



## Understanding Patient Adherence to Hypertension Management Guidelines

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### ABSTRACT

Hypertension is a prevalent chronic condition globally, associated with an increased risk of cardiovascular diseases. Effective management of hypertension is crucial to prevent these complications; however, adherence to management guidelines is often suboptimal. This study aimed to explore the factors influencing patient adherence to hypertension management guidelines to identify areas for intervention and improvement. This qualitative study utilized semi-structured interviews to collect data from 30 participants diagnosed with hypertension. Participants were selected using purposive sampling to ensure a diverse representation in terms of age, gender, and ethnicity. The interviews were designed to explore various aspects of hypertension management as experienced by the patients. Data analysis was conducted using NVivo software, employing thematic analysis to identify and categorize themes related to adherence. Four main themes were identified as significant influencers of adherence to hypertension management guidelines: Patient Understanding, Health System Factors, Lifestyle and Management, and Personal and Social Influences. Each theme comprised several categories with specific concepts: Knowledge of Hypertension, Accessibility of Healthcare, Diet and Nutrition, and Cultural Beliefs, among others. These themes highlighted the complexity of factors affecting patient adherence, ranging from individual knowledge and behaviors to systemic and social influences. The study underscores the multifaceted nature of factors influencing adherence to hypertension management guidelines. Enhancing adherence requires a holistic approach that addresses not only medical and educational aspects but also considers systemic improvements and personalized patient support. Interventions should focus on improving patient education, healthcare accessibility, and support systems while acknowledging the role of personal and cultural factors in health management.

**Keywords:** Hypertension, Patient Adherence, Management Guidelines, Qualitative Research, Health System Factors, Lifestyle Management, Personal Influences.

## 1. Introduction

Hypertension remains a pivotal challenge in global health, affecting over a billion people worldwide and serving as a primary risk factor for cardiovascular diseases. The management of hypertension involves multifaceted strategies that encompass lifestyle modifications and adherence to prescribed medication regimes (Jarari et al., 2015; Ks et al., 2021; Midlöv et al., 2008; Milchak et al., 2006). Despite the critical importance of managing this condition, adherence to hypertension management guidelines by both healthcare providers and patients is less than optimal, leading to significant morbidity and mortality (Adedeji et al., 2015; Drawz et al., 2009; Edmealem et al., 2022; Ibezim et al., 2020).

Studies such as those by Ahmad et al. (2018) and Jarari et al. (2015) indicate a gap between the knowledge of guidelines among healthcare providers and their practical application in clinical settings (Ahmad et al., 2018). This discrepancy underscores the complexities involved in the implementation of guidelines, which include individual patient factors, healthcare provider competencies, and systemic health care delivery issues (Ahmad et al., 2018; Jarari et al., 2015).

Research has consistently shown that adherence to clinical guidelines improves patient outcomes in hypertension management. Milchak et al. (2006) developed explicit criteria to measure such adherence and found that higher guideline adherence was associated with better management outcomes (Milchak et al., 2006). Similarly, studies by Ks et al. (2021) and Midlöv et al. (2008) emphasized the significant role that clear, actionable guidelines play in enhancing provider performances and patient health outcomes (Ks et al., 2021; Midlöv et al., 2008).

Nevertheless, barriers exist on multiple levels. From the healthcare provider's perspective, the barriers to adherence include a lack of awareness of current guidelines and the inertia of previous practices (Ardery et al., 2007; Milchak et al., 2006). Moreover, systemic issues such as limited time during consultations, insufficient training, and lack of resources further complicate adherence to hypertension management guidelines (Midlöv et al., 2008).

From the patient's viewpoint, adherence to hypertension management is influenced by personal beliefs, understanding of the disease, socioeconomic factors, and the perceived complexity of the treatment regime. Studies by Nguyen et al. (2017) and Edmealem et al. (2022)

demonstrate that cultural beliefs, economic constraints, and educational levels significantly impact patient adherence to prescribed management plans (Edmealem et al., 2022; Nguyen et al., 2017). Furthermore, evidence emphasize the role of patient education and health literacy as critical factors in enhancing adherence cannot be understated (Cheng & Chiang, 2015; Crowley et al., 2012).

This study aims to delve deeper into these issues by exploring patient adherence to hypertension management guidelines through a qualitative lens, focusing on patient perspectives gathered through semi-structured interviews. By analyzing the data collected, this research seeks to identify key themes that influence patient adherence and provide insights that could help tailor interventions more effectively. The ultimate goal is to bridge the gap between guideline recommendations and actual practice, enhancing both the delivery of healthcare and patient outcomes in the management of hypertension. This approach is aligned with the call for more personalized, patient-centered care strategies that consider the diverse needs and contexts of patients living with hypertension (Ibezim et al., 2020; Mulatu et al., 2022). Through this study, we contribute to the ongoing dialogue on improving hypertension management by providing a nuanced understanding of the factors that influence patient adherence to treatment guidelines.

## 2. Methods and Materials

### 2.1. Study Design and Participants

This study employs a qualitative research design to understand patient adherence to hypertension management guidelines. The primary data collection method involved semi-structured interviews, which allowed for in-depth exploration of individual experiences, perceptions, and behaviors related to hypertension management.

Participants were selected using purposive sampling from a diverse demographic background to encompass a wide range of experiences and perspectives regarding hypertension management. The study targeted adult patients diagnosed with hypertension, receiving care in primary health care settings. Recruitment continued until theoretical saturation was achieved, where no new information or themes were observed in the data.

Prior to the interviews, all participants provided written informed consent. Participants were assured of their anonymity and the confidentiality of their responses.

2.2. Measures

2.2.1. Semi-Structured Interview

Semi-structured interviews were conducted by trained researchers familiar with qualitative methods in medical research. Each interview lasted approximately 45 to 60 minutes and was conducted in a private setting to ensure confidentiality and comfort for the participants. The interview guide included open-ended questions that prompted participants to discuss their experiences with hypertension management, the challenges they faced, and their perceptions of the effectiveness of the guidelines they were advised to follow.

2.3. Data analysis

The interviews were audio-recorded, transcribed verbatim, and analyzed using NVivo software, which supports qualitative data analysis by facilitating coding, sorting, and linking of data. A thematic analysis was conducted to identify and interpret patterns or themes within the data. Initial codes were generated from the data, and these were progressively refined into major themes in line with the research objectives.

Trustworthiness and credibility of the findings were enhanced through various strategies, including prolonged engagement with the data, peer debriefing, and member checking, where participants were given a chance to review and comment on the findings. These steps ensured that the interpretations of the data were accurate and representative of the participants' experiences.

3. Findings and Results

In this qualitative study, we interviewed 30 participants diagnosed with hypertension. The demographic composition of the participants was diverse to provide a broad perspective on adherence to hypertension management guidelines. Of the participants, 17 (56.7%) were female and 13 (43.3%) were male. The age distribution ranged from 40 to 65 years, with a mean age of 52 years. The majority of participants, 20 (66.7%), were employed, while 10 (33.3%) were retired or unemployed. Educational levels varied among the group with 8 (26.7%) holding a college degree, 12 (40%) having completed some college or technical training, and 10 (33.3%) having a high school diploma or less.

Table 1

The Results of Thematic Analysis

Main Themes	Subcategories	Concepts
1. Patient Understanding	Knowledge of Hypertension Awareness of Guidelines Perceptions of Treatment Necessity	Blood pressure levels, Risk factors, Long-term effects Availability of information, Clarity of instructions, Recall of advice Belief in effectiveness, Fear of complications, Trust in medical advice
2. Health System Factors	Accessibility of Healthcare Quality of Patient Education Support Systems	Clinic hours, Proximity to clinic, Transportation issues Clarity of communication, Use of visual aids, Language barriers Nurse follow-ups, Community support groups, Family involvement
3. Lifestyle and Management	Diet and Nutrition Physical Activity Monitoring Health Medication Adherence Stress Management	Salt intake, Balanced meals, Reading food labels Frequency of exercise, Types of exercise, Access to facilities Self-measuring BP, Recording symptoms, Regular check-ups Timing of doses, Medication reminders, Understanding medication purpose Techniques employed, Work-life balance, Seeking psychological help
4. Personal and Social Influences	Cultural Beliefs Social Support Motivation and Attitude Economic Factors Personal Barriers	Traditional remedies, Religious beliefs, Family advice Peer influence, Family encouragement, Social stigma Self-efficacy, Attitude towards health, Personal health goals Cost of medication, Insurance coverage, Economic burden of disease Work commitments, Lack of motivation, Personal fears

Our thematic analysis identified four main themes related to patient adherence to hypertension management guidelines: Patient Understanding, Health System Factors, Lifestyle and Management, and Personal and Social

Influences. Each theme encompasses various subthemes and associated concepts, as discussed below:

### 3.1. Theme 1: Patient Understanding

Patient understanding of hypertension and its management emerged as a critical theme. This encompasses knowledge of hypertension, awareness of guidelines, and perceptions of treatment necessity.

**Knowledge of Hypertension:** Patients expressed varying levels of understanding about what hypertension is and its potential complications. One participant noted, "I knew high blood pressure was bad, but didn't realize it could lead to more serious things like heart attacks until my doctor explained it."

**Awareness of Guidelines:** Many participants were aware of the guidelines but found them difficult to recall precisely. "I remember being told a lot of things at once, it's hard to keep track of all the advice," a participant shared.

**Perceptions of Treatment Necessity:** Perceptions varied significantly, with some participants fully convinced of the need for regular management, while others were skeptical. As one interviewee mentioned, "I take my medication because I'm scared of getting worse, even though I feel fine now."

### 3.2. Theme 2: Health System Factors

The accessibility and quality of healthcare services, alongside support systems, were identified as pivotal in influencing patient adherence.

**Accessibility of Healthcare:** Participants often cited logistical challenges, such as "The clinic is too far from my house, and it's only open when I'm at work."

**Quality of Patient Education:** The quality of education provided by health services was crucial. "They used a lot of medical jargon which I didn't understand; simpler words would help," explained a participant.

**Support Systems:** Effective support systems were highlighted as beneficial. "The follow-up calls from the nurse helped me stay on track," noted another participant.

### 3.3. Theme 3: Lifestyle and Management

This theme relates to how lifestyle choices and daily management impact adherence.

**Diet and Nutrition:** Dietary choices play a significant role, with participants stating things like, "I've started reading labels to watch my salt intake, which has made a big difference."

**Physical Activity:** Engagement in physical activities was varied. "I try to walk every day, even if it's just around the block," said one participant.

**Medication Adherence:** Challenges with medication schedules were common. "Setting alarms has helped me remember to take my pills," a participant revealed.

### 3.4. Theme 4: Personal and Social Influences

Cultural beliefs, social support, and personal motivation were profound influencers on adherence behaviors.

**Cultural Beliefs:** Some participants mentioned traditional remedies as alternatives to prescribed treatments. "My family always used herbs for healing; it's hard to shift that mindset," shared one interviewee.

**Social Support:** Support from family and friends was crucial. "My husband reminds me to take my medication and checks my blood pressure," another participant commented.

**Economic Factors:** Financial constraints affected adherence, with one participant stating, "Sometimes I have to choose between buying my medication and paying for other necessities."

## 4. Discussion and Conclusion

In this qualitative study, four main themes were identified that influence patient adherence to hypertension management guidelines: Patient Understanding, Health System Factors, Lifestyle and Management, and Personal and Social Influences. Each main theme comprised various categories which included detailed concepts within them, illustrating the multifaceted nature of factors that impact patient adherence.

The theme of Patient Understanding featured categories such as Knowledge of Hypertension, Awareness of Guidelines, and Perceptions of Treatment Necessity. The Knowledge of Hypertension category revealed concepts like understanding of blood pressure levels, awareness of risk factors, and recognition of long-term health effects. Awareness of Guidelines included concepts related to the availability of information, clarity of instructions, and recall of health advice. Lastly, Perceptions of Treatment Necessity focused on beliefs in the effectiveness of treatments, fears of health complications, and trust in medical advice.

Under the theme of Health System Factors, the categories were Accessibility of Healthcare, Quality of Patient Education, and Support Systems. Accessibility of Healthcare highlighted issues such as clinic hours, proximity to healthcare facilities, and transportation challenges.

Quality of Patient Education captured concepts including clarity of communication, the use of visual aids, and overcoming language barriers. Support Systems involved concepts like nurse follow-ups, community support groups, and family involvement in care processes.

The Lifestyle and Management theme was detailed through categories like Diet and Nutrition, Physical Activity, Monitoring Health, Medication Adherence, and Stress Management. Diet and Nutrition included concepts such as salt intake, balanced meals, and label reading. Physical Activity encompassed frequency of exercise, types of activities, and accessibility to exercise facilities. Monitoring Health focused on self-measuring blood pressure, recording symptoms, and regular check-ups. Medication Adherence was concerned with timing of doses, medication reminders, and understanding medication purposes. Lastly, Stress Management explored techniques employed, work-life balance, and psychological support.

Finally, the theme of Personal and Social Influences incorporated categories like Cultural Beliefs, Social Support, Motivation and Attitude, Economic Factors, and Personal Barriers. Cultural Beliefs involved traditional remedies, religious practices, and family advice. Social Support looked at peer influence, family encouragement, and social stigma. Motivation and Attitude included self-efficacy, attitudes toward health, and personal health goals. Economic Factors discussed the cost of medication, insurance coverage, and the economic burden of disease. Personal Barriers highlighted work commitments, lack of motivation, and personal fears regarding treatment.

Our findings underscore the importance of patient knowledge and awareness as crucial determinants of adherence, echoing the results of Nguyen et al. (2017), who found that enhanced patient education was associated with better medication adherence and management outcomes in a rural Vietnamese community (Nguyen et al., 2017). Participants in our study expressed a need for clearer and more accessible information, suggesting that improving patient education could significantly impact adherence rates. This need for effective communication is supported by Adedeji, Tumbo, and Govender (2015), who identified a direct correlation between the clarity of guideline communication and adherence levels (Adedeji et al., 2015).

Accessibility and quality of healthcare services were repeatedly mentioned as barriers to adherence. These findings align with those of Parker et al. (2011), who reported that challenges in the healthcare system, such as appointment availability and the physical accessibility of

healthcare facilities, hinder effective hypertension management (Parker et al., 2011). Furthermore, our study highlights the critical role of supportive healthcare interactions, which has been supported by Ardery et al. (2007), suggesting that ongoing support and follow-up enhance adherence (Ardery et al., 2007).

Lifestyle modifications, including diet and exercise, were prominently featured in our findings. Similar to the observations by Crowley et al. (2012), participants noted that personal health practices significantly influence adherence to treatment regimes (Crowley et al., 2012). Moreover, our findings regarding the challenges of medication adherence resonate with those reported by Murti et al. (2015), who observed that complexity and frequency of medication schedules could adversely affect adherence (Murti et al., 2015). This suggests that simplifying medication regimes could enhance adherence, a strategy supported by the study of Shnaimer and Gosadi (2020), which found improved adherence with simplified medication schedules (Shnaimer & Gosadi, 2020).

Cultural beliefs and economic factors were notably influential, as also seen in studies by Jarari et al. (2015) and Edmealem et al. (2022). These studies emphasize that cultural perceptions and financial constraints can significantly deter patients from following prescribed hypertension management guidelines (Edmealem et al., 2022; Jarari et al., 2015). Our study adds to this understanding by highlighting how personal motivation and social support are pivotal in mediating these effects. The impact of social support on adherence is well-documented by Engel et al. (2016), who found that patients with strong social networks exhibit better adherence to cardiovascular disease management guidelines (Engel et al., 2016).

This qualitative study identified several key themes that influence patient adherence to hypertension management guidelines, including Patient Understanding, Health System Factors, Lifestyle and Management, and Personal and Social Influences. Each theme encompasses a range of factors: from knowledge and awareness of hypertension and its management, to the impact of healthcare system accessibility and the supportiveness of healthcare interactions, to lifestyle choices and the influence of personal beliefs, social support, and economic circumstances. These findings highlight the complexity of factors affecting patient adherence and underscore the necessity for a comprehensive approach in hypertension management.



The study's results provide a deeper insight into the multifaceted nature of hypertension management from a patient perspective. It is clear from our findings that enhancing patient adherence to hypertension guidelines requires more than just medical interventions. A holistic approach, incorporating educational, systemic, community, and individual factors, is essential for improving health outcomes in hypertensive patients. By addressing these diverse factors, healthcare providers can develop more effective, patient-centered interventions that take into account the complexities of real-world hypertension management.

This study has several limitations. The sample size, though sufficient to reach theoretical saturation, was relatively small and geographically limited, which may affect the generalizability of the findings. Additionally, the data were collected solely through semi-structured interviews, which might introduce bias based on participants' self-reporting and memory. Further, the study's focus on qualitative data limits the ability to quantify the impact of different factors on adherence or to establish causality.

Future research should aim to address the limitations noted by incorporating larger, more diverse populations and potentially combining qualitative with quantitative methods to validate and extend the findings. Longitudinal studies could provide insights into how adherence changes over time and in response to interventions. Additionally, exploring the effectiveness of specific educational interventions or healthcare system changes recommended by study participants could yield actionable strategies to improve adherence.

The insights gained from this study have significant implications for clinical practice. Healthcare providers should consider integrating more comprehensive patient education programs that address both the medical and practical aspects of managing hypertension. Systems-level interventions, such as improving healthcare accessibility and enhancing patient-provider communication, could also be crucial. Moreover, developing community support networks to bolster social support for patients could further enhance adherence. Tailoring interventions to address personal and cultural beliefs about health and treatment could also significantly impact patient outcomes. These strategies suggest a shift towards more integrated, patient-centered care models that consider the breadth of factors influencing hypertension management.

## Authors' Contributions

Authors contributed equally to this article.

## Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

## Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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## Declaration of Interest

The authors report no conflict of interest.

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## Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

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