**ISJUTL**
**INTERNATIONAL SCIENTIFIC JOURNAL OF UNPAZ TIMOR-LESTE**
International Peer Reviewed Journal: Open Access
Publication: High Visibility: Rapid Publishing

| ORIGINAL RESEARCH ARTICLE | OPEN ACCESS |

# Enhancing Home Self-Care Management in Hypertensive Patients Through Health Belief Model

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**ABSTRACT**

This research aims to develop a self-management model grounded in the Health Belief Model (HBM) theory to enhance self-care behavior among hypertensive patients at home. Utilizing an explanatory survey design, the study involved a sample of 135 patients from Centro Saude Comoro Dili, selected through cluster random sampling. The analysis revealed significant influences of demographic factors, such as occupation and education level, on individual beliefs, evidenced by a statistical T value of 12.440. Additionally, structural factors like knowledge significantly impacted individual beliefs, with a T value of 5.078. Individual beliefs were found to significantly affect self-management, demonstrated by a T value of 26.815. Furthermore, self-management exerted a substantial influence on self-care behavior, with a T value of 51.333. The second phase of the research incorporated focus group discussions (FGD) and expert consultations, providing a foundation for developing tailored self-management models and modules for hypertensive individuals. The findings underscore the importance of demographic and structural factors in shaping individual beliefs, which in turn influence self-management and self-care behaviors. This study recommends that community nurses utilize the developed modules to enhance the self-care practices of hypertensive patients, thereby improving health outcomes and promoting effective self-management strategies in home settings.

## INTRODUCTION

Hypertension is often termed a "silent killer" because its symptoms can be subtle and may resemble those of other health issues. If left untreated, it can lead to severe complications, including kidney, heart, and brain damage, potentially resulting in death (Triyanto, 2014).

The World Health Organization (WHO) estimates that approximately 1 billion adults worldwide suffer from hypertension, with two-thirds residing in developing countries. This number is projected to increase to 1.56 billion, or 29.2%, by 2025 (WHO, 2019). The rapid progression of hypertension in low- and middle-income countries can be attributed to rising risk factors associated with the disease (WHO, 2021). In Timor-Leste, hypertension-related deaths reached 156, accounting for 2.21% of total deaths, with an age-adjusted mortality rate of 24.12 per 100,000 individuals (WHO, 2020). Although communicable diseases are on the decline, non-communicable diseases now account for 62% of all deaths in the country.

A WHO survey conducted in 2014 revealed that one-fifth of all adults in Timor-Leste exhibited three or more non-communicable disease risk factors, including smoking, poor diet, high blood pressure, alcohol consumption, and insufficient physical activity (Cousins, 2020). The National Survey for Non-Communicable Disease Risk Factors and Injuries, utilizing the WHO STEPS approach, found significantly higher tobacco use among men (70.6%) compared to women (28.9%), with older men outnumbering younger groups. Alcohol consumption was predominantly male, with 42.8% of men reporting use compared to only 2.0% of women (Soares Martins et al., 2015).

Timor-Leste's Centro Saúde Comoro health center reports one of the highest prevalence rates of hypertension in the region. Preliminary studies indicate an increase in hypertension cases, with 4,645 reported in 2020 and rising to 7,897 in 2021. The condition is most prevalent among individuals aged 40-70 years (69.075%) and least common in those over 70 years (7.79%). Behavioral factors significantly contribute to the incidence of hypertension.

Kassavou et al. (2020) indicates that non-compliance with hypertension management often stems from forgetfulness regarding medication, diet, and blood pressure control. This aligns with findings by Rusminingsih & Dian (2018), which suggest that low adherence to hypertension management can hinder efforts to achieve controlled blood pressure.

As a chronic disease, hypertension requires effective self-management. This concept, integral to chronic nursing models, refers to individuals' ability to manage their symptoms, treatments, and lifestyle changes related to chronic conditions. Successful self-management enables patients to monitor their conditions and influence their cognitive, behavioral, and emotional responses, ultimately improving their quality of life

(Primanda et al., 2011). For those with hypertension, self-management encompasses monitoring blood pressure, adhering to medication regimens, enhancing lifestyle choices, and preventing potential complications (Sakinah et al., 2020).

Effective self-management can be achieved by implementing five essential components: self-integration, self-regulation, interaction with healthcare providers, self-monitoring, and adherence to prescribed treatments (Li et al., 2020). When patients engage in good self-management practices, their awareness of treatment becomes more pronounced, facilitating an effective treatment program that promotes health and prevents more severe illnesses (Zhang et al., 2020).

Several factors influence an individual's ability to manage self-care, including age, gender, development level, health status, family dynamics, environmental conditions, and sociocultural contexts. Research has shown that effective self-management significantly impacts blood pressure control in hypertensive patients. For instance, Isnaini & Lestari (2018) found that self-management practices can contribute to lowering blood pressure alongside antihypertensive medications. Thus, it is vital for patients to take responsibility for their self-management to mitigate symptoms and reduce the risk of complications (Shahaj et al., 2019).

Recommended self-management behaviors for hypertension, as outlined by JNC-8, include weight reduction for obese individuals, following the Dietary Approaches to Stop Hypertension (DASH) diet, adhering to a low-sodium diet, participating in physical activity, and moderating alcohol consumption. Douglas & Howard's research indicates that certain demographic and socio-behavioral characteristics correlate with engagement in self-management behaviors, underscoring the need for effective self-management to maintain blood pressure levels (Douglas & Howard, 2015).

Factors influencing self-care behaviors encompass age, gender, health conditions, family dynamics, environmental attributes, lifestyle choices, and available resources like economic means, physical stamina, community institutions, and access to information (Alligood, 2017). Health behavior is crucial in preventing and managing hypertension (Riyadina et al., 2019). A patient's knowledge of their health issues plays a pivotal role in managing their condition. Enhanced patient knowledge fosters self-confidence and trust in hypertension treatment (Latifa, 2015). The more informed a patient is about their disease, the better they can maintain a healthy lifestyle and adhere to medication regimens (Irazola et al., 2016).

Schoenthaler et al. (2020) indicates that compliance is influenced by beliefs regarding the disease, treatment necessity, and potential treatment issues. Factors such as belief in therapy effectiveness, self-efficacy, social support, and communication between health professionals and patients also play essential roles in self-management for hypertensive patients (Isnaini & Lestari, 2018).

The self-management approach described above aims to enhance hypertension care behaviors through the Health Belief Model, which emphasizes individual attitudes and beliefs regarding health behaviors (Glanz et al., 2008). According to Janz and Becker (1984), the Health Belief Model illustrates an individual's rationale for adopting or rejecting healthy behaviors (Notoatmodjo, 2007). Beliefs about health issues significantly influence behavior, and self-confidence is a critical factor in hypertension self-care. Hypertensive patients must possess high self-confidence to motivate themselves in achieving a healthier lifestyle.

## METHOD

The research methodology outlined here employs an explanatory survey design utilizing a cross-sectional approach. This method is particularly effective in measuring or observing data related to independent and dependent variables at a single point in time (Nursalam, 2017). The primary aim of this research is to identify events or symptoms associated with the outcomes, thereby elucidating the cause-and-effect relationship between the independent and dependent variables (Suggestion, 2014).

The research will be conducted in two distinct stages:

Stage 1: Identification of Factors Through Questionnaires

During the first stage, the research will focus on identifying relevant factors that influence self-management in individuals with hypertension. This will be accomplished through the administration of structured questionnaires designed to capture data on various independent variables, such as lifestyle choices, adherence to medication, and psychological factors, as well as dependent variables, such as blood pressure control and overall health status.

Participants will be selected using a stratified sampling method to ensure representation across different demographics, including age, gender, socioeconomic status, and severity of hypertension.

Once the data is collected, it will be subjected to analysis using Partial Least Squares (PLS) analysis. This statistical technique is adept at handling complex models with multiple constructs and allows for the evaluation of relationships between variables. Through PLS analysis, the influence of each independent variable on the dependent variables will be assessed, providing insight into which factors most significantly impact self-management behaviors among individuals with hypertension.

Stage 2: Development of a Hypertension Self-Management Module

Following the completion of the first stage, the second stage will involve the compilation of a hypertension self-management module. This module will be based on the findings obtained from the initial analysis, reflecting the identified factors that significantly influence self-management.

The development process will incorporate evidence-based practices and guidelines from existing research, ensuring that the module is both practical and effective. The self-management module will include components such as educational resources, behavioral strategies, and tools for monitoring health status. It will aim to equip individuals with hypertension with the necessary knowledge and skills to manage their condition effectively.

The module will undergo a pilot testing phase, where it will be implemented among a small group of participants to evaluate its feasibility, acceptability, and effectiveness. Feedback collected during this phase will be used to refine the module further, ensuring that it meets the needs of the target population.

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## RESULT AND DISCUSSIONS

### Result

The Centro Saúde Comoro Community Health Center in Dili, Timor-Leste, serves a population of about 170,577 residents and includes eight health posts. It employs 46 general practitioners, 26 nurses, and various other healthcare professionals. The center conducts multiple health programs focusing on Maternal and Child Health, communicable and non-communicable diseases, and health promotion. Research conducted there analyzed system performance, detailing the characteristics of the site and subjects. The findings from two research phases included descriptive and inferential analyses, leading to strategic discussions aimed at developing a self-management model for better health outcomes.

1. Analysis of Respondents' Perceptions

The calculations presented 135 respondents, the majority, 51 individuals (37.1%), are aged between 36 and 45 years. In terms of gender, 85 respondents (63%) reported no genetic or familial history of hypertension, while 76 individuals (56.3%) indicated that they do not have such a history. A significant portion of respondents are engaged in trading, and most have attained an elementary level of education as their highest qualification.

As an illustrates that within the group of 135 respondents, a significant number displayed low or insufficient levels of perceived susceptibility, perceived severity, self-efficacy, and cues to action. Furthermore, the majority of respondents categorized their perceived barriers as moderate, while perceived benefits were viewed as minimal.
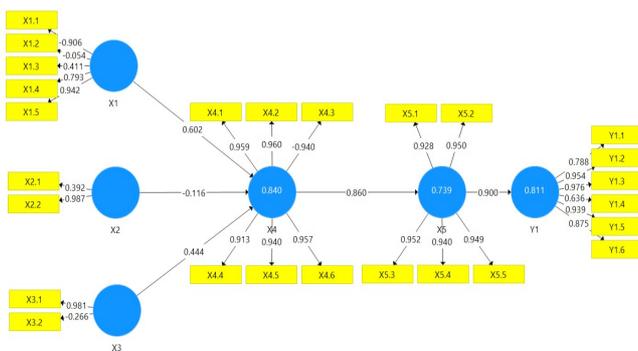
2. Evaluation Outer Model



**Image 1** Constructing the Outer Model

The analysis of the data reveals significant insights into the relationships among various variables related to individual belief, self-management, and self-care behavior.

The R-square value for the Individual Belief variable (X4) is calculated at 0.842, indicating that 84.2% of the variance in Individual Belief can be accounted for by Demographic Factors (X1), Sociopsychological Factors (X2), and Structural Factors (X3). This statistic underscores the substantial influence that these factors have on individual belief, suggesting that understanding these demographic and sociopsychological contexts is crucial for fostering individual confidence. The remaining 15.8% of variance is attributable to other variables not explored within the scope of this research.

Similarly, the R-square value for the Self-Management variable (X5) stands at 0.753, which implies that 75.3% of the variability in Self-Management can be explained by the Individual Confidence variable (X4). This indicates a strong correlation, highlighting the importance of individual confidence as a determinant of effective self-management practices. Conversely, 24.7% of the variability remains influenced by factors that are outside the parameters of this study.

Furthermore, the Self Care Behavior variable (Y1) exhibits an R-square value of 0.811. This figure signifies that 81.1% of the variance in Self-Care Behavior can be attributed to the Self-Management variable (X5). The strong association suggests that effective self-management is a critical predictor of self-care behaviors. Nonetheless, 18.9% of the variance is still influenced by other variables that have not been examined in this research.
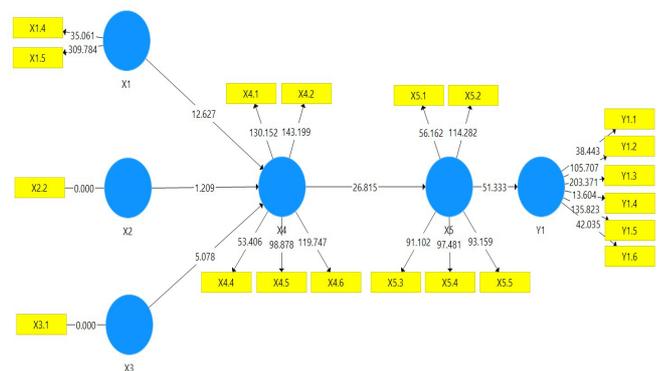
3. Hypothesis Testing



**Image 2** Inner Model Construct

4. Influence of Demographic Factors (X1) on Individual Beliefs (X4)

Testing the influence of Demographic Factors (X1) on Individual Confidence (X4) produces a T statistics value of 12.627 with a p-value of 0.000. The test results show that the T statistics value is > 1.96 and the p-value is < 0.05. This means that there is a significant influence of Demographic Factors (X1) on Individual Confidence (X4). The resulting coefficient value is positive, namely 0.685. Thus, it can be interpreted that in terms of demographic factors, the better the level of education & employment, the more likely it is to increase the patient's individual confidence (X4).

5. Influence of Sociopsychological Factors (X2) on Individual Beliefs (X4)

The test of the influence of Sociopsychological Factors (X2) on Individual Beliefs (X4) produced a T statistical value of 1.209 with a p-value of 0.227. The test results showed that the T value of statistics < 1.96 and the p-value > 0.05. This means that there is no significant influence of Sociopsychological Factors (X2) on Individual Beliefs (X4).

6. Influence of Structural Factors (X3) on Individual Beliefs (X4)

Testing the influence of Structural Factors (X3) on Individual Confidence (X4) produces a T statistics value of 5.078 with a p-value of 0.000. The test results show that the T statistics value is > 1.96 and the p-value is < 0.05. This means that there is a

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significant influence of Structural Factors (X3) on Individual Confidence (X4). The resulting coefficient value is positive, namely 0.318. Thus, it can be interpreted that the better the Structural Factors (X3), the more likely it is to increase Individual Confidence (X4).

7. The Influence of Individual Confidence (X4) on Self-Management (X5)

Testing the influence of Individual Confidence (X4) on Self-Management (X5) produces a T statistics value of 26.815 with a p-value of 0.000. The test results show that the T statistics value is > 1.96 and the p-value is < 0.05. This means that there is a significant influence of Individual Confidence (X4) on Self-Management (X5). The resulting coefficient value is positive, namely 0.868. Thus, it can be interpreted that the better the Individual's Confidence (X4), the greater the tendency to improve SelfManagement (X5).

8. Effect of Self-Management (X5) on Self-Care Behavior (Y1)

Testing the influence of Self-Management (X5) on Self-Care Behavior (Y1) produces a T statistics value of 51.333 with a p-value of 0.000. The test results show that the T statistics value is > 1.96 and the p-value is < 0.05. This means that there is a significant influence of Self-Management (X5) on Self-Care Behavior (Y1). The resulting coefficient value is positive, namely 0.900. Thus, it can be interpreted that the better SelfManagement (X5), the more likely it is to increase Self-Care Behavior (Y1).
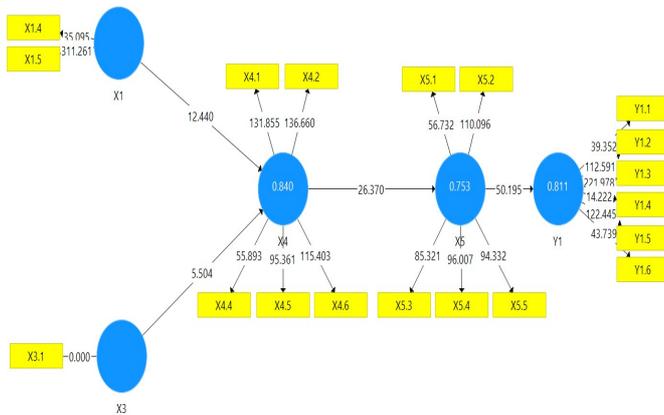
**Research Finding**



Figure 1. The influence of demographic factors (occupation & education level) on individual beliefs regarding hypertensive patients

1. Discussion The influence of demographic factors (occupation & education level) on individual beliefs regarding hypertensive patients

The assessment of demographic factors in this research is employment and education level. These parameters are obtained from respondents' answers to the demographic questionnaire, respondents fill in according to their current situation, employment status and education level. Demographic factors (occupation and level of education) influence individual confidence in hypertensive patients in carrying out selfcare behavior at home. In this study, testing the influence of demographic factors on individual beliefs produced a T statistics value of 12.627 with a p-value of 0.000. The test results show that the T statistics value is > 1.96 and the p-value is < 0.05. This means that there is a significant influence of demographic factors

on individual beliefs. The resulting coefficient value is positive, namely 0.685. Thus, it can be interpreted that the better the education and work, the more likely it is to increase individual confidence.

Education is related to positive perceptions of maintaining mental and physical fitness levels. The higher the education of hypertensive patients will influence the use of health facilities based on each person's self-perception (Friebe & Schmidt-hertha, 2019). The high risk of developing hypertension in people with low education is possibly due to a person with low education's lack of knowledge regarding health and difficulty or slow acceptance of information (counseling) provided by nurses so that it has an impact on healthy behavior or lifestyle. The level of education according to Wang et al (2018) also reveals that a person's education influences the patient's condition in obeying the orders of health workers, the higher the education, the more understanding and knowledge regarding their own health.

2. The influence of structural factors (knowledge) on individual beliefs in hypertensive patients

Factors that have an important role in carrying out self-management in controlling blood pressure include the patient's knowledge of their health problems. The results of this research showed that most respondents had insufficient knowledge, 54.1%, so only 11.1% had good knowledge, therefore education was a risk factor related to self-care behavior. Based on tests of the influence of structural factors on individual beliefs in this research, the T statistics value was 5.078 with a p-value of 0.000. The test results show that the T statistics value is > 1.96 and the p value is < 0.05. This means that there is a significant influence of structural factors on individual beliefs. The resulting coefficient value is positive, namely 0.318. Thus, it can be interpreted that the better the Structural Factors, the more likely it is to increase Individual Confidence.

Education can bring insight or knowledge to a person. In general, someone with higher education will have broader knowledge, therefore with this knowledge a person will be aware of their health and take preventive action (Notoatmodjo, 2014). Good patient knowledge will have a high level of self-confidence and build trust in hypertension treatment (Latifa, 2015). The better the patient's knowledge about the disease, the more the patient will understand and be aware of maintaining a healthy lifestyle and complying with medication consumption (Irazola et al., 2016). Good knowledge and health-related information obtained will be able to change the lifestyle of hypertensive patients as early as possible, can change behavior as expected, and have internal factors such as motivation and positive perceptions (Jankowska-Polańska et al., 2016). Research by DiCarlo et al., (2016) states that the better the knowledge and information obtained by respondents regarding hypertension, the better the respondent's efforts to control the hypertension they suffer from. The structural factors of knowledge and information of hypertension patients are good, the better the internal factors individuals tend to find out. health problems, the knowledge and information obtained will increase so that they are able to overcome their health problems.

3. The influence of individual beliefs (perceived susceptibility, perceived severity, perceived benefits, perceived self-efficacy, cues to action) on self-management in hypertensive patients.

The research found that low perceived susceptibility was 60.7%, low perceived severity was 60.7%, less useful perceived benefit

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was 48.1%, and less cues to action were 49.6%, low self-efficacy of all components in the health belief model are in the low category. Based on the test of the influence of individual beliefs on Self-Management, it produces a T statistics value of 26.815 with a p-value of 0.000. The test results show that the T statistics value is > 1.96 and the p-value is < 0.05. This means that there is a significant influence of individual beliefs on self-management. The resulting coefficient value is positive, namely 0.868. Thus, it can be interpreted that the better the individual's confidence, the greater the tendency to improve self-management in hypertension sufferers.

Perceptions of illness include perceived perceptions associated with a person's condition, beliefs about the duration of the illness, its consequences, perceived ability to control the condition and the extent to which treatment is effective in controlling the illness, understanding of the condition, emotional responses and concerns about the condition, and beliefs. about the possible causes of this condition (Bayrami et al., 2017).

4. The Effect of Health Belief Model-based Self-Management on Self-Care Behavior of Hypertensive Patients

Self-management based on the Health Belief Model for the self-care behavior of hypertensive patients has several variables, namely self-integration, self-regulation, interaction with health workers, self-monitoring and compliance with recommended rules. Based on the results of the analysis, it was found that self-management of hypertensive patients was mostly lacking, 54.1% of respondents lacked self-integration, 48.9% of respondents lacked self-regulation, 48.1% of respondents lacked interaction with health workers, 48.9% of respondents lacked monitoring. themselves, and 47.4% of respondents lacked compliance with the recommended rules. Of all the components of self-management it is in the low category. The analysis results of the test of the influence of Self-Management on Self-Care Behavior produced a T statistics value of 51.333 with a p-value of 0.000. The test results show that the T statistics value is > 1.96 and the pvalue is < 0.05. This means that there is a significant influence of Self-Management (X5) on Self-Care Behavior (Y1). The resulting coefficient value is positive, namely 0.900. Thus, it can be interpreted that the better self-management, the more likely it is to increase self-care behavior.

5. Development module of the Self-Management Model based on the Health Belief Model towards self-care behavior in hypertensive patients

Modules are subject matter that is prepared and presented in writing so that you can absorb the material independently or require help from other people. The title of the module compiled in this research is "Self-Management Module based on the Health Belief Model for self-care behavior at home for hypertensive patients"

The aim of this module is as a Self-management Model Intervention based on a health belief model for self-care behavior at home which is useful for increasing patient and community knowledge regarding lifestyle compliance to control blood pressure, and knowing, improving and applying self-care behavior efforts for hypertensive patients in self-management model based on the health belief model. It is hoped that this module can later be used as a guide for nurses or health workers to use as a guide for educational interventions to help patients improve patient self-management to change the self-care behavior of hypertensive patients.

Module material Based on the results of the FGD and expert consultations carried out by researchers, the material used to compile this module is as follows: SelfManagement Concept, Health Belief Model Concept, Hypertension Concept, Self-care Behavior Concept, Self-management Guide based on the health belief model towards self-care behavior, Closing and attachments to the Research questionnaire

## CONLUSION

Demographic factors in hypertensive patients have a positive influence and are interconnected with self-management based on the health belief model. The better the demographic factors of hypertensive patients, the better the self-management based on the health belief model and vice versa.

Structural factors in hypertensive patients have a positive influence and are interconnected with self-management based on the health belief model. The better the structural factors that hypertensive patients have, the better the self-management based on the health belief model, on the other hand.

Individual beliefs have a positive influence and are interconnected with hypertension self-care. Because the Health Belief Model contains several key concepts that predict actions to prevent, screen, or control these disease conditions including vulnerability, seriousness, benefits and barriers to behavior, cues to action, and most recently self-efficacy. If individuals consider themselves vulnerable to a condition, believe the condition has potentially serious consequences, believing that the actions available to them will be beneficial in reducing their vulnerability or severity. condition, and believing the anticipated benefits of acting outweigh the barriers (or costs) of action, they are likely to take actions that they believe will reduce their risk.

Self-management based on the health belief model has a positive influence and is interconnected with hypertension self-care. Self-management helps lower blood pressure in addition to taking antihypertensive drugs. Self-care management is needed to control blood pressure in hypertension sufferers. Therefore, patients must be responsible for carrying out self-management both to reduce symptoms and reduce the risk of complications. Self-management can be carried out by applying five components, namely: self-integration, self-regulation, interaction with health workers, self-monitoring and adherence to recommended treatment. With good self-management, the patient's level of awareness in undergoing treatment will increase so that the treatment program can run effectively to maintain health and prevent more serious illnesses.

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