



## Health Literacy and Hypertension Medication Adherence: A Systematic Review

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**Background and Objectives :** Medication adherence plays a crucial role in the management of hypertension. Low health literacy leads to poor disease management and medication adherence. This study aims to identify the relationship between health literacy and medication adherence in hypertension based on empirical studies conducted over the past ten years.

**Material and Methods:** This systematic review employed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) reporting criteria and was designed according to the PICO (Participant, Intervention, Comparison, and Outcomes) framework. The study sources were research articles retrieved from two databases PubMed and ScienceDirect covering the period from 2014 to 2024. Of the 62 scientific articles identified, 11 were included in the data synthesis. The review protocol (PROSPERO) registration number CRD420251049123 has been registered in the International Prospective Register of Systematic Reviews.

**Result :** Health literacy status was categorized into two or more groups: limited and adequate; limited, marginal, adequate; problematic, inadequate, adequate, and very good. There are five instruments that assess the four domains of health literacy: the Newest Vital Sign, the HL questionnaire by Montazeri et al, the Health Literacy in Hypertension Scale, the European Health Literacy Survey (HLS-EU-Q12M), and the Health Literacy Management Scale (HeLMS). All studies indicated that hypertensive patients with high health literacy tended to have better treatment adherence.

**Conclusion :** The study findings indicate that health literacy plays a crucial role in improving medication adherence and self-management of hypertension. However, the relationship between health literacy and medication adherence is not always direct. Variations in social and cultural contexts, healthcare systems, family support, and individual characteristics can influence the effectiveness of health literacy in shaping patients' adherence behaviors.

**Keywords:** Health Literacy, Hypertension, Medication Adherence

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## Introduction

Hypertension is a common disease of the cardiovascular system that causes approximately 71 million deaths worldwide each year, the mortality rate was 26.4% in 2000 and is expected to increase to 29.2% by 2025 (1). Its prevalence increases with age so its global prevalence will increase exponentially in the near future due to the increase in the elderly population in the world. Furthermore, there has been a 41% increase in the number of adult hypertensive patients over the past thirty years (1999-2019) in the European region and the Americas region. In contrast, the Southeast Asia and Western Pacific regions experienced a significant increase of 144%. Emphasizing the need for hypertension control is critical, especially in the Southeast Asia and Western Pacific regions, to reduce the global incidence of cardiovascular disease (2).

Looking at the situation by region, the percentage of adults with hypertension in 2019 decreased in the European region compared to 1990, but increased in the Asian region, particularly in the Western Pacific Region from 24% to 28%, including countries such as Australia, New Zealand, China, Republic of Korea, Philippines, Malaysia, Vietnam, and Japan and in the Southeast Asia region from 29% to 32%, including countries such as India, Nepal, Indonesia, and Thailand. The number of adults with hypertension in the Western Pacific region more than doubled in 2019 compared to 1990, rising from 144 million to 346 million (3).

The first WHO Global Report on hypertension has been released. The background of this report is the emerging burden of hypertension in the world, which causes cardiovascular disease and death from any cause. The report emphasizes the urgent need to address hypertension and its associated complications, which affect more than one billion people worldwide. According to the report, only 54% of adults with hypertension are diagnosed, 42% receive treatment, and only 21% of hypertension is controlled. These statistics underscore the need for increased awareness and management of hypertension (3).

Hypertension if left untreated can lead to serious consequences such as heart disease, stroke, kidney damage, visual impairment and increased risk of aneurysms. Mortality due to hypertension contributes to 25.3% per 100,000 people causing 9.4 million deaths and half of them are caused by stroke. Especially among the elderly population, the prevalence of high



blood pressure reaches up to 5%. If it cannot be controlled, it can lead to stroke and become a burden to the family. Therefore, it is very important to establish interventions aimed at preventing the onset of disease and reducing the impact of disease on health so that it does not become more severe (4).

Researchers generally agree that improving health literacy about hypertension can be a panacea for reducing the prevalence of hypertension and related diseases. The concept of health literacy has received increasing attention in recent decades, but its tailored use in specific disease situations and subsequent application to disease care and prevention have not been utilized (5). Inadequate health literacy interferes with understanding medical information, reading and understanding prescriptions, impedes medication adherence, prevents acquisition of lifestyle changes, and negatively interferes with patient treatment (6). Health literacy leads to increased awareness of health issues and consequently, better self-care. The World Health Organization (WHO) introduced health literacy as one of the most important determinants of health (7). Nonadherence to hypertension treatment leads to increased morbidity, mortality, and healthcare costs, as well as frustration among patients and healthcare providers. Nonadherence to treatment limits the effectiveness of prevention strategies and leads to a significant increase in cardiovascular complications (8).

Systematic reviews show that the criteria for defining literacy vary across studies. Health literacy is the capacity to acquire, process and understand basic information and services needed to make informed decisions in health. The American Medical Association (AMA) divides the field of health literacy into cultural and conceptual knowledge, print health literacy (writing and reading skills), oral health literacy (listening and speaking), and numeracy (8). Health literacy empowers patients to understand medical complexities, access healthcare resources and actively manage health, thus promoting empowerment. Health literacy is particularly relevant for patients with chronic conditions, such as those with hypertension. Several studies have found that individuals with high blood pressure who have good health literacy can have an impact on preventing the onset of disease or reducing the severity of disease that has already occurred. Health literacy skills can create health awareness, and improve self-care behaviors to maintain good health for hypertensive patients (4).

Patient health literacy is a determining factor behind the outcomes of patient education programs. Health literacy is influenced by various physical, mental and psychological factors and declines with age. Limited health literacy is associated with poor medication adherence, high emergency department admission rates, long treatment and hospital stays, and increased mortality (9). Studies suggest adequate health literacy is a determining factor for controlling hypertension among hypertensive patients. Furthermore, health literacy promotion interventions influence patient medication adherence (10).

Although health literacy has been shown to play a role in improving medication adherence, self-care behaviors, and blood pressure control in patients with hypertension, research findings still show variation in the approaches, measurements, and effectiveness of interventions. Furthermore, scientific evidence regarding the implementation and effectiveness of health literacy for hypertension has not yet been comprehensively synthesized. Therefore, this systematic review was conducted to evaluate and synthesize the latest evidence regarding the role of health literacy in hypertension control, medication adherence, and self-care behaviors among hypertensive patients as a basis for developing more effective evidence-based interventions.

## Materials and Methods

A systematic review was conducted using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) reporting criteria (11) were applied in this review to present the flow diagram of the literature's identification, screening, exclusion, inclusion. and was designed according to PICO (Participant, Intervention, Comparison and Outcomes) criteria. The review protocol (Registration number PROSPERO CRD420251049123) has been registered with the International Prospective Register of Systematic Reviews. The references taken from scientific journals came from 2 databases PubMed and Science Direct.

The eligibility criteria for the systematic review were developed using the PICO (Participants, Intervention, Comparison, Outcomes) framework to ensure a structured search strategy and study selection process (Table 1).

**Table 1. The PICO (Participants, Intervention, Comparison, Outcomes) criteria used to construct the systematic review.**

Criteria	Description
Participants (P)	hypertension patient group

Intervention (I)	Health literacy
Comparison (C)	Medication adherence
Outcomes (O)	The effect of health literacy on medication adherence in patients with hypertension

We used the following exclusion criteria in our literature search strategy: studies published before 2014 and studies not fulltext. The search was limited to English literature, published from January 2014 to December 2024, and will be re-run prior to the final analysis. Keywords and MESH terms, "Literacy" OR "Information Literacy" OR "Health Literacy" AND "Medication Adherence" OR "Assessment of Medication Adherence" AND "Hypertension" OR "Essential Hypertension". The restriction to publications from the past 10 years was implemented to ensure that the synthesized evidence reflects the latest developments in knowledge, clinical guidelines, and interventions, thereby enhancing the relevance of the study's findings to current health practices and policies (Table 2).

**Table 2. Terms used for search strategy**

Concept 1		Concept 2		Concept 3
Literacy OR "Information Literacy" OR Health Literacy	AND	"medication adherence" OR "Assessment of Medication Adherence"	AND	Hypertension OR "Essential Hypertension"

Articles were chosen in three stages: selection based on titles, followed by abstract consideration, and assessing the full text. Bibliographic information such as author, publication year, title, and journal, study design, setting, country, inclusion and exclusion criteria, subject recruitment, age, gender, and the study's duration and dates were all acquired.

The data gathered were then exported to Microsoft Excel from Mendeley, a reference manager software, and full texts. Two reviewers independently performed the data extraction and analysis, cross-checked, and reviewed and resolved any discrepancies. "Literacy" OR "Information Literacy" OR "Health Literacy" AND "Medication Adherence" OR "Assessment of Medication Adherence" AND "Hypertension" OR "Essential Hypertension". Measuring article quality using the convergent integrated analysis framework suggested by the Joanna Briggs Institute (12) (Table 3).

**Table 3. Article quality**

Authors	JBI critical appraisal checklist	article quality
Persell et al., (2020)	100 % (8/8)	Powerful
Cangussú et al., (2022)	100 % (8/8)	Powerful



Authors	JBI critical appraisal checklist	article quality
Nagarjuna et al., (2023)	100 % (8/8)	Powerful
Karami et al.( 2023)	100 % (9/9)	Powerful
Gaffari-Fam et al.( 2020)	100 % (8/8)	Powerful
Hulya Firat Kilic & Sinem Dag, (2020)	88% (7/8)	Powerful
Sukcharoen et al., (2024)	100 % (9/9)	Powerful
Doubova & Monroy, (2024)	100 % (8/8)	Powerful
Liu et al., (2024)	88% (7/8)	Powerful
Lou et al. (2023)	100 % (8/8)	Powerful
Fu et al., (2022)	92% (12/13)	Powerful

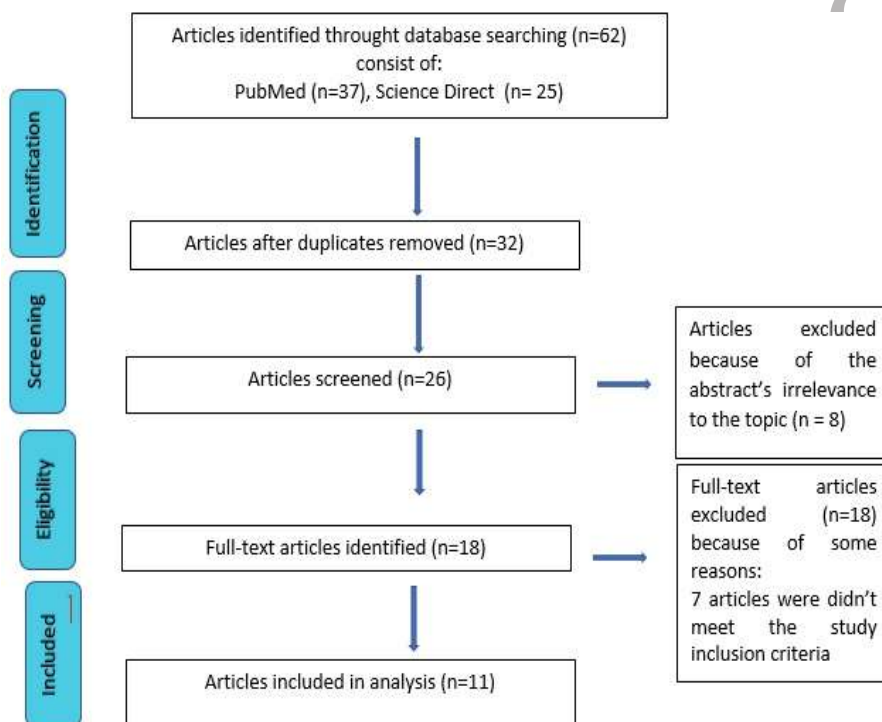


Figure 1. PRISMA flow chart (11)

## Result

The search results yielded 62 studies from 2 databases PubMed (n=37) and Science Direct (n=25) based on search keywords. The screening results excluded 32 research articles based on the inclusion criteria. A total of 18 articles continued full text screening for more comprehensive analysis. The final results obtained 11 research articles that met the inclusion criteria and were analyzed (**Table 4**).

**Table 4. Characteristics of literature review articles**

Authors	Design	Study Sample	Analysis	Outcomes	Instrument	Suggestions
Persell et al., (2020)	Cross-sectional	1460 hypertensive patients aged >18 years in the Chicago area United States	Linear regression	Low health literacy is associated with poorer medication management	<ol style="list-style-type: none"> <li>1. Health literacy with the Newest Vital Sign score into 3 categories based on a score of 0 to 6: likely limited (0 or 1), possibly limited (2 or 3) and likely adequate (4 or greater) Medication reconciliation</li> <li>2. knowledge of drug indications</li> <li>3. understanding of instructions and dosage</li> <li>4. medication adherence with the Patient Medication Adherence Questionnaire (PMAQ)</li> </ol>	Patients must have their information needs met through the use of information technology, verbal information exchange, education of family members/caregivers, health education from health professionals.
Cangussú et al., (2022)	Cross-sectional	105 hypertensive patients >26 years old in the Northeast region of Brazil	Correlation test	For both literacy tests applied, it can be observed that approximately 60% of the patients interviewed did not demonstrate adequate health literacy. It was found that factors such as increasing age, low economic class, and low education were associated with a low level	<ol style="list-style-type: none"> <li>1. Clinical and sociodemographic.</li> <li>2. Health literacy level measured by SAHLPA-18: adequate score &gt;14, S-TOFHLA with inadequate score 0-53 inadequate, 54-66 borderline and 67-100 adequate.</li> <li>3. Quality of life using the MINICHAL questionnaire</li> </ol>	The high number of hypertensive patients with low health literacy has an impact on treatment success. Special Attention needs to be paid to the delivery of health information



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				of health literacy. In the evaluation of quality of life by MINICHAL, 46.7% of patients reported that hypertension interfered with quality of life.		
Nagarjuna et al., (2023)	Cross-sectional	104 hypertensive patients aged 38-80 years in an urban slum in Western Maharashtra India	Chi-square and Fisher's exact test	Health Literacy and access to primary health care are important factors in hypertension self-care management in hypertensive patients	<ol style="list-style-type: none"> <li>1. Health Literacy with HBP-HLS scale 0 to 60. Criteria low &lt;32, medium 32-40, sufficient ≥ 40</li> <li>2. sociodemographic profile</li> <li>3. health status</li> <li>4. satisfaction with access to primary health care</li> <li>5. hypertension self-care management</li> </ol>	Educational models of self-care practices, improved access to primary health care, and interventions to improve health literacy play an important role in the control of hypertension and other NCDs. health literacy play an important role in the control of hypertension and other NCDs.
Karami et al. (2023)	Quasi-experimental design	118 hypertensive patients aged >30 years in Kermanshah Iran	Independent sample t-test	The implementation of programmatic instruction through M-Health has shown positive effects on the health literacy of patients with uncontrolled hypertension	<ol style="list-style-type: none"> <li>1. Demographic characteristics questionnaire</li> <li>2. Hypertension health literacy scale (HBP-HLS)</li> <li>3. Hypertension patients' adherence to medication</li> </ol>	In addition to detecting and treating patients, it is important to prioritize improving health literacy in terms of medication adherence and adoption of healthy behaviors.
Gaffari-Fam et al. (2020)	Cross-sectional	210 hypertensive patients aged >30 years in Iran	Linear regression	Positive relationship between health literacy and healthy lifestyle practices.	<ol style="list-style-type: none"> <li>1. Demographic data</li> <li>2. Health Literacy with Iranian health literacy questionnaire by Montazeri</li> <li>3. Lifestyle</li> </ol>	Public health promotion and the need to develop health literacy to reduce hypertension through healthy lifestyles.
Hulya Firat Kilic & Sinem Dag, (2020)	Cross-sectional	101 hypertensive patients aged > 18 years in the Internal Medicine and Cardiology Outpatient Clinic of a hospital in Cyprus	Mann-Whitney U test, Kruskal-Wallis H test and Spearman's rho correlation coefficient	Medication adherence in hypertensive patients can be improved by increasing the level of health literacy	<ol style="list-style-type: none"> <li>1. Medication adherence</li> <li>2. Health literacy using the Adult Health Literacy Scale (AHLIS)</li> </ol>	Nursing professionals are advised to consider health literacy in their interventions to improve medication adherence.
Sukcharoen et al., (2024)	Experiments	36 hypertensive elderly patients aged >60 years	T-test	The impact of the transformative health	<ol style="list-style-type: none"> <li>1. Transformative health literacy model</li> </ol>	Healthcare professionals can use the transformative health literacy model,



		in Surat Thani province Thailand		literacy model encourages them to make changes in their health behaviors, and develop healthier habits.	2. Health literacy using hypertension health literacy scale with 27 questions, criteria: very high (4.021-5.00), high (4.20-3.41), medium (3.40-2.61), low (2.60-1.81), very low (1.80-1.00).	assisting in the prevention and reducing the severity of hypertension-related problems in the healthcare environment.
Doubova & Monroy, (2024)	Cross-sectional	349 hypertensive patients aged >18 years in the family medicine unit of the Mexican Social Security Institute	Chi-square Poisson multiple regression	Adequate health literacy is associated with improved blood pressure control in patients with high school education or higher	1. Health Literacy with HLS-EU-Q12M questionnaire validated in Mexico 2. Blood pressure control	Research on health literacy needs to be continued, especially in hypertensive patients with low education to better understand the relationship between literacy and blood pressure control.
Liu et al., (2024)	Cross-sectional	338 hypertensive patients aged 32-59 years in Sichuan Province, China.	Correlation test	Health literacy emerged as a strong positive driver for self-management, with perceived illness and self-efficacy serving as parallel mediators between health literacy and self-management.	1. health literacy using the Health Literacy Management Scale (HeLMS) consisting of 24 items 2. disease perception 3. self-efficacy 4. self-management	Attention to self-management behaviors in rural communities by increasing health literacy, reducing negative perceptions of illness, and strengthening self-efficacy.
Lou et al. (2023)	Cross-sectional	1,073 adults with hypertensive disease 30 to 64 years old in Baltimore City, Maryland USA	Linear regression models	Higher health literacy but not health numeracy is associated with higher diet conformity	1. physiological assessment 2. health literacy measurement using REALM and TOFHLA 3. laboratory measurements 4. Dietary adherence	Future research could investigate the exact nature of the relationship between education, health literacy, and dietary appropriateness or quality. Interventions to improve adherence to blood pressure-lowering dietary patterns for people with hypertension
Fu et al., (2022)	Cluster randomized controlled trials	287 hypertensive patients in Chinese primary care clinics	Multivariable logistic regression model	Patients with adequate health literacy are better at conducting hypertension risk assessment and management programs	1. Health literacy with the Chinese Health Literacy Scale for Chronic Care 2. HBPM knowledge and practice	Healthcare professionals are focusing on health literacy interventions to improve blood pressure monitoring knowledge and practices.

**Table 5. Health Literacy Measures, Domains, and Status**

Health Literacy Assessment Tools	Health Literacy Domains	Health Literacy Status
the Newest Vital Sign	Assessing a person's ability to access, understand, evaluate, and apply health information	likely limited (0 or 1) possibly limited (2 or 3) likely adequate (4 or greater)
Short assessment of health literacy for Portuguese-speaking adults with 18 cards (SAHLPA-18)	Assessing reading and comprehension skills	Adequate when the patient had a number of correct answers greater than 14
The Short Test of Functional Health Literacy in Adults (S-TOFHLA)	Assessing reading and comprehension skills	In adequate if the score ranges from 0 to 53 border line from 54 to 66 adequate if the score ranges from 67 to 100 points
HBP-HLS (measuring print literacy and functional literacy of patients)	Assessing the ability to read, access, and use information	low (< 32 point) Medium (32 – 40 point) Sufficient (≥40 point)
The test of functional health literacy in adults TOFHLA measures numeracy and reading comprehension skills.	measures numeracy and reading comprehension skills	A higher score indicates higher health literacy
The HL questionnaire by Montazeri et al for using among Iranian adults	Assessing a person's ability to access, understand, evaluate, and apply health information	The higher the score, the more HL was concluded
Adult Health Literacy Scale (AHLs)	Assessing a person's ability to read, understand, and apply medical information	The level of health literacy increases by increasing total scores
The health literacy in hypertension scale.	Assessing a person's ability to access, understand, evaluate, and apply health information	an average score of 5.00–4.21 is considered the highest level, 4.20–3.41 is considered the high level, 3.40–2.61 is considered the moderate level, 2.60–1.81 is considered the low level, and 1.80–1.00 is considered the lowest level
European Health Literacy Survey HLS-EU-Q12M	Information search, comprehension, and use ability to evaluate information	Inadequate from 0 to 7 Problematic from 8 to 10 sufficient from 11 to 12 points
Health Literacy Management Scale (HeLMS)	Assessing a person's ability to access, understand, evaluate, and apply health information	Individuals obtaining higher scores are regarded as possessing higher levels of health literacy,
the Chinese Health Literacy Scale for Chronic Care	Assessing the ability to understand and use health information	adequate and inadequate HL

The majority of health literacy tools used in this review do not measure all four domains. The number of studies assessing each domain is as follows: accessing (N=5), understanding (N=6), evaluating (N=5), and applying (N=8). There are five instruments that assess the four domains of health literacy: the Newest Vital Sign, the HL questionnaire by Montazeri et al, the Health Literacy in Hypertension Scale, the European Health Literacy Survey (HLS-EU-Q12M), and the Health Literacy Management Scale (HeLMS).

The status of health literacy varies due to the diverse backgrounds of participants, as well as differences in the types of tools and reporting methods used. Most studies categorize health



literacy into two or more groups: limited and adequate; limited, marginal, adequate; problematic, inadequate, adequate, and excellent. Three studies presented health literacy status as a mean and standard deviation (16)(17)(4).

## Discussion

### *Health Literacy Status*

Politicians and health decision-makers around the world are still unfamiliar with health literacy policies and methods. WHO claims that because half of the world's population has access to subpar healthcare, today's reaction-based healthcare facilities are unfit for the challenges of the twenty-first century (22). Health literacy has not yet been optimally integrated into health policies and services, so interventions for hypertension still tend to be curative rather than promotive-preventive. Variations in health literacy status across studies also reflect differences in population characteristics, instruments, and measurement methods, which complicate the comparison of results and the evaluation of intervention effectiveness. Standardization of health literacy measurement and strengthening of service systems that support easily understandable health education are urgently needed.

Improving health literacy and patient participation is more successful when health systems are redesigned to meet the needs of individuals and communities (23). Consequently, over the past ten years, a lot of focus has been placed on improving individuals' health literacy skills (including reading, writing, listening, speaking, numeracy, and critical analysis in the different communities) (24). However, improving individual skills such as reading, understanding health information, and numeracy alone may not be sufficient unless accompanied by a healthcare environment that supports effective communication, context-appropriate education, and health policies that adapt to patients' needs. Therefore, enhancing health literacy among patients with hypertension requires a multidimensional approach that integrates individual factors, the healthcare system, and policy support to ensure that hypertension management is optimal and sustainable.

### *Health Literacy Domains*

In support of health literacy policy development, the Global Working Group on Health Literacy of the International Union for Health Promotion and Education (IUHPE) recently released a position statement on health literacy that outlines a workable plan for a world where



everyone is health literate. Since its founding in 2010, the Working Group has represented a broad spectrum of international stakeholders engaged in health literacy from the standpoint of health promotion. Three political arguments are presented in the position statement: 1) Health literacy is a quantifiable consequence that can be attributed to life experiences or of health education/promotion initiatives, 2) health literacy is a resource that can help a variety of health initiatives to enhance health and well-being as well as to prevent and better manage illness, and 3) low health literacy poses a risk to the quality of medical care, population health, and health equity (25).

The definition of health literacy which consists of the act of accessing, understanding, assessing using health information about hypertension to improve and maintain good health and well-being for themselves and those around them (26). Of the 11 studies, only four measured all four domains of health literacy according to Sørensen et al. (2012); one's ability to access, understand, assess and apply health information (16)(18)(19)(21). The majority of health literacy tools used in the review did not measure all four domains. The number of studies that assessed each domain was as follows; ability to access (N=5), assess (N=6), apply (N=5), and followed by understand (N=8). Several tools assessed all four domains of health literacy, namely the Newest Vital Sign, the HL questionnaire by Montazeri et al, the Health Literacy in Hypertension Scale, the European Health Literacy Survey (HLS-EU-Q12M), and the Health Literacy Management Scale (HeLMS).

Health literacy is a critical resource in the prevention and management of hypertension, as it supports patients' ability to access, understand, evaluate, and apply health information. However, the measurement of health literacy among patients with hypertension remains inconsistent, as most studies have not comprehensively evaluated all domains of health literacy. Variations in the instruments used also make it difficult to compare and generalize results across studies. More standardized health literacy measurements are needed to support the development of more effective evidence-based hypertension interventions.

### ***Literacy and medication adherence***

Studies all explain that patients with high health literacy tend to have better adherence to treatment as they are more likely to ask medical questions and be involved in patient decision-



making. Contrary to our findings, a study conducted in Thailand reported that health literacy had no direct effect on medication adherence in hypertensive patients (28).

In addition to medication non-adherence, patients with low health literacy are less likely to be able to identify the drugs used (13). Inadequate health literacy interferes with understanding medical information, reading and understanding prescriptions and healthy lifestyles (14). Low health literacy is also associated with uncontrolled blood pressure (18).

Health literacy is associated with access to primary health care services and self-care practices (15). Health literacy domains related to health information access and decision-making are determinant predictors of a healthy lifestyle (16). Individuals who have competent health literacy have a clearer understanding of their health conditions and increase confidence to behave healthily (19). Health literacy is a key factor in the self-management of hypertension (20).

A person's level of health literacy is a factor that can influence them in preventing or controlling hypertension. Health literacy is an important factor in better hypertension control, low health literacy in a person is associated with poor health outcomes and poor health behavior. In controlling blood pressure, good health literacy is one of the effective factors in understanding blood pressure measurements, risk factors, complications, lifestyle changes and the purpose of treatment in controlling hypertension (16). Educational status is the most important factor associated with health literacy. The higher the level of education of individuals, the easier it is to understand health and disease information and apply it in daily life (17).

In hypertensive patients, adherence to taking medication can be improved by increasing their health literacy level because patients who have a good level of health literacy have a better understanding of their own health status and usually increase positive behavioral arrangements such as adherence to medication (17). Research has identified that health literacy plays a crucial role in improving medication adherence and self-management of hypertension. Patients with good health literacy tend to be better able to understand medical information, recognize the treatments being used, and actively participate in decision-making regarding their health. This can improve adherence to treatment, the adoption of a healthy lifestyle, and the ability to maintain blood pressure control over the long term. Conversely,



low health literacy can limit patients' ability to understand medical instructions, recognize risk factors, and adopt appropriate preventive behaviors, thereby contributing to uncontrolled blood pressure and an increased risk of hypertension complications.

However, differing findings across several studies suggest that the relationship between health literacy and medication adherence is not always direct. Variations in social and cultural contexts, healthcare systems, family support, and individual characteristics can influence the effectiveness of health literacy on patient adherence behavior. This indicates that improving health literacy needs to be combined with other intervention strategies, such as effective health communication, context-specific education, and social support, to optimize hypertension management.

Additionally, education has been identified as a factor influencing health literacy levels, with individuals having higher levels of education tending to possess better abilities to understand and apply health information. Health literacy interventions for patients with hypertension need to be tailored to patients' educational backgrounds and capabilities to be more effective in improving medication adherence and hypertension control.

## **Conclusion**

The study findings indicate that health literacy plays a crucial role in improving medication adherence and self-management of hypertension. However, the relationship between health literacy and medication adherence is not always direct. Variations in social and cultural contexts, healthcare systems, family support, and individual characteristics can influence the effectiveness of health literacy in shaping patients' adherence behaviors. Based on these findings, nursing professionals are advised to incorporate health literacy into interventions aimed at improving medication adherence and to tailor these interventions to patients' educational backgrounds and capabilities to more effectively enhance medication adherence and hypertension control.

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**Consent for publication:** Not applicable.



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