

Patient Perspectives on Medication Adherence and Lifestyle Modification in Hypertension: A Qualitative Meta-synthesis

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ABSTRACT

Background: Hypertension is one of the most prevalent chronic conditions globally and a major contributor to cardiovascular morbidity and mortality. Sustained medication adherence and lifestyle modification are essential to controlling blood pressure and preventing complications, yet many patients struggle to achieve and maintain these behaviors.

Objective: This qualitative meta-synthesis aimed to explore how patients with hypertension perceive and experience medication adherence and lifestyle modification by integrating evidence from published qualitative studies.

Methods: A systematic search of PubMed, Scopus, Web of Science, and Google Scholar was conducted to identify relevant studies published. Eligible studies were qualitative or mixed-methods with a qualitative component and involved adult hypertensive patients. Thematic synthesis was employed to identify overarching themes from the included studies.

Results: Twenty-two studies involving approximately 1100 hypertensive patients were included. Three key themes emerged: (1) Complex barriers to medication adherence, including side effects, cost, forgetfulness, (2) Cultural and contextual challenges in lifestyle modification, such as ingrained dietary traditions, economic limitations, and low motivation; and (3) Support systems and communication as critical enabler.

Conclusion: Hypertensive patient's adherence behaviors are shaped by complex socio-cultural, psychological, and systemic factors. Interventions should be holistic, patient-centered, and culturally sensitive. Key strategies include improving health literacy, providing tailored counseling, involving families in care, and addressing structural barriers such as medication cost.

Keywords: Hypertension, Medication adherence, Lifestyle modification, Patient perspectives, Qualitative meta-synthesis

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Introduction

Hypertension is one of the most common chronic non-communicable diseases worldwide, affecting more than 1.2 billion adults and contributing significantly to cardiovascular morbidity and mortality¹. It is a leading risk factor for stroke, myocardial infarction, heart failure, and kidney disease. Despite the availability of effective antihypertensive medications and lifestyle interventions, global control rates remain suboptimal, especially in low- and middle-income countries.^{2,3}

Medication adherence and lifestyle modification form the cornerstone of hypertension management. Antihypertensive therapy, when taken regularly, can significantly reduce complications and prolong life. Similarly, lifestyle changes such as dietary modification, increased physical activity, weight control, reduced alcohol intake, and tobacco cessation have a substantial impact on blood pressure control.⁴⁻⁶ However, research consistently shows that patients struggle with long-term adherence to both pharmacological and non-pharmacological treatments.

Barriers to medication adherence include medication side effects, the cost of prescriptions, forgetfulness, complex dosing schedules, misconceptions about the disease, and doubts about the necessity or effectiveness of treatment.^{4,7} Lifestyle changes are equally challenging, particularly when patients face socio-economic limitations, culturally ingrained dietary habits, and lack of psychosocial support.⁸⁻¹⁰

Traditional clinical approaches often emphasize prescribing medication without adequately considering the patient's personal context, beliefs, and challenges.¹¹ This limits the effectiveness of interventions. Patient-centered care, which places the individual's experiences and preferences at the center of healthcare delivery, is increasingly recognized as essential to improving outcomes in chronic disease management.¹²

Qualitative research is particularly well-suited to exploring patient experiences. Unlike quantitative studies that focus on measurable outcomes, qualitative research examines how individuals interpret and give meaning to their illness and treatment experiences.¹³ Through in-depth interviews and focus groups, qualitative studies uncover barriers, motivators, and contextual factors influencing adherence behaviors. Synthesizing findings from multiple qualitative studies provides a broader, richer understanding of patient perspectives.

Much of the research conducted earlier focused on either medication use or lifestyle change and often within single populations. There is a lack of comprehensive synthesis that integrates patient experiences across different contexts and cultures. This gap limits the development of interventions that address the full complexity of hypertension self-management.

This qualitative meta-synthesis was conducted to address the above gap by synthesizing the collective voices of patients with hypertension. The goal is to capture the multifaceted influences on adherence behaviors, including socio-cultural, economic, and healthcare system factors. By integrating evidence from existing qualitative studies, this review aims to provide actionable insights to guide the design of patient-centered, culturally sensitive interventions.

Methodology

We used a qualitative approach of meta-synthesis to examine patients' perspectives of medication adherence and lifestyle modification in treatment of hypertension. A thorough literature review was performed in PubMed,

Scopus, Web of Science, and Google Scholar to find relevant studies until October 2024. The keywords used in the search strategy consisted of health-related terms to hypertension, qualitative research, medication adherence, lifestyle modification and patient perspectives. Studies were included if they were qualitative or mixed methods with a clear qualitative component, included adult patients (aged 18 and older) with hypertension and included a focus on patient experiences, beliefs, attitudes, or barriers to medication adherence or lifestyle modification. Studies that were quantitative only, only included healthcare professionals, caregivers, or pediatric populations, and lacked primary data of a qualitative nature were excluded. There were also no review articles and editorials included. 326 records were found in the initial search and these were deduplicated and assessed using title and abstract screening and full text assessment based on the eligibility criteria. Finally, 22 studies were selected and included in the final synthesis, according to PRISMA guidelines for selecting studies. The Critical Appraisal Skills Programme (CASP) Qualitative Checklist was used to evaluate the quality of the included studies. A standardized questionnaire was used for data extraction to gather information regarding the study's findings, data collection methods, participants, setting, year of publication, and authorship. Themes were inductively coded from the text of the interviews and themes were generated by repeated reading of the findings to gain familiarity, followed by line-by-line coding of the text, and then by the development of descriptive themes that were then interpreted into higher-order analytical themes for an integrated analysis of the patient experiences across the different qualitative studies from which the data were extracted.

Results

This is a qualitative meta-synthesis of 22 qualitative studies carried out in high, middle and low-income countries. The overall sample size for the studies (where reported) was around 1,100, with sample sizes per study ranging from 11–219 (median $\approx$ 27). The majority of studies included employed semi-structured interviews and/or focus group discussions, with a smaller number of studies using open-ended survey responses to analyze, and some studies using secondary qualitative syntheses.

Three themes emerged from the synthesis that encompass analysis of patients' experiences of hypertension management.

The first theme, Navigating the Complex Landscape of Medication Adherence, emphasizes several interconnected factors that can hinder adherence with medications. Side effects commonly included dizziness, tiredness and headaches, sometimes resulting in intentional dose omission. Forgetfulness and multiple medication regimens were other factors that led to non-adherence. In low resource areas, the most significant problem was economic constraints, especially cost of long-term antihypertensive treatment. Furthermore, a lack of understanding regarding hypertension (e.g., the need for medication only when symptoms occur) had a negative impact on adherence behaviors. The provision of positive and supportive interactions with healthcare providers was a constant theme of what was identified as a facilitator for improved adherence.

The second theme, Challenges in Lifestyle Modification, acknowledges the challenges that patients experience when trying to make long-term behavioral changes. Dietary habits that contradict the dietary recommendations were reported most frequently as cultural foods such as high salt and high fat foods. Access to healthier food and safe places to be active was limited due to economic constraints. Low motivation and chronic stress was a further barrier to lifestyle modification on a psychological level. Participants also felt that the health-care providers should provide more personal, practical and culturally-sensitive direction.

The third theme, The Role of Support Systems and Communication, highlights the role of social (and health) support in enhancing adherence. Family involvement, especially the reminders from the spouse, and shared health practices were important factors in sustaining medication adherence and lifestyle change. Adherence behaviors were linked to the strength of patient-provider relationship (trust, empathy, communication). Furthermore, good health literacy correlated with self-management, and low health literacy correlated with treatment misunderstandings. System-level barriers, such as inconsistent availability of medications or lack of continuity of care, were also identified as significant barriers.

In summary, the results reveal a complex interplay of biological, psychological, social, cultural and health system factors that influence self-management of hypertension.

Discussion

This qualitative meta-synthesis aimed to understand patient perspectives on adherence to antihypertensive medications and lifestyle changes, and found adherence to be a multidimensional and complex process that is influenced by psychological, socio-cultural, economic, and healthcare system factors, and that is not just a clinical behavior. The 22 qualitative studies identified found that daily, practical issues, belief systems and the quality of the healthcare encounter all have a profound impact on patients' lived experiences. Three interconnected factors medication-related barriers, lifestyle change problems, and the importance of support systems were overall key to understanding adherence behavior in the treatment of hypertension.

One important conclusion of this synthesis was that the long-term adherence to medication remains a challenge for patients. The tolerability of treatment was often cited as an intention to not stick to the treatment, as seen in the side effects of dizziness, fatigue and headache. These are similar results to previous systematic reviews, which found that adverse drug effects were a significant factor in discontinuation and non-adherence to antihypertensive treatment.¹⁵ Further, lapses in memory and complex dosing regimens were found to have played a large part in unintentional non-adherence, further emphasizing the cognitive load of long-term treatment regimens. These results are consistent with previous studies which have focused on the importance of patients' ability to incorporate the use of medication into their daily routine, in addition to knowledge.¹⁶

Financial limitations were also a significant challenge, especially in low-income areas where the ongoing expense of long-term medication puts a strain on finances. This is in line with existing evidence from around the world that socioeconomic status is an important determinant of medication adherence for cardiovascular medications.¹⁸ Rationing or not taking medication when finances were limited was reported in many cases as a direct impact of structural inequalities on outcomes of disease. This supports the premise that adherence interventions need to be more than just patient education include policy level interventions like medication subsidies and better insurance coverage.

Misconceptions and low level of understanding of hypertension were also highly associated with poor adherence. Patients often saw hypertension as a symptomatic condition and stopped taking medication when they didn't have any symptoms. This belief is indicative of poor level of health literacy and of patient

education during clinical encounters. Previous studies have also indicated that illness beliefs and treatment beliefs are important factors in adherence to medication.¹⁶ The challenge is to not only educate patients, but to intervene on a cognitive level and a behavioral level to improve patient understanding of chronic disease as a long-term condition, often without symptoms.

The second key theme suggested by this synthesis is that of lifestyle changes. Patients also consistently reported that they struggled to change their dietary habits, especially when around high salt and high fat foods where there is a cultural context. The importance of cultural dietary norms has been well documented as a significant obstacle to lifestyle change in hypertension management.¹⁷ This indicates that dietary interventions need to be culturally responsive, rather than standardized. In addition, food access was limited by economics, further highlighting the link between poverty and health behavior. Population studies have shown that those from lower socio-economic groups are at higher risk of engaging in negative health behaviors as a result of financial and environmental limitations.¹⁸

Lifestyle change was also hindered by psychological factors, including lack of motivation, stress and a lack of perceived benefit. The results are consistent with the literature in the field of behavioural medicine indicating that motivation and self-efficacy play an important role in long term adherence to behavior. Patients may regress into their unhealthy habits without reinforcement and supportive structure. This illustrates the lack of a link between knowledge and action, indicating that education is not enough to achieve lasting lifestyle change.

An additional important result is the desire for personal and culturally sensitive counseling. There was a common finding that the general guidelines on diet and exercise were not relevant to the lives of the participants. This highlights the need for patient-centered care strategies, which focus on supporting people who are unique in their preferences, culture and socioeconomic situation. Patient-client centeredness has been identified as a key part of good chronic disease management, especially for chronic diseases that require long-term self-management like hypertension.¹⁹

The third theme highlights the importance of support systems and communication in order to enhance adherence outcomes. Family involvement was an effective facilitating factor; reminders from spouses, joint planning of meals and emotional support were important

contributors to better medication adherence and lifestyle modification. The results are similar to those of studies, which show that family dynamics have a significant impact on behaviors of chronic illness self-management.²⁰ Family involvement could be especially significant in promoting sustained change in collectivist societies.

Another significant factor affecting adherence was the quality of the patient-provider interaction. Communication, empathy and trust were consistently cited as key components that help facilitate patient engagement and adherence. A meta-analysis has revealed that better communication between doctors and patients is a very powerful predictor of adherence to treatment recommendations.²¹ Additionally, patient-centred communication that promotes shared decision making can make patients feel more engaged in care, which can enhance motivation to follow treatment.

Health literacy also was identified as a basic determinant of medication adherence and lifestyle modification. Limited knowledge about hypertension was associated with a higher risk of misinformation regarding treatment instructions and a lower perception of disease severity. This is in line with the available evidence, which indicates that low health literacy is linked to poor health outcomes and low adherence to chronic diseases.²² Therefore, enhancing health literacy by making educational materials more accessible, providing counseling, and providing interventions in the community may be an important way to promote hypertension control.

Adherence behaviors were further complicated by system-level barriers, such as the availability of medications and fragmentation in the continuity of care. Patients complained of not having regular access to medication and not getting regular follow up care, especially in under-resourced health services. It underlines the need for improving health systems for access to essential medicines and continuity of care services.

The result of this meta-synthesis overall shows that individual, social and structural factors have a dynamic relationship that influences the adherence to HTN. Personal beliefs and psychological barriers are important and significant, but other factors like cultural norms, economic factors, communication in the healthcare system and system-level factors are also influential. The findings suggest that there is very strong support for a multi-level, integrated approach involving patient education, behavioral support, family engagement, and strengthening health systems.

Importantly, this synthesis reaffirms the principles of patient-centred care as a good way to manage chronic conditions. Personalized interventions that build on patients' lived experience and social and cultural context are more likely to be effective than generic interventions. In addition, better communication between health care providers and patients can markedly improve adherence behaviours, understanding and trust.²³

Finally, it is important to transition from disease-focused to patient-focused, adopting a comprehensive approach that encompasses all the factors that impact adherence. The interventions should address medication adherence and management, lifestyle, health literacy, cultural sensitivity, and healthcare system accessibility, all in one package, to get to sustainable blood pressure management.

Conclusion

Based on this qualitative meta-synthesis, medication adherence and lifestyle modification for patients with hypertension are shown to be affected by a complex interplay of individual, social, cultural and health system factors. The results show that adherence is not simply a knowledge or compliance issue but a dynamic process of behavior, which is influenced by medication side effects, economic factors, health literacy, cultural eating habits, psychological motivation and quality of the patient-provider relationship. There are some patients who can maintain good adherence with their medications, if family support is strong and there is an effective communication with health care providers, but there are some patients who still have difficulties in doing so, because they are facing barriers that go beyond individual effort, such as structural and contextual barriers. In general, the study highlights the need to approach the management of hypertension holistically and patient-centred, recognizing the lived experience of patients and addressing the medical and psychosocial aspects of treatment.

On the basis of these observations, there are several suggestions to help reduce the consequences of hypertension. Patient-centered models of care that focus on customized care plans, cultural sensitivity, and collaborative decision-making between patients and care providers are paramount in healthcare systems. It is important to establish a structured patient education program to help correct misconceptions and improve health literacy regarding hypertension, especially the lack of symptoms, the need for lifelong treatment adherence to optimal blood pressure. In addition, healthcare providers should offer practical, tailored guidance for lifestyle

modification that considers patients' cultural dietary habits, socioeconomic conditions, and daily routines. Family involvement should be actively encouraged as part of hypertension management strategies; as social support has been shown to significantly improve adherence behaviors. Furthermore, policy-level interventions are needed to reduce the financial burden of long-term antihypertensive therapy through improved medication accessibility, insurance coverage, and subsidy programs. Strengthening continuity of care and ensuring consistent availability of essential medications within healthcare facilities are also critical system-level improvements. Collectively, these strategies can help bridge the gap between clinical recommendations and real-world patient behavior, ultimately leading to better blood pressure control and reduced cardiovascular risk.

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