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ORIGINAL ARTICLE

HEALTH LITERACY AND MEDICATION ADHERENCE AMONG PATIENTS WITH HYPERTENSION

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ABSTRACT

Hypertension requires patients to adhere to a medication regimen that needs to be adhered to for life to control blood pressure and prevent complications. A related factor to medication adherence is patients' health literacy, which influences their ability to maintain hypertension prescription regimens. This factor is critical in managing chronic diseases, such as hypertension, to achieve optimal health. This study aims to investigate the relationship between health literacy and medication adherence in patients with hypertension. The study was conducted at public health care centers in West Sumatra. This study used a quantitative approach with a cross-sectional design. The researchers used a non-probability sampling technique, namely purposive sampling, for a total sample of 175 respondents. Data were collected using the Morisky Medication Adherence (MMAS-8) and Health Literacy Survey Europe-16 (HLS-EU-Q16) questionnaires. Data were processed using computerization with *chi-square* test. The results showed that 41.7% of patients with hypertension have sufficient health literacy, and 46.9% have low levels of medication adherence. In addition, 52.3% with inadequate health literacy had low levels of medication adherence. The statistical test results obtained a p-value = 0.001 ($p < 0.005$), indicating a relationship between health literacy and medication adherence. It is essential to improve hypertension treatment adherence by improving the health literacy of patients with hypertension.

Keywords: *Health literacy; HLS-EU-Q16; hypertension; medication adherence; MMAS-8*

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INTRODUCTION

The prevalence of hypertension worldwide has significantly increased, posing a major global public health challenge. Between 2010 and 2016, it is estimated that 31.1% of adults worldwide had hypertension, with a higher prevalence observed in low- and middle-income countries (LMICs) than in high-income countries (Mills et al., 2016). The number is projected to increase by 60% to 1.56 billion in 2025 (Angeli et al., 2013). Meanwhile, Indonesia is one of the countries with the highest cases of hypertension in Southeast Asia, with 34.1% of the population living with this chronic condition (Pulungan et al., 2022).

Self-management is essential for people with hypertension to maintain their well-being and prevent complications. Management of the condition includes self-care management, lifestyle modifications, and medication adherence (Barus et al., 2023). Medication is crucial role in maintaining blood pressure control (Ernawati et al., 2022). Medications have been shown to control blood pressure and significantly reduce the risk of developing cardiovascular complications. Nevertheless, patients with hypertension need to continuously use antihypertensive drugs for a long time to achieve this outcome (Shi et al., 2019).

Adherence is the patient's ability to accurately follow the prescribed treatment regimen (Sawkin et al., 2015). A patient's level of compliance with prescribed medications, including timing, dosage, and intervals, is referred to as medication adherence (Schönfeld et al., 2021). It is influenced by many factors, including sociodemographic characteristics, e.g., age, gender, education level, insurance, anxiety level, depression, sleep disturbances, and health literacy (Lor et al., 2019).

Health literacy is the degree to which individuals are motivated and able to access, understand, and use information that promotes and maintains good health (Rowlands, 2014). It is a mediator that can explain the relationship between the individual and a health context (Wannasirikul et al., 2016). It is also essential in empowering, engaging, and motivating an individual in a person-centered care model (Parnell et al., 2019). Health literacy is vital since it indicates an individual's knowledge and potential to achieve and participate in goals. Moreover, it has been proven effective in improving health practices (Wannasirikul et al., 2016).

Individuals with good health literacy tend to comply better and adhere to medication and non-medication regimens for chronic and acute diseases (Miller, 2016). Previous studies have found that health literacy improves individuals' self-management skills (MacKey et al., 2016) and guarantees positive behavioral changes (Duong et al., 2018; Guntzviller et al., 2017; Yokokawa et al., 2016). Patients' knowledge about hypertension and literacy is also the predictor of medication adherence (Boima et al., 2015; Pan et al., 2017; Shirindi et al., 2016). Moreover, a recent study found that health literacy directly increases medication adherence, specifically in older adults with hypertension (Satriana et al., 2021).

Furthermore, increased health literacy improves patient adherence to hypertension medication. Hypertensive patients with good health literacy levels can manage their disease or have good self-care (Kilic & Dag, 2020). Conversely, individuals with reduced levels of health literacy are more likely to be hospitalized due to low adherence to their medication regimen and inability to manage chronic conditions. Therefore, it is vital for healthcare providers to evaluate and understand people's health literacy to facilitate effective interventions (Duong et al., 2019). Currently, health workers do not consider measuring the patient's understanding of the information provided. Therefore, this study aims to determine hypertensive patients' health literacy and medication adherence.

METHOD

Study Design

This cross-sectional study was conducted at a public health center in West Sumatra.

Participants

The researchers used a non-probability sampling technique, specifically purposive sampling, with a total sample of 175 respondents. The inclusion criteria for this study were individuals aged 18-45 years who provided informed consent, individuals with hypertension without comorbidities, and those with good communication skills.

Instrument

This study used the Morisky Medication Adherence (MMAS-8) and Health Literacy Survey Europe-16 (HLS-EU-Q16) questionnaires to assess the respondents' adherence to medication and health literacy. The MMAS-8 questionnaire consists of eight questions, and the respondents were asked to answer questions 1-7 with a choice of yes or no. In question 8, they had the following answer options: never, occasionally, sometimes, often, and always. The final assessment is calculated based on the total score and categorized as low adherence for a score <6, moderate adherence for a score of 6-7, and high adherence for a score of 8. This questionnaire is a standardized instrument whose validity and reliability have been confirmed, with item selection values ranging from 0.305 to 0.463 and a Cronbach's alpha of 0.675, indicating good reliability (Prabowo & Huwae, 2022).

The HLS-EU-Q16 questionnaire was used for the assessment of health literacy. It consists of 16 questions with a Likert scale of 1-4, where 1 = very difficult, 2 = moderately difficult, 3 = fairly easy, and 4 = very easy. In addition, it measures health literacy dimensions from health services, disease prevention, and health promotion. The level of health literacy is calculated from the total score categorized as follows: inadequate (0-8), problematic (9-12), and sufficient health literacy (13-16) (Pelikan et al., 2014). This questionnaire has been tested for validity and reliability with a Cronbach Alpha of 0.947 (Nurjanah & Rachmani, 2014).

Data Analysis

The data underwent univariate and bivariate analyses. The univariate analysis analyzed the proportions of demographic data. Meanwhile, the bivariate analysis was conducted using the Chi-Square test to measure the relationship between health literacy and medication adherence.

Ethical Consideration

This study was approved by the Ethics Commission of the Faculty of Nursing of Universitas Andalas with number 215a/KEPK/2021 and has fulfilled the human requirements based on the Helsinki study protocol.

RESULT

The results show that 66.9% of the respondents are between 36 and 45 years old, 57.1% are female, and 37.1% are senior high school graduates.

Table 1. Respondents' Characteristics (n = 175)

Respondents' Characteristics	f	%
Age		
18-25	6	3.4
26-35	52	29.7
36-45	117	66.9
Gender		
Female	100	57.1
Male	75	42.9
Highest Education Level		
Primary school	37	21.1
Junior high school	43	24.6
Senior high school	65	37.1
Graduates	30	17.1
Total	175	100

This study found a significant relationship between health literacy and medication adherence (p-value = 0.001). A total of 44 respondents had inadequate health literacy, of which 23 (52.3%) had low medication adherence. Next, 58 respondents had problematic health literacy, of which 34 (58.6%) had a low level of medication adherence, and 18 (31%) had a moderate level of medication adherence. Moreover, this study found that 73 respondents had sufficient health literacy, of which 31 (42.5%) had a high level of medication adherence, 25 (34.2%) had a low level of medication adherence, and 17 (23.3%) had a moderate level of medication adherence (Table 2).

Table 2. The relationship between health literacy and medication adherence in patients with hypertension

Variable	Level of medication adherence						n	%	p-value
	Low		Moderate		High				
	n	%	n	%	n	%			
Health literacy									
Inadequate	23	52.3	11	25	10	22.7	44	100	0.001
Problematic	34	58.6	18	31	6	10.3	58	100	
Sufficient	25	34.2	17	23.3	31	42.5	73	100	

DISCUSSION

Health literacy is generally defined as an individual's ability to access, understand, and use health information to maintain and improve their own health and make appropriate decisions regarding health-related services. Studies have found that younger individuals tend to understand and analyze health information more effectively. In this study, most respondents were in their productive age range (36–45 years old) and demonstrated sufficient health literacy.

Gender is also a contributing factor to medication adherence. This study showed that women had higher health literacy than men, and most female respondents had a high level of medication adherence. The gap may be associated with women's increased familiarity with navigating the healthcare system and dealing with health issues. A previous study explained that women report more health issues and have higher medical service utilization and charges than men (Lee et al., 2015).

Moreover, attitudes, beliefs, and motivation toward health issues might influence adherence to recommendations, particularly how drug therapies are distributed based on gender. Notwithstanding the wide range of published literature on this issue, conflicting findings have been reported about medication adherence and gender. Women have higher levels of hypertension awareness than men. Therefore, they may be more motivated to adhere because they understand the risk of non-adherence and are more motivated to seek healthcare services (Biffi et al., 2020).

Furthermore, education is related to health literacy and medication adherence. Respondents with higher education levels had better health literacy (Kostenius et al., 2017). This finding aligns with Darvishpour et al. (2016), who showed that respondents with a high education level have sufficient literacy. Education is also related to a patient's knowledge and capacity to receive information (Altin et al., 2014). Higher education may help respondents obtain more knowledge, improving their ability to access, read, analyze, and use information to increase their health literacy and experience. Therefore, the higher the patient's education level, the greater their health literacy and management of hypertension. Next, this study's data analysis revealed a significant relationship between health literacy and medication adherence. This finding aligns with Shi et al. (2019), who studied the relationship between health literacy and adherence to hypertension treatment (p-value = 0.01). This result is similar to Lor et al. (2019), who found a relationship between health literacy and medication adherence with a p-value of 0.043. In their study, the respondents with a high literacy level were highly compliant with hypertension treatment. Another study also showed a significant positive relationship between health literacy and medication adherence. Thus, patients with sufficient health literacy have higher compliance with their medication regimen (Schönfeld et al., 2021).

Poor medication adherence in patients with hypertension may cause uncontrolled blood pressure. There is a relationship between medication adherence, blood pressure control, and a patient's health literacy. The ability to find, understand, assess, and use information positively correlates with medication adherence (Shi et al., 2019). Wahyuningsih (2019) explained that health literacy influences adherence to hypertension. A high level of health literacy will be directly proportional to knowledge, the ability to take a pill regularly, and treatment adherence. Therefore, health literacy is essential for building knowledge and encouraging positive actions. Based on this study, it can be shown that one of the factors affecting hypertension treatment adherence is the health literacy of hypertension patients. Counseling and health education can help increase medication adherence by strengthening patients' health literacy. Therefore, it is essential to improve hypertension treatment adherence by improving the health literacy of patients with hypertension.

This study used a cross-sectional design, which limits the ability to establish causality between health literacy and medication adherence. Also, it did not account for sociocultural factors or roles that may influence these differences, potentially leading to an oversimplification of gender-based findings.

CONCLUSION

This study found a relationship between health literacy level
This study found a relationship between health literacy levels and medication adherence in patients with hypertension, with higher health literacy being associated with greater adherence to medication regimens. However, the study also revealed that some patients still exhibit sufficient or problematic health literacy levels. Therefore, it is recommended to investigate the effectiveness of targeted interventions, such as health education programs and counseling, to enhance health literacy and, consequently, improve medication adherence among patients with hypertension. Additionally, future studies should consider incorporating factors such as psychological well-being, healthcare access, and cultural influences to gain a deeper understanding of the complexities affecting health literacy and adherence.

DECLARATION OF CONFLICT OF INTEREST

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