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CORRELATION OF KNOWLEDGE AND ATTITUDE TOWARD HYPERTENSION SELF-MANAGEMENT PRACTICE DURING THE COVID-19 PANDEMIC

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ABSTRACT

Introduction: Restrictions on mobility during the COVID-19 pandemic have worsened lifestyle and made it harder for people with hypertension to manage their condition, which can lead to complications. Knowledge and attitude have a significant correlation toward hypertension self-management. This study aimed to determine the correlation between knowledge and attitudes of hypertensive patients toward hypertension self-management practice during the COVID-19 pandemic.

Method: The method used was a descriptive-analytic correlation with a cross-sectional approach. The sample used was 50 hypertensive patients aged ≥ 15 years old, samples obtained through the accidental sampling technique. Data collection through the google form online questionnaire containing a modified Indonesian version of the Knowledge, Attitudes, and Practice Level of Hypertensive Patients on Lifestyle Modification questionnaire. Statistical test for bivariate using Pearson and Spearman correlation.

Result: The study found that 54% respondents had good knowledge and practice, and 50% had a positive attitude toward hypertension self-management during the COVID-19 pandemic. Poor hypertension self-management practices include 56% of respondents did not exercise; 54% did not plan a diet to control blood pressure; 32% did not measure blood pressure regularly; and 46% did not take antihypertensive drugs. Bivariate analysis showed that there was a correlation between knowledge ($p = 0.000$; $r = +0.320$), and attitudes ($p = 0.001$; $r = +0.471$) toward hypertension self-management practice during the COVID-19 pandemic.

Conclusion: The study results showed that the correlation is positive, but the strength of the correlation is weak. therefore, it is necessary to educate the public regarding hypertension and self-management during the COVID-19 pandemic, especially regarding the definition of hypertension, medication adherence, and lifestyle modifications to control hypertension.

Keywords: *Attitude; COVID-19; Hypertension; Knowledge; Self-management*

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INTRODUCTION

Hypertension is one of the priority global health problems affecting approximately 1,13 billion people in 2015 from 594 million in 1975 (Zhou et al., 2017). In Indonesia, the number of people with hypertension continues to increase yearly, and only about 4% have controlled hypertension (Tarigan, Lubis, & Syarifah, 2018). The increasing incidence of hypertension adds to the burden of disease during the COVID-19 pandemic, where hypertension is one of the most common comorbidities in COVID-19 patients (Larasati, 2021; Rodriguez-Morales et al., 2020) due to compared to others, people with comorbidities have low immunity, making them more susceptible to complications related to COVID-19 (Guo et al., 2020; Renu, Prasanna, & Valsala Gopalakrishnan, 2020; Yang et al., 2020). Thus, individuals with comorbidities, especially chronic non-communicable diseases such as hypertension and contracting

COVID-19, are at high risk of contracting COVID-19 which is more severe and can result in death (Clerkin et al., 2020; Gupta, Lakshmi, Kaur, & Rastogi, 2020; Schiffrin, Flack, Ito, Muntner, & Webb, 2020).

It should be emphasized that comorbidities such as hypertension also require ongoing self-management and medical care practices to prevent or delay associated complications, especially during the COVID-19 pandemic and its subsequent impact on quality of life (Gupta et al., 2020). Self-management is a dynamic process in which individuals actively apply cognitive and behavioral strategies to manage their thoughts, emotions, and behavior (Brady, Sacks, Terrillion, & Colligan, 2018). In other words, self-management is an individual's strategy to maintain healthy behavior, strengthen positive behaviors or skills, or eliminate unhealthy behaviors. (Pezeshki, Khajeh, Ghaffarifar, Alizadeh, & Faridaalee, 2020).

However, physical distance and mobility restrictions reinforce unhealthy behavior (Lippi & Sanchis-Gomar, 2020). These include causing individuals to become sedentary, adopting an unhealthy diet, and increasing alcohol consumption and smoking (Ammar et al., 2020; Finlay & Gilmore, 2020; Vanderbruggen et al., 2020). On the other hand, the routine care of non-communicable diseases (NCDs) during the COVID-19 pandemic has changed due to restrictions on access to health services to prevent transmission of COVID-19, which harms diagnosis, management, and development of NCDs (Lancet, 2020; Palmer et al., 2020; Williams et al., 2020).

Various modifiable and non-modifiable factors have been associated with poor self-management practice. Welfare, family function, gender, education level, age, and length of illness are some of the factors that are significantly related to self-management practices (Tursina et al., 2020; Zhang et al., 2020), especially in the COVID-19 pandemic, which is a new situation and has an impact on life (Bogale, Mishore, Tola, Mekuria, & Ayele, 2020).

Based on a preliminary study, it is known that Sukabumi Regency is an area with incidents of hypertension is high in West Java Province. Based on annual reports of Sukabumi District Health Office in 2020, cases of hypertension in the region VII Sukabumi district at the age group ≥ 15 years reached 52,126 cases and accounted for 9.21% of the 131,154 total population. The highest number of hypertension incidences of the age group ≥ 15 years occurred in Sagaranten health care center (Puskesmas). From the interviews conducted by researchers on ten hypertensive patients in the Sagaranten sub-district, it was found that knowledge, attitudes, and behaviors related to hypertension self-management during the covid-19 pandemic was still low. In this study, the researcher wants to examine the correlation between knowledge and attitude toward hypertension self-management during the COVID-19 pandemic in hypertensive patients in the Sagaranten Sub-District.

METHOD

Study Design

This study used a descriptive-analytic correlation with a cross-sectional approach

Setting

The data was collected from June 2021 to July 2021. This research was conducted in the area of the Sagaranten sub-district, Sukabumi, West Java, Indonesia, on people with hypertension aged ≥ 15 years old.

Research Subject

The data was collected through a google form. The researcher made a post on a Facebook status that contained self-introduction, research objectives, research procedures, inclusion and exclusion criteria of respondents needed in the study, as well as a google form link that could be accessed if a client with hypertension met the inclusion criteria and was willing to participate in the study. This post is then forwarded to Facebook groups consisting of the people of the Sagaranten sub-district, such as the Sagaranten buying and selling forum, Facebook Sagaranten, Sagaranten Shopping, Sagaranten Buying Market, and Sagaranten Info. People who find the post and meet the criteria can directly fill out the google research form until the number of respondents is met.

It used an accidental sampling technique with the inclusion criteria of hypertensive patients aged ≥15 years and living in the working area of the Sagaranten Health Center; the latest education is at least elementary school; willing to be a respondent. The exclusion criteria were patients with mental disorders; who cannot read and write; do not understand the Indonesian language. The population in this study were all hypertensive patients in the area of the Sagaranten sub-district. The sample in this study amounted to 50 respondents.

Samples were measured using the sample size formula for Analytics Correlative Numeric-Numeric (Dahlan, 2010):

$$n = \left[\frac{(Z_\alpha + Z_\beta)}{0{,}5\ ln\left(\frac{1+r}{1-r}\right)}\right]^2 + 3$$

n = number of subjects
alpha (α) = type one error set 5%, two-way hypothesis
Zα = standard value alpha = 1.96
Beta (β) error of type two is set at 10%
Zβ = Standard value beta = 1.28
r = minimum correlation coefficient, which is considered significant, set at 0.46 (Puspitasari, 2019)

$$n = \left[\frac{(1.96 + 1.28)}{0.5\ ln\left(\frac{1+0.46}{1-0.46}\right)}\right]^2 + 3$$

$$= \left[\frac{3.24}{0.4973112876}\right]^2 + 3$$

$$= 42.446 + 3$$
$$= 45.446 \text{ rounded to } 45$$

Research must consider the possibility that there are subjects who have been selected for which data has not been collected or dropped out, so according to Sostroasmoro (2014), the minimum number of respondents can be increased by 10% of the minimum number of respondents calculated by the following formula (Hidayat, 2021):

$$n' = \frac{n}{(1-f)}$$
$$= \frac{45}{(1-0.10)}$$
$$= \frac{45}{0.9}$$
$$= 50 \text{ respondents}$$

Instruments

The research instrument used in this study was a questionnaire developed by Bogale et al. (2020) was then translated into Indonesian by a sworn translator and modified by the author with permission from the previous researcher. The instrument consists of 4 parts: 1) Characteristics of respondents; 2) Knowledge of Hypertensive Patients on LSM; 3) Attitude of Hypertensive Patients on LSM; 4) Practice Level of Hypertensive Patients on LSM. The respondent's characteristic questionnaire included name, mobile phone number, age, gender, education level, income level, and duration of hypertension. The Knowledge of Hypertensive Patients questionnaire on LSM consists of 12 positive and negative statements. The answer "True" was given a score of 1, and "False" was a score of 0. The Attitude of Hypertensive Patients on LSM questionnaire consisted of 13 positive and negative statements. Each item consists of 5 answer choices with a range of values from 1 (strongly disagree) to 5 (strongly agree). The Practice Level of Hypertensive Patients on LSM questionnaire consists of 23 positive and negative questions. The answer "Yes" was given a score of 1, and "No" was given a score of 0. The measurement results of knowledge, attitudes, and practice used the mean/median cut-off point, and the data were divided into two categories based on the accumulated scores (Bogale et al., 2020). The median value is used for knowledge and practice of hypertension self-management because the data is not normally distributed. The mean value is used for the attitude variable because the data is normally distributed: 1) Poor if the score < mean/median value; 2) Good if the score ≥ the mean/median value.

The validity test on the knowledge, attitude, and practice variables has been carried out using the person product moment with the test results that r results > r table (r results > 0,349), which means this questionnaire is valid. Furthermore, in this study, a reliability test was carried out, and Cronbach's Alpha value on the knowledge questionnaire was 0.665, the attitude questionnaire obtained Cronbach's Alpha results of 0.882, and the self-management behavior questionnaire obtained Cronbach's Alpha value of 0.847. As a result, Cronbach's Alpha score on the third questionnaire is more alkaline than the minimum Cronbach's Alpha score of 0.60 (Cronbach's Alpha score > 0.60), so it can be ascertained that the questionnaire is reliable.

Data Analysis

Data analysis in this study was carried out in two ways: univariate analysis by distributing data on demographic characteristics, knowledge, attitude, and practice level of hypertension self-management during the COVID-19 pandemic. Then bivariate analysis with Spearman correlation test to test knowledge and self-management practice because the two variables are not normally distributed, and the linearity requirements are met. Meanwhile, to test the attitude and self-management practice using the Pearson correlation test because one of the variables is normally distributed and the linearity requirements are met.

Ethical Consideration

Ethics committee approval for this research was obtained from the university with the ethical number Un.01/F.10/KP.01.1/KE.SP/06.08.041/2021

RESULTS

Socio-demographic characteristics

Table 1. Socio-demographic characteristics of hypertensive patients in Sagaranten sub-district, 2021 (N=50)

Variable	N	%
Usia		
Young adults (20 – 40)	20	40,0
Middle-aged (41 – 64)	27	54,0
Elderly (≥ 65)	3	6,0
Total	**50**	**100,0**
Sex		
Man	17	34,0
Woman	33	66,0
Total	**50**	**100,0**
Level of education		
Elementary school/equivalent	17	34,0
Middle School/Equivalent	6	12,0
High School/Equivalent	20	40,0
Diploma/College	7	14,0
Total	**50**	**100,0**
Income level		
Low (≤ 3.1 million)	36	72,0
High (> 3.1 million)	14	28,0
Total	**50**	**100,0**
long time hypertension		
≤ 2 years	31	62,0
> 2 years	19	38,0
Total	**50**	**100,0**

Source: Primary Data of Questionnaires, 2021.

Based on table 1, most of the respondents are middle adults, the age group between 41 - 64 years with 27 respondents (54%); female with 33 respondents (66%); high school education level/equivalent with 20 respondents (40%); low-income levels (3.1 million) with 36 respondents

(72%); and having hypertension two years with 31 respondents (62%).

Table 2. Overall Respondents' level of knowledge, attitude, and practice status of self-management recommended for hypertension management among hypertensive patients in the Sagaranten sub-district area, 2021 (N=50)

Variable	Category	N	%
Knowledge	Poor	23	46.0
	Good	27	54.0
	Total	**50**	**100,0**
Attitude	Negatif	25	50,0
	Positive	25	50,0
	Total	**50**	**100,0**
Practice	Poor	23	46.0
	Good	27	54.0
	Total	**50**	**100,0**

Source: Primary Data of Questionnaires, 2021

Based on table 2, most of the respondents have good knowledge, positive attitude, and good practice, with 27 respondents (54%), 25 respondents (50%), and 27 respondents (54%), respectively.

Knowledge of hypertensive patients on self-management during the COVID-19 pandemic

Table 3. Respondents' level of knowledge toward self-management during COVID-19 pandemic among hypertensive patients in the Sagaranten sub-district area, 2021 (N=50)

Knowledge Statement	Answer	
	True (%)	False (%)
Blood pressure 140/90 mmHg is categorized as level 2 hypertension*	14 (28,0)	36 (72,0)
COVID-19 is an infectious disease caused by SARS-CoV-2	40 (80,0)	10 (20,0)
Antihypertensive drugs must be taken every day	32 (64,0)	18 (36,0)
People who have high blood pressure should eat a diet rich in fruits, vegetables, and low-fat dairy products	48 (96,0)	2 (4,0)
Cough and sneeze etiquette is done by covering the mouth and nose with folded elbows or a tissue	42 (84,0)	8 (16,0)
Regular exercise can control blood pressure	45 (90,0)	5 (10,0)
Maintaining a normal weight can control blood pressure	40 (80,0)	10 (20,0)
Smoking affects increasing blood pressure	40 (80,0)	10 (20,0)
Drinking alcoholic beverages does not affect increasing blood pressure*	38 (76,0)	12 (24,0)
No need to follow the 5M health protocol if you have received the COVID-19 vaccine*	36 (72,0)	14 (28,0)
People who have high blood pressure can eat salty foods while taking the medication regularly*	37 (74,0)	13 (26,0)
Older adults and people with heart, lung, diabetes, cancer, and high blood pressure have a higher chance of getting sick with COVID-19	47 (94,0)	3 (6,0)

*Unfavorable questions, respondents who answered "True" were given a score of 0, and those who answered "False" were given a score of 1.

Source: Primary Data of Questionnaires, 2021.

Based on table 3, a total of 50 respondents were involved in this study, most of which 36 respondents (72%) did not know the definition of hypertension; 40 respondents (80%) knew the definition of COVID-19; 48 respondents (96%) knew people with high blood pressure should eat a diet rich in fruits, vegetables, and low-fat dairy products 47 respondents (94%) know that the elderly and people who have heart disease, lung disease, diabetes, cancer, and high blood pressure have a more severe chance of getting COVID-19.

Attitude of hypertensive patients toward self-management during the COVID-19 pandemic

Table 4. Respondent's level of attitude toward self-management during COVID-19 pandemic among hypertensive patients in the Sagaranten sub-district area, 2021 (N=50)

Attitude Statement	Answer				
	Strongly Disagree	Disagree slightly	Neutral	Agree slightly	Strongly Agree
Lifestyle modification is an essential component in controlling high blood pressure	1 (2,0)	5 (10,0)	4 (8,0)	27 (54,0)	13 (26,0)
Measuring blood pressure regularly, at least once a month, is part of blood pressure management	0 (0,0)	0 (0,0)	6 (12,0)	31 (62,0)	13 (26,0)
People who have high blood pressure should contact a health facility if symptoms of fever, cough, hoarseness and shortness of breath appear for further examination	0 (0,0)	1 (2,0)	3 (6,0)	23 (46,0)	23 (46,0)
When coughing, cover your nose and mouth with your elbows folded to prevent transmission of COVID-19	0 (0,0)	7 (14,0)	3 (6,0)	20 (40,0)	20 (40,0)
Implementing the 5M health protocol (wearing masks, washing hands, maintaining distance, staying away from crowds, and reducing mobility) can prevent the transmission of COVID-19	0 (0,0)	0 (0,0)	5 (10,0)	17 (34,0)	28 (56,0)
Smoking does not affect blood pressure*	17 (34,0)	19 (38,0)	9 (18,0)	3 (6,0)	2 (4,0)
Drinking alcohol in excess does not affect blood pressure*	23 (46,0)	13 (26,0)	10 (20,0)	3 (6,0)	1 (2,0)
Older adults and people with heart, lung, diabetes, cancer, and high blood pressure have a higher chance of getting sick with COVID-19	1 (20)	1 (2,0)	3 (6,0)	26 (52,0)	19 (38,0)
Regulating a diet can control blood pressure	1 (2,0)	2 (4,0)	6 (12,0)	24 (48,0)	17 (34,0)
Regulating salt intake can control blood pressure	1 (2,0)	2 (4,0)	9 (18,0)	18 (36,0)	20 (42,0)
Doing exercise can control blood pressure	0 (0,0)	3 (6,0)	6 (12,0)	27 (54,0)	14 (28,0)
Maintaining a normal weight can control blood pressure	1 (2,0)	3 (6,0)	7 (14,0)	25 (50,0)	14 (28,0)
Individuals with elevated blood pressure must manage stress during the COVID-19 pandemic	0 (0,0)	5 (10,0)	4 (8,0)	25 (50,0)	16 (32,0)

*Unfavorable Question
Source: Primary Data of Questionnaires, 2021.

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Source: Primary Data of Questionnaires, 2021.

Based on table 4, a total of 50 respondents were involved in this study, most of which 27 respondents (54%) agree that lifestyle modification is an important component in controlling high blood pressure; 31 respondents (62%) agree that measuring blood pressure regularly at least once a month is part of managing blood pressure; 28 respondents (56%) strongly agree that implementing the 5M health protocol (wearing masks, washing hands, maintaining distance, staying away from crowds, and reducing mobility) can prevent transmission of COVID-19; and 19 respondents (38%) strongly agree that older adults and people with heart, lung, diabetes, cancer, and high blood pressure have a higher chance of getting sick with COVID-19.

Practice of hypertensive patients on self-management during the COVID-19 pandemic

Table 5. Respondent's level of practice toward self-management during COVID-19 pandemic among hypertensive patients in the Sagaranten sub-district area, 2021 (N=50)

Practice Questions	Answer	
	Yes (%)	No (%)
Do you regularly eat foods high in cholesterol?*	26 (52,0)	24 (48,0)
Do you limit your salt intake?	26 (52,0)	24 (48,0)
Do you exercise regularly for at least 30 minutes/day or as recommended by health professionals?	22 (44,0)	28 (56,0)
Do you have enough rest by sleeping 6-8 hours a day?	25 (50,0)	25 (50,0)
Do you have a smoking habit?*	15 (30,0)	35 (70,0)
Do you maintain a minimum distance of 1 meter from other people and avoid crowds in order to prevent the transmission of COVID-19?	33 (66,0)	17 (34,0)
Do you wash your hands regularly with soap and clean running water or hand sanitizer for at least 40-60 seconds?	38 (76,0)	12 (24,0)
Do you avoid touching surfaces around your eyes, nose, and mouth to prevent the spread of COVID-19?	31 (62,0)	19 (38,0)
Do you use a mask correctly according to the guidelines outside the home?	40 (80,0)	10 (20,0)
Do you replace or dispose of masks properly according to applicable guidelines?	39 (78,0)	11 (22,0)
Do you change clothes and shower when you get home after a long trip?	39 (78,0)	11 (22,0)
Do you practice coughing and sneezing etiquette by covering your mouth and nose with folded elbows or a tissue?	34 (68,0)	16 (32,0)
Do you plan a diet program to control blood pressure by regularly eating a diet rich in fruits, vegetables, and low-fat dairy products?	23 (46,0)	27 (54,0)
Do you plan an exercise program to control blood pressure?	26 (48,0)	24 (48,0)
Are you managing stress during the COVID-19 pandemic by listening to music, taking breaks, or chatting with family and friends?	46 (92,0)	4 (8,0)
Are you taking vitamins or supplements to boost your immune system during the COVID-19 pandemic?	32 (64,0)	18 (36,0)
Do you make your own decision to visit a health facility when you feel sick?	42 (84,0)	8 (16,0)
Do you visit a health facility when you have symptoms of high blood pressure?	35 (70,0)	15 (30,0)
Do you contact the health facility if you have symptoms of fever, cough, hoarseness, and shortness of breath for further examination?	43 (86,0)	7 (14,0)
Do you measure blood pressure regularly, at least once a month?	34 (68,0)	16 (32,0)
Do you measure your weight regularly?	25 (50,0)	25 (50,0)
Do you take antihypertensive drugs regularly according to the recommended dosage or recommendations from health workers?	27 (54,0)	23 (46,0)
Do you take antihypertensive drugs regularly according to the recommended time or advice from health workers?	27 (54,0)	23 (46,0)

*Unfavorable questions, respondents who answered "Yes" were given a score of 0, and those who answered "No" were given a score of 1.

Based on table 5, from a total of 50 respondents involved in this study, most of which were 26 respondents (52%) regularly consume foods high in cholesterol; 15 respondents (30%) have a smoking habit; 40 respondents (80%) use masks correctly according to applicable guidelines when doing activities outside the home; 46 respondents (92%) managed stress during the COVID-19 pandemic by listening to music, resting, or talking with family and friends; 32 respondents (64%) took vitamins or supplements to increase their immune system during the COVID-19 pandemic; 42 respondents (84%) made their own decision to visit a health facility when they felt sick; 35 respondents (70%) visited a health facility when they felt symptoms of high blood pressure; 43 respondents (86%) contacted health facilities if symptoms of fever, cough, hoarseness and shortness of breath appeared for further examination; 27 respondents (54%) took antihypertensive drugs regularly in accordance with the recommended dosage and time or recommendations from health workers

Table 6. Analysis of the correlation between knowledge and attitude toward hypertension self-management practice during the COVID-19 pandemic in hypertensive patients in the Sagaranten sub-district, 2021 (N=50)

Variables		Practice				Correlation Coefficient (r)	*P*-Value
		Poor		Good			
		N	%	N	%		
Knowledge*	Good	16	32.0	7	14.0	0.620	0.000
	Poor	7	14.0	20	40.0		
Attitude**	Negative	15	30.0	10	20.0	0.471	0.001
	Positive	8	16.0	17	34.0		

*Spearman's rho
**Pearson correlation
Sources: Primary Data of Questionnaires, 2021.

The data in table 6 showed the bivariate analysis of the correlation between knowledge with hypertension self-management practice during the COVID-19 pandemic resulted in r = +0.620 with a p-value of 0.000, and the correlation of attitude with hypertension self-management practice during the COVID-19 pandemic resulted in r = +0.471 with p-value 0.001.

DISCUSSION

In this study, the majority of respondents' hypertension self-management practice was good, with 27 respondents (54%). However, 56% of respondents do not exercise regularly for at least 30 minutes/day. In addition, as many as 54% do not make a diet program plan to control blood pressure by regularly eating foods rich in fruits, vegetables, and low-fat dairy products, there are 30 % of respondents who do not visit health facilities when they feel symptoms of high blood pressure, there are 32% of respondents who do not measure blood pressure regularly at least once a month, and there are 46% of respondents who do not take antihypertensive drugs regularly according to the recommended dose and time or advice from health workers.

Non-compliance in hypertension self-management arises due to sub-factors such as lack of knowledge, understanding of health interventions, and lack of resources, as well as a rigid mentality due to dominant socio-cultural beliefs (Dasgupta et al., 2017; Kurnia et al., 2020). According to So et al. (2004), lack of knowledge can affect individual and community awareness about disease prevention strategies. Furthermore, hypertensive patients may have an inaccurate or incomplete understanding of hypertension, the processes and goals of hypertension treatment, and their role in managing hypertension (Hussien, Muhye, Abebe, & Ambaw, 2021). Therefore, good knowledge is essential to control the morbidity and mortality of hypertension (Kassa Mekonnen, Yimer Mekonnen, & Sewunet Mekonnen, 2019). The statement is based on the theory of Lawrence Green (1980) that behavioral factors influence individual and community health, and one of the behavioral factors is determined by a predisposing factor, namely knowledge (Nursalam, 2015). Knowledge itself results from knowing her sensing objects (Nursalam & Efendy, 2008). Therefore, behavior-based knowledge will be more lasting than behavior not based on knowledge (Darwis & Mas'ud, 2017). Therefore, based on the results of this study, hypertension self-management practice during the COVID-19 pandemic depends on one's knowledge with a positive correlation and strong correlation strength.

This study results that most of the respondents' knowledge was in a good category, with 27 respondents (54%). Most respondents did not know the definition of hypertension, with 36 respondents (72%). Therefore, respondents have poor knowledge because they do not know the definition of hypertension. The results of this study are in line with the research of Alshammari et al. (2021) found that the knowledge of hypertensive patients regarding the main variables of knowledge about hypertension, such as normal values and the definition of hypertension, was significantly related to the quality of life-related to the health of hypertensive patients. The definition of hypertension will be related to complications of the disease if it is not treated immediately because, with poor knowledge about hypertension, respondents finally do not feel vulnerable, they do not know if death is a severe threat if the complications of the disease are felt by the patient (Nurhanani, Susanto, & Udiyono, 2020).

On the other hand, as many as 36 respondents (72%) know that they still must carry out the 5M health protocol even though they have received the COVID-19 vaccine, and as many as 47 respondents

(94%) know the elderly and people who have heart, lung, diabetes, cancer, and high blood pressure have a more severe chance of getting sick from COVID-19. People exposed to COVID-19 can show different levels of severity, where this severity is influenced by immunity, age, and various comorbidities, including COPD, heart disease, malignant tumors, HIV, diabetes, and hypertension (Ejaz et al., 2020; Kemenkes, 2020).

In this study, as many as 18 respondents (36%) did not know that antihypertensive drugs should be taken daily. Antihypertensive drugs must be taken for life. However, their use (maintenance dose) can usually be reduced after a particular time (Tjay & Rahardja, 2015). All hypertensive patients are recommended to take prescribed antihypertensive drugs, including angiotensin-converting enzyme (ACE) inhibitors and angiotensin receptor blockers (ARBs), given that there is no evidence that antihypertensive drugs aggravate COVID-19 (PAHO, 2020). Furthermore, treatment with antihypertensive drugs can only relieve the symptoms of high blood pressure, not the cause (Tjay & Rahardja, 2015). So, to control chronic diseases, especially in people with hypertension, good management is needed by regularly controlling health and self-care. Both are the primary keys to adequately controlling blood pressure and preventing complications due to high blood pressure (Basu, 2020).

Besides knowledge, attitudes are also part of the predisposing factors that determine a person's behavior (Nursalam, 2015). Eagly and Chaiken (1993) define attitude as "a psychological tendency expressed by evaluating certain entities with some degree of liking or disliking." Inherent in this definition is the idea that reporting attitudes involves the expression of evaluative judgments about the stimulus object. In other words, reporting an attitude involves making decisions about liking vs. disliking, approving vs. disapproving, or supporting vs. disliking a particular problem, object, or person (Nursalam, 2015). Furthermore, attitudes vary in the degree to which a person is persistent over time, resistant to change, and influential in guiding information processing and predicting behavior (Zulmiyetri, Nurhastuti, & Safaruddin, 2019). In addition, positive health attitudes mediate patient compliance with self-management (Xie et al., 2020). Therefore, based on the results of this study, hypertension self-management behavior during the COVID-19 pandemic depends not only on knowledge but also on one's attitude, with a positive correlation and moderate correlation strength.

This study's results indicate that respondents with a positive attitude and a negative attitude have the same number of 25 respondents (50%). However, only 13 respondents (26%) strongly agree that lifestyle modification is essential in controlling high blood pressure, and measuring blood pressure regularly, at least once a month, is part of blood pressure management. One of the patient's barriers to controlling blood pressure is unconsciousness and failure to implement lifestyle modifications (Anthony, Valinsky, Inbar, Gabriel, & Varda, 2012). This is supported by research (Bogale et al., 2020) that respondents who have a supportive attitude towards lifestyle modifications recommended for the management of hypertension are nine times more likely to have good lifestyle modification practices than those who have a non-supportive attitude. Lifestyle modification factors are vital in complementing pharmacotherapy in controlling hypertension (Modey Amoah et al., 2020).

In addition, based on table 3, only 13 respondents (26%) strongly agree that lifestyle modification is a critical component in controlling high blood pressure, and measuring blood pressure regularly at least once a month is a part of managing blood pressure. One of the patient's barriers to controlling blood pressure is unconsciousness and failure to implement lifestyle modifications (Anthony et al., 2012). This is supported by research (Bogale et al., 2020) that respondents who have a supportive attitude towards lifestyle modifications recommended for the management of hypertension are nine times more likely to have good lifestyle modification practices than those who have a non-supportive attitude. Lifestyle modification factors are vital in complementing pharmacotherapy in controlling hypertension (Modey Amoah et al., 2020). There are several limitations in the preparation of this study, namely as follows: this study uses accidental sampling, so it cannot ensure the generalizability of the results to the study population; the research was conducted to coincide with the Implementation of Restrictions on the Activities of the Java-Bali community so that data collection can only be done through an online platform; In developing the questionnaire on knowledge, attitudes, and behavior of hypertension self-management during the COVID-19 pandemic, there were several weaknesses, including no back translation and Content Validity Index (CVI) due to the limitations of researchers. Also, using the Guttman scale on behavioral questionnaires requires respondents to give firm answers, so the answers are less varied.

CONCLUSION

The results of the binary bivariate analysis showed that there was a correlation between knowledge ($p = 0.000$; $r = +0.320$), and attitudes ($p = 0.001$; $r = +0.471$) toward hypertension self-management practice during the COVID-19 pandemic. The correlation is positive, and the strength of the correlation is strong and moderate, respectively.

Improving and maintaining successful hypertension self-management practice require support from health workers. Education and promotion of hypertension self-management

practices during the COVID-19 pandemic are vital to patients with comorbid hypertension.

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