to treatment and control of hypertension if they make a return visit every 1 month after the previous visit. Research conducted at Cilincing General Hospital showed that the prevalence of hypertensive patients who did not perform routine examinations once a month was 68.3%. In addition, it was also found that visits to health workers in rural areas were lower than urban residents (Darnindro & Johannes, 2017).

The results of other studies showed that 76.1% of hypertensive patients did not have routine control. This shows that the control of hypertension is still very low,

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even though controlling blood pressure in patients with hypertension is a way to prevent complications. In a study conducted in 2020 in Korea regarding the relationship between quality of life and blood pressure control in uncontrolled hypertension patients, it was found that the quality of life of hypertensive patients who controlled blood pressure was better than those who did not, as evidenced by the blood pressure of hypertensive patients, which was initially 153 mmHg, after not being controlled for 6 months it became 144.1 mmHg, but this result was higher than when the control was done, which was 132.7 mmHg (Lee et al., 2020). This shows that control of blood pressure can improve quality of life.

Hypertension farmers who have poor quality of life are more than those with good quality of life, which is 54.4%. In line with research in Chingqong, China, the average results of all domains on quality of life decreased in patients with hypertension compared to those without hypertension, namely the average for people without hypertension was 77.45 and in patients with hypertension 73.26 (Xu et al., 2016). The results of another study showed that several domains of quality of life in patients with hypertension had lower scores than those without hypertension, namely in the domain of physical factors by 58.3%, psychological factors by 66.7%, social factors by 93.8%, and environmental factors of 67.6%. There are many factors outside the quality of life subvariable that can affect the degree of quality of life, including age, gender, level of education, income, and socio-culture. Age is the main factor that contributes greatly to the physical subvariable, which is 0.129 times. Respondents with a higher age have poorer quality of life, while according to gender, there is no significant difference in quality of life between women and men (Sabaan & Perwitasari, 2016), but males have a higher average physical function domain than females. In addition, other studies show that the quality of life of respondents with low income (<2 million/month) and low education decreases in all subvariables.

CONCLUSION

Quality of life of hypertension farmers was significantly related to attitude towards health (p=0.001; OR=0.218; CI=5.76-42.34), treatment effort (p=0.001; OR=1.86; CI=0.09-0 ,54), first time of treatment (p=0,001; OR=8,473; CI=3,10-23,17), and frequency of examination (p=0,023; OR=14,426; CI=5,81-40,16), where treatment efforts such as routine blood pressure control and taking anti-hypertensive drugs can improve quality of life (OR=4.208).

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