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THE RELATIONSHIP BETWEEN COVID-19 PREVENTION MEASURES AND QUALITY OF LIFE OF ELDERLY PATIENTS WITH HYPERTENSION DURING THE COVID-19 PANDEMIC

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ABSTRACT

Cardiovascular diseases, including arterial hypertension, are common comorbidities among the elderly due to COVID-19. This study aimed to determine the relationship between COVID-19 prevention measures and the quality of life for the elderly with hypertension during the COVID-19 pandemic. This was a descriptive correlation study that applied a cross-sectional approach that involved 133 respondents who were selected using the convenience sampling technique. Data were collected using questionnaires from the HOQOL-BREF and COVID-19 prevention. The collected data were processed using the Chi-Square test. The results showed that the number of elderly participants who took positive and negative efforts in preventing COVID-19 transmission was almost equal, with a slightly higher number of participants taking positive efforts, with a total of 69 people (51.9%). There was also a higher number of elderly participants with a good quality of life, with 71 people (53.4%). The results indicated a relationship between COVID-19 prevention measures and the quality of life of elderly patients with hypertension during the COVID-19 pandemic, with a p-value of 0.008. Therefore, it can be concluded that prevention efforts in the form of health behaviors for the elderly with certain chronic diseases comorbid with COVID-19 can affect their quality of life.

Keywords: COVID-19; elderly with hypertension; prevention measures; quality of life



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INTRODUCTION

Hypertension is a life-threatening, chronic, and non-communicable cardiovascular disease. It is also one of the main health problems in the elderly. As a disease that lasts for a lifetime which patients could not fully recover from, it is a silent killer (Indonesia's Ministry of Health, 2019). Kjeldsen *et al.* (2014) and Zhang (2015) explained that people in all age groups, including the elderly, are considered to be hypertensive if their blood pressure is persistently $\geq 140/90$ mmHg after more than 2 examinations.

Many people with hypertension do not show complaints or symptoms. However, this condition may become a complication that causes death, with a prevalence rate that tends to increase with age (Indonesia's Ministry of Health, 2019). The prevalence of hypertension at the world level was 22%, of which more than 50% is experienced by the elderly

(World Health Organization, 2019 in Indonesia's Ministry of Health, 2019). This situation also occurs in Indonesia. According to the Basic Health Research 2018 report, the prevalence of hypertension in Indonesia reached 34.1% and tends to increase with age (Indonesia's Health Research and Development Agency, 2018). The prevalence of hypertension in the 45-54-year age group is 45.3%, 55.2% in the 55-64-year age group, and 63.2% in the 65-74-year age group. Furthermore, the > 75-year age group has a 69.5% prevalence of hypertension (Indonesia's Ministry of Health, 2019).

This high prevalence of hypertension also occurs in Riau Province, as the region has a 29.14% prevalence of the disease, of which >50% the patients with hypertension are the elderly (Indonesia's Ministry of Health, 2019). Data from the Pekanbaru Health Office stated that hypertension was the

second most common disease in Pekanbaru in 2020 and was experienced by 19,026 people (Pekanbaru Health Office, 2020).

According to Gunawan *et al.* (2021), elderly individuals with comorbid diseases are at a high risk of being infected with COVID-19 and have a higher risk of death. The most common comorbid disease experienced by the elderly is hypertension.

Based on data from the Center for Disease Control and Prevention (CDC), the 65 years and over age group has the highest mortality rate due to COVID-19 globally with a percentage of 76.1% (Centers for Disease Control and Prevention, 2021). Moreover, data from the Indonesian Basic Health Research described that hypertension is the highest comorbid condition of COVID-19 in the world, including in Indonesia, at 56.6% in the USA, 58.3% in China, 49% in Italy, and 50.5% in Indonesia (Indonesia's Ministry of Health, 2020). Moreover, data from Indonesia's COVID-19 Handling and National Economic Recovery Committee (2020) indicated that hypertension is a comorbid disease that is mostly found in COVID-19 sufferers (i.e., 50.5%) and is one of the potential factors for death due to COVID-19 based on comorbidities.

The high risk of COVID-19 in the elderly with hypertension will certainly cause anxiety and result in mood and emotional disturbances. This may lead to social interaction disorders due to the social restrictions enforced to prevent the transmission of this virus. In the elderly, this affects their quality of life.

⁹ Quality of life, according to the World Health Organization (WHO), is a person's perception in the context of culture and norms of where the person lives. It is related to goals, expectations, standards, and concerns during his/her life. Quality of life covers four aspects, namely, physical, psychological, social, and environmental aspects (Putri *et al.*, 2015). Moreover, the quality of life of the elderly is influenced by their level of health, spirituality, self-esteem, and social support (Dewi, 2016; Rossyana Dewi, 2013).

A study conducted by Trevisol (2011) showed that individuals with hypertension have a low or poor quality of life compared to those with normal blood pressure. The findings from ² Handari *et al.* (2016) also supported this finding in their study regarding the quality of life of patients with hypertension in Kathmandu. The results of the study indicated that patients with hypertension had low quality of life and that this condition was in line with the patients' increasing age. The study was conducted in 2016, therefore, the results may indicate a worse condition if it was conducted during the COVID-19 pandemic.

The condition can be influenced by the behavior or efforts of the elderly, especially in preventing COVID-19. This is supported ¹¹ by a study conducted by Sari *et al.* (2017) which found a significant relationship between healthy living behavior and the quality of life of the elderly. According to the Director of Health Promotion and Community Empowerment of Indonesia's Ministry of Health, the Decree of Indonesia's Minister of Health (2020), the public must adapt their behavior to prevent the transmission of COVID-19. The behavior can be changed by being disciplined in following COVID-19 protocols, such as wearing a face mask, washing hands with soap in running water, and conducting social distancing or social restrictions by maintaining a minimum distance of 1 meter from other people. In addition, the WHO also recommends improving immunity by living a healthy lifestyle

through the consumption of nutritious food, regular exercise, obtaining sufficient rest, stress avoidance, maintaining a clean house, and getting vaccinated (World Health Organization, 2020).

In this modern era, young adults are more familiar with technology than their elder counterparts. Therefore, they would rely on technology to conduct their daily activities from home, without the need to travel. Conversely, senior citizens tend to find it difficult to use technology, making them experience more extreme impacts during social restrictions. These impacts include feelings of loneliness, anxiety, and depression (Australian Psychological Society, 2020). But close contact with others who assist them may increase their risk of contracting COVID-19. Moreover, impaired cognitive function often occurs in elderly patients, making it difficult for them to understand the importance of implementing hygiene protocols. Consequently, their risk of contracting COVID-19 is higher. This is supported by a study conducted by Yang *et al.* (2020) in China, which indicated that the elderly are less likely to engage in appropriate COVID-19 prevention behaviors.

Furthermore, a preliminary study conducted in May 2021 by the Pekanbaru Health Office showed that the highest number of cases of hypertension in the elderly was found in the working area of the Rejosari Health Center. The results of interviews with eight elderly patients with hypertension indicated the following findings: seven of them stated that they were aware of the changes that had occurred during the pandemic: they tended to be more sensitive, slept a lot, lacked activity, rarely or even never went out of the house, were lazy to wear masks, and never checked their health condition. They also experienced anxiety due to their hypertension and their increased risk of contracting and dying from COVID-19. Only one out of eight elderly said that there had been no change in their physical, psychological, and social aspects during the COVID-19 pandemic even though he rarely left the house and was lazy to use a face mask when meeting people.

Therefore, this research aims to study "the relationship between COVID-19 prevention measures and quality of life for the elderly with hypertension during the COVID-19 pandemic". To the best of our knowledge, this topic has never been studied, and this is the first research focusing on this topic that at the Rejosari Health Center in Pekanbaru city. A previous study has examined the relationship between living a healthy lifestyle and health promotion in the elderly with their general ⁸ quality of life. In contrast with the study, the objective of this study was to determine the relationship between COVID-19 prevention measures and the quality of life of the elderly with hypertension during the COVID-19 pandemic.

METHOD

Study design

¹² This was a descriptive correlation study with a cross-sectional approach. This research was conducted from August to December 2021.

Sample

¹⁵ A total of 133 respondents were selected using the convenience sampling technique. The inclusion criteria of the respondents were elderly hypertensive patients in the COVID-19 pandemic, able ³ to communicate well, active and independent, and living in the working area of the Rejosari Health Center. The Slovin formula was used to calculate the minimum number of samples.

$$n = N / (1 + (N \times e^2))$$

N = population size

n = sample size

e = sampling error (0.05)

Instrument

Data in this study were collected using a questionnaire entitled the *World Health Organization Quality of Life – BREF* (WHOQOL-BREF) which has been standardized and validated. According to the WHO (2012) in Kiik *et al.* (2018), this instrument measures four important components, i.e., physical, psychological, social, and environmental relationships, consists of 26 question items and uses a Likert scale with a rating of 1 to 5. Furthermore, Caballero *et al.* (2013) in Kiik *et al.* (2018) stated that this WHOQOL-BREF instrument has good reliability as indicated by a Cronbach's alpha value of between 0.84 and 0.88, and good validity as shown by the *r*-value of 0.75. These results indicate that the questionnaire used is valid and reliable. In addition, another instrument was used to collect data on COVID-19 prevention measures, and this was compiled based on a literature review. The instrument was also in the form of a questionnaire which consisted of 19 questions regarding the application of health protocols, food intake, activity, exercise, and vaccinations. This instrument was tested and declared to be valid and reliable.

Data collection

This study was performed in Pekanbaru, specifically in the working area of the Rejosari Health Center which has the highest population of elderly patients with hypertension in the region. The initial stages of data collection included explaining the purpose of this study to the family of the respondents and distributing informed consent forms. If the families agreed, the respondents underwent the data collection process. In these stages, the researchers were assisted by enumerators and local health cadres.

Data analysis

The collected data were then processed in univariate and bivariate analyses using the SPSS software. The statistical test employed was the chi-square test. This was used to determine the relationship between COVID-19 prevention measures and the quality of life of elderly patients with hypertension during the COVID-19 pandemic.

Ethical consideration

This study has received ethical approval from the Ethics Committee for Nursing and Health Research, Faculty of Nursing, the University of Riau with the Number: 216/JN.19.5.1.8/KEPK.FKp/2021, dated July 31, 2021.

RESULTS

Characteristics of elderly patients with hypertension

The frequency distribution of the characteristics of elderly patients with hypertension based on age, sex, education, marital status, occupation, and condition of hypertension (n = 133) is presented in Table 1.

Table 1. The frequency distribution of the characteristics of elderly patients

Characteristics	n (%)
Age	
60-74	106 (79.7)
75-90	27 (20.3)
Sex	
Male	50 (37.6)
Female	83 (62.4)
Education	
None	3 (2.3)
Elementary school	46 (34.6)
Junior high school	34 (25.6)
Senior high school	41 (30.8)
College	9 (6.8)
Marital Status	
Married	106 (79.7)
Widow/ widower	27 (20.3)
Working status	
Work	41 (30.8)
Not work	92 (69.2)
Length in suffering from hypertension	
< 5 Years	57 (42.9)
≥ 5 Years	76 (57.1)
Classification of hypertension	
Mild	20 (15)
Moderate	84 (63.2)
Severe	29 (21.8)

Table 1 shows that the majority of the respondents were aged 60-74 years, at 106 people (79.7%). Of which most were female, at 83 people (62.4%). Based on their education, most of them had a low level of education (junior high school and below), at 83 people (62.5%). Moreover, according to marital status, a majority of them were married, 106 people (79.7%). For the respondents' length of suffering from hypertension, most of them have suffered from hypertension for ≥ 5 years, at 76 people (57.1%). Furthermore, most of them had moderate hypertension at 84 people (63.2%).

The efforts taken by elderly patients with hypertension in preventing COVID-19 transmission

Table 2. The frequency distribution of the efforts taken by elderly patients with hypertension in preventing COVID-19 transmission

COVID-19 prevention measures	n (%)
Positive	69 (51.9)
Negative	64 (48.1)

Table 2 exhibits that the number of elderly patients who took positive and negative efforts in preventing COVID-19 transmission was almost equal, where those who took positive efforts were slightly higher at 69 people (51.9%).

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The quality of life of elderly patients with hypertension during the COVID-19 pandemic

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Table 3. The frequency distribution of the quality of life of elderly patients with hypertension during the COVID-19 pandemic

The quality of life of the elderly	n (%)
Physical dimension	
Good	62 (46.6)
Poor	71 (53.4)
Psychological dimension	
Good	37 (27.8)
Poor	96 (72.2)
Social dimension	
Good	74 (55.6)
Poor	59 (44.4)
Environmental dimension	
Good	72 (54.1)
Poor	61 (45.9)
Quality of Life (in general)	
Good	71 (53.4)
Poor	62 (46.6)

2
Table 3 shows that the **7** quality of life of the majority of elderly patients with hypertension during the COVID-19 pandemic was poor based on the physical and psychological dimensions, totaling 71 (53.4%) and 96 people (72.2%), respectively. However, based on the social and environmental dimensions, their quality of life was good, totaling 74 (55.6%) and 72 people (54.1%), respectively. **6** Furthermore, for quality of life as a whole, 53.4% (71 people) of elderly patients with hypertension had a good quality of life.

6
The relationship between COVID-19 prevention measures and the quality of life of elderly patients with hypertension

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Table 4. The relationship between COVID-19 prevention measures and the quality of life of elderly patients with hypertension during the COVID-19 pandemic

COVID-19 prevention measures	Quality of Life of the elderly		Total	p-value
	Good	Poor		
	n (%)	n (%)	n (%)	
Positive	45 (65.2)	24 (34.8)	69 (100)	0.008
Negative	26 (40.6)	38 (59.4)	64 (100)	

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The Chi-square test results show that there is a relationship between COVID-19 prevention measures and the quality of life of elderly patients with hypertension during the COVID-19 pandemic with a p-value of 0.008.

DISCUSSION

As indicated in Table 1, the majority of our elderly respondents were female. Data from the Central Statistics Agency (2020) indicated that the life expectancy rate of citizens aged 60 years and over in Indonesia is considered high with a percentage of 64.29% and is expected to continue to increase every year. The results of a study conducted by Arifin *et al.* (2016) presented that the majority of hypertension sufferers were aged 60 years and over with a higher prevalence in women. Moreover, in Indonesia, the highest comorbid disease experienced by the elderly is hypertension (Gunawan *et al.*, 2021).

In addition, Akbar *et al.* (2020) also found that elderly patients who suffer from hypertension are generally female (82.8%). This occurs because women experience menopause and a decline in hormones in the endocrine system, such as estrogen and progesterone. The decrease in estrogen hormone results in low levels of HDL (High-Density Lipoprotein) cholesterol and high levels of LDL (Low-Density Lipoprotein) cholesterol which affects the process of atherosclerosis. This condition can increase blood pressure in women (Riyadina *et al.*, 2017).

Most of the elderly patients with hypertension in this study had a low level of education. This finding is in line with a study conducted by Herlinah *et al.* (2013) which found that the majority (79.8%) of the patients with hypertension had low education levels (junior high school and below). According to Anggara & Prayitno (2013), an individual's level of education affects their lifestyle as it may contribute to smoking habits, alcohol consumption, food intake, and physical activity that may have adverse effects on blood pressure in the elderly.

Based on marital status, most of the respondents in this study were married. A study conducted by Hanum & Lubis (2017) found that the majority of the hypertension sufferers in their study were also married.

For the length of suffering from hypertension, most of the elderly patients in this study have suffered from hypertension for ≥ 5 years. This is in line with the results of a study conducted by Prasetyorini *et al.* (2012) which also found that the majority of hypertension patients in their study have been suffering from hypertension for > 5 years. Furthermore, based on the severity, most of the elderly respondents in this study had moderate hypertension.

This study's results indicate that some of the elderly respondents have made positive efforts in implementing the health protocols set by the government and took several other preventive measures to prevent COVID-19 transmission, such as improving their body's immune system, maintaining environmental cleanliness, and willingness to get vaccinated (Decree of Indonesia's Minister of Health, 2020). The results of this study are in line with a study conducted by Al-Hanawi *et al.* (2020) which showed that they tend to perform good actions in preventing COVID-19 compared to younger people. This shows that the elderly are starting to care about their health. However, this behavior is influenced by self-efficacy, education level, as well as support from their families (Eunju Lee & Euna Park, 2017).

This study found that a majority of the respondents in this study had a poor quality of life based on the physical dimension. This is because they have had hypertension for more than five years. Indonesia's Ministry of Health (2019) describes hypertension as a lifelong chronic disease and a silent killer. The results of this study are in line with a study conducted by Santiya Anbarasan (2015) which showed that the quality of life of the majority of their elderly respondents based on the physical dimension was poor (71.7%). Furthermore, in this study, from the psychological dimension, the quality of life of the majority of the elderly respondents was also poor. However, based on the social and environmental dimensions, the quality of life of the elderly patients in this study was good. These findings are supported by a study conducted by Rosyana Dewi (2013) who discovered the same pattern. For the quality of life as a whole, the majority of the elderly patients with hypertension had a

good quality of life. This finding is in line with a study conducted by Santiya Anbarasan (2015).

Table 4 shows that there is a relationship between COVID-19 prevention measures and the quality of life of elderly patients with hypertension during the COVID-19 pandemic. These findings are based on the results of the chi-square test which indicated a p -value of 0.008 (< 0.05). This means that COVID-19 prevention measures correlate with the quality of life of elderly patients with hypertension. Sari *et al.* (2017) also found a significant relationship between healthy living behavior and the quality of life of the elderly, in which healthy behavior can result in an adequate quality of life and possibly a longer life. As stated by Ong-Arborirak & Seangpraw (2019), if one shows good self-care behavior, they will have good health which can lead to an increase in the person's quality of life.

Furthermore, the results of a study conducted by Li *et al.* (2018) indicated a relationship between a healthy lifestyle and the quality of life of elderly patients with hypertension. Continuous family support is expected necessary to maintain elderly's health, including their adherence to the treatment when they have disease (Iskandar *et al.*, 2019). Nevertheless, the quality of life and healthy lifestyle must continuously improve. This finding is also in line with a study conducted by Lestari & Zakiah (2020) which concluded that the health behavior of the elderly affects their quality of life, in which poor health behavior may worsen their quality of life. They added that healthy behavior, especially in the elderly, must be comprehensive and continue to be improved and taught.

CONCLUSION AND RECOMMENDATION

A relationship was found between COVID-19 prevention measures and the quality of life of elderly patients with hypertension during the COVID-19 pandemic. It can be concluded that prevention efforts in the form of healthy behaviors for the elderly can affect their quality of life with certain chronic diseases that are comorbid with COVID-19. Therefore, nurses in health centers need to provide health education about various efforts to prevent COVID-19 transmission to the elderly with hypertension and their families to improve their quality of life.

This study was conducted using only questionnaires without observation guidelines related to the efforts taken to prevent COVID-19 in elderly patients with hypertension and their quality of life during the COVID-19 pandemic.

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