

## THE ASSOCIATION BETWEEN MEDICATION ADHERENCE AND HEALTH-RELATED QUALITY OF LIFE IN PATIENTS WITH HYPERTENSION

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Article Received on 18/12/2024

Article Revised on 07/01/2025

Article Published on 28/01/2025

## ABSTRACT

Hypertension is one of the most preceding problems all over the world, which is contributing to several other health complications like Cardiovascular diseases, Renal Disorders and many other complications. Although Hypertension is a preventable disease, its prevalence has been increasingly rising. Hypertension ranks first among the preventable causes of death worldwide. Quality of life has become an essential measure of results to evaluate the efficiency of the management plan for any illness. Drug therapy alongside lifestyle adjustments remains the effective control of hypertension, so compliance with the drug is the main factor contributing to attaining the desired clinical result. Noncompliance with antihypertensive drugs is the main cause of poor control of high blood pressure. Treatment adherence is the key link between treatment and outcome. The patient who was adherent to the full regimen of their hypertension treatment was often significantly less likely to have elevated blood pressure. Adherence to medications is associated with improved health benefits and patient outcomes. Non-adherence is the main obstacle to controlling hypertension and a significant barrier to effective hypertension management.

**KEYWORDS:** Hypertension, Quality of life, Medication Adherence, Noncompliance.

## INTRODUCTION

Hypertension, a widespread chronic condition, significantly contributes to cardiovascular and cerebrovascular diseases.<sup>[1]</sup> Elevated blood pressure (BP) increases the risk of cardiovascular diseases and overall mortality; however, antihypertensive medications can reduce clinical events. Despite advancements in antihypertensive treatments, managing blood pressure remains challenging.<sup>[2]</sup> The clinical benefits of hypertension treatment are only realized when BP is sufficiently lowered, making hypertension control rates crucial. Globally, about 30% of adults have hypertension, with awareness and treatment rates at 60%-80% and 50%-70%, respectively.<sup>[3,4]</sup> Uncontrolled hypertension can result from factors such as poor medication adherence and therapeutic inertia by healthcare providers. Other contributing factors include education, marital status, income level, and health insurance.<sup>[5,6]</sup>

Hypertension is one of the most prevalent health issues worldwide, exacerbating various conditions like cardiovascular and renal diseases.<sup>[7]</sup> Despite being preventable, hypertension is increasingly common and is the leading avoidable cause of mortality globally. Awareness and control of hypertension vary significantly across different countries.<sup>[8,9]</sup> “Health-related quality of

life” (HRQoL) encompasses a patient’s ability to function physically, mentally, emotionally, and socially. Research indicates that HRQoL is a significant predictor of mortality in chronic illnesses.<sup>[10]</sup> Patients with hypertension have lower HRQoL compared to normotensive individuals, and HRQoL is an independent predictor of new-onset hypertension. Additionally, hypertensive patients with comorbidities have lower HRQoL than those with hypertension alone, regardless of the number of comorbidities.<sup>[11,12]</sup> Poor quality of life can negatively impact adherence to antihypertensive medication. The effect of HRQoL on hypertension treatment and BP control is not fully understood.<sup>[13]</sup> With an ageing population, the prevalence of comorbidities in hypertensive patients is rising. HRQoL can serve as an important measure of health status and treatment effectiveness.<sup>[14,15]</sup>

Individuals with chronic conditions often require long-term therapy. Quality of life is a crucial outcome measure for evaluating the effectiveness of disease management plans.<sup>[16]</sup> Drug therapy, combined with lifestyle changes, remains effective for controlling hypertension, making medication adherence vital for achieving desired clinical outcomes. Noncompliance with antihypertensive drugs is a primary cause of poor BP control. Studies show that adherence rates are higher

in patients with acute illnesses compared to those with chronic conditions.<sup>[17,18]</sup> Patients with chronic, asymptomatic conditions like hypertension and hypercholesterolemia are more likely to be non-compliant. Factors affecting medication compliance include a lack of knowledge about hypertension and its treatment, poor awareness of the importance of adherence, and complex medication regimens. Non-adherence to medication can endanger patient health and significantly increase public health costs and hospital admission.<sup>[19]</sup>

Medication adherence refers to the degree to which a patient's medication-taking behaviours align with the prescribed health advice. It is crucial in determining therapeutic outcomes for patients with chronic illnesses. Regardless of a drug's efficacy, it cannot be effective unless the patient adheres to the prescribed regimen. Treatment adherence is the essential link between treatment and outcome.<sup>[20,21]</sup>

Patients who consistently follow their hypertension treatment regimen are significantly less likely to experience elevated blood pressure.<sup>[22]</sup> Adherence to medications is associated with improved health benefits and patient outcomes. Conversely, non-adherence is a major obstacle in controlling hypertension and poses a significant barrier to effective hypertension management.<sup>[23]</sup> Poor adherence to treatment is one of the primary reasons for inadequate response to blood pressure-lowering treatments in patients diagnosed with 'resistant hypertension,' affecting up to 10-20% of patients with high blood pressure.<sup>[24]</sup> Complications of hypertension, such as renal disorders, are often due to non-adherence to antihypertensive medications and the prolonged use of a single class of antihypertensive drugs without dose adjustments.<sup>[25]</sup>

### Health-related quality of life (HRQOL)

Health-related quality of life (HRQOL) in hypertensive patients can be assessed using a scale that codes items into two summary components: the physical component summary (PCS) and the mental component summary (MCS). The PCS includes physical function, bodily pain, role physical, and general health, while the MCS includes vitality, social function, role emotional, and mental health. Items are then transformed into a scale from 0 (worst quality of life) to 100 (best quality of life).<sup>[26]</sup>

Some studies have found that hypertensive patients have lower HRQOL than people without hypertension, especially those with cardiovascular disease or more cardiovascular risk factors. For example, one study found that hypertensive patients with complications had lower scores in the vitality, bodily pain, and mental health domains in Phase 1 compared to Phase 2. Another study found that HRQOL was significantly lower in hypertensive patients in the physical and mental components.<sup>[27]</sup>

### Other factors that may affect HRQOL in hypertensive patients include

- ❖ Antihypertensive medication: May reduce HRQOL.<sup>[28]</sup>
- ❖ Social support: Patients with low social support may have lower HRQOL than those with high social support.
- ❖ Smoking: Khat chewer hypertensive patients may have lower HRQOL than non-chewers.
- ❖ Marital status: Widowed patients may have lower HRQOL than married patients.<sup>[29]</sup>

### Methods used to assess quality of life (QOL) in hypertensive patients

- WHOQOL-BREF: A reliable instrument that can measure QOL in hypertensive patients. One study found that this instrument can reveal low psychological QOL and inequality in QOL across socio-demographic characteristics.<sup>[30]</sup>
- SF-36: A 36-item questionnaire that can measure a patient's self-assessment of QOL in two main dimensions: physical and mental. The questionnaire includes eight domains, such as physical functioning, bodily pain, and mental health. The results can be summarized into a Physical Component Summary (PCS) and a Mental Component Summary (MCS).<sup>[31]</sup>
- EQ-5D-5L: A standardized instrument that can measure generic health status.<sup>[32]</sup>

### Other methods for assessing patients with hypertension include

- Lifestyle assessment: To identify cardiovascular risk factors and other disorders that may affect prognosis and treatment.
- Blood and urine tests: To check for conditions that can cause or worsen high blood pressure, such as cholesterol and blood sugar levels
- Lab tests: To check kidney, liver, and thyroid function
- Electrocardiogram (ECG or EKG): To assess the patient.<sup>[33]</sup>

### Medication Adherence

Medication adherence in hypertensive patients is a critical aspect of managing high blood pressure effectively. Hypertension, often referred to as the "silent killer," can lead to severe cardiovascular complications if not properly managed. Adherence to prescribed antihypertensive medications is essential for controlling blood pressure and preventing these complications.<sup>[34]</sup>

### Factors Affecting Medication Adherence

- ❖ Patient Understanding: Lack of understanding about hypertension and the importance of medication can lead to non-adherence. Educating patients about their condition and how the medication works is crucial.
- ❖ Side Effects: Some antihypertensive drugs can cause side effects such as dizziness, fatigue, or sexual

dysfunction, which might discourage patients from taking their medication regularly.

- ❖ **Complexity of Treatment Regimen:** Patients with complex medication regimens, involving multiple doses or different drugs, are more likely to miss doses or stop taking their medication altogether.
- ❖ **Cost of Medication:** High medication costs can be a barrier, especially for those without insurance or with limited financial resources.
- ❖ **Forgetfulness:** Simply forgetting to take medication is a common reason for non-adherence, particularly in older adults.
- ❖ **Psychological Factors:** Depression, anxiety, or a lack of motivation can negatively impact medication adherence.
- ❖ **Cultural and Social Factors:** Beliefs about illness and treatment, as well as the support system available to the patient, can influence adherence.
- ❖ **Healthcare Provider Relationship:** A good relationship between the patient and healthcare provider, with regular follow-up and clear communication, can significantly improve adherence.<sup>[35]</sup>

### Strategies to Improve Medication Adherence

- ◆ **Patient Education:** Continuous education about the importance of medication adherence and potential side effects.
- ◆ **Simplifying Regimens:** Prescribing once-daily medications or combination pills can make it easier for patients to adhere to their treatment.
- ◆ **Cost Reduction:** Assisting patients in finding affordable medications, whether through generics, patient assistance programs, or insurance options.
- ◆ **Use of Technology:** Implementing reminder systems such as smartphone apps, pillboxes with alarms, or even text message reminders.
- ◆ **Regular Follow-Up:** Frequent check-ins with healthcare providers to monitor blood pressure and address any concerns or side effects.
- ◆ **Support Systems:** Encouraging family or community support can help patients stay on track with their medications.
- ◆ **Behavioral Interventions:** Cognitive-behavioral strategies to address underlying psychological issues that might affect adherence.
- ◆ **Motivational Interviewing:** A counselling approach that helps patients find personal motivation to stick with their medication regimen.

Improving medication adherence among hypertensive patients is vital for reducing the risk of complications and improving overall health outcomes. It requires a multifaceted approach tailored to each patient's needs and circumstances.<sup>[36]</sup>

The quality of life in hypertensive patients can be significantly impacted by various factors, including the severity of the condition, the effectiveness of treatment, lifestyle modifications, and the presence of

comorbidities. Here are some key aspects to consider.

### ◆ Physical Health

**Symptoms:** Patients with uncontrolled hypertension may experience symptoms like headaches, fatigue, and dizziness, which can reduce their physical well-being.

**Complications:** Long-term hypertension can lead to complications such as heart disease, stroke, and kidney damage, further diminishing quality of life.

**Medication Side Effects:** Some antihypertensive medications may cause side effects like fatigue, sexual dysfunction, or cough, affecting daily activities.<sup>[37]</sup>

### ◆ Psychological Health

**Anxiety and Stress:** Knowing they have a chronic condition can lead to anxiety and stress, especially if patients are worried about the risk of serious complications.

**Depression:** Chronic conditions, including hypertension, are often associated with higher rates of depression, which can negatively impact quality of life.<sup>[38]</sup>

### ◆ Social and Functional Well-being

**Social Activities:** Physical symptoms or fatigue might limit social interactions and participation in activities, leading to social isolation.

**Work and Daily Activities:** Depending on the severity, hypertension can affect work performance and the ability to perform daily tasks, especially if the patient experiences frequent symptoms or side effects from medications.<sup>[39]</sup>

### ◆ Lifestyle Modifications

**Diet and Exercise:** Many hypertensive patients are advised to make lifestyle changes, such as adopting a low-sodium diet, increasing physical activity, and reducing alcohol intake. While these changes can improve health outcomes, they may also require significant adjustments that some patients find challenging.

**Weight Management:** Obesity is a risk factor for hypertension, and weight management is often part of the treatment plan. However, efforts to lose weight can be difficult and affect self-esteem and motivation.<sup>[40]</sup>

### ◆ Adherence to Treatment

**Medication Adherence:** Ensuring consistent use of prescribed medications is crucial but can be challenging for some patients due to side effects, cost, or complexity of the regimen.

**Regular Monitoring:** Hypertensive patients often need to monitor their blood pressure regularly, which can be a source of stress and anxiety, especially if readings are consistently high.<sup>[41]</sup>

### ◆ Impact of Comorbidities

Many hypertensive patients have comorbid conditions

such as diabetes, obesity, or hyperlipidemia, which can further complicate management and reduce quality of life.<sup>[42]</sup>

#### ◆ Patient Education and Support

**Knowledge and Understanding:** Educating patients about hypertension, its risks, and management strategies can empower them and improve their quality of life by reducing anxiety and improving treatment adherence.

**Support Systems:** Strong support from healthcare providers, family, and peer groups can enhance the quality of life by providing emotional support and practical advice on managing the condition.<sup>[43]</sup>

#### ◆ Long-term Outlook

**Prognosis and Quality of Life:** The long-term management of hypertension can improve quality of life by preventing complications. However, the need for lifelong treatment and lifestyle changes can be burdensome for some patients.

Improving the quality of life in hypertensive patients involves a holistic approach, addressing both the medical and psychological aspects of the condition. Effective management, patient education, and support systems are critical in helping patients lead fulfilling lives despite the challenges of hypertension.<sup>[44]</sup>

### CONCLUSION

Consistent medication adherence is positively associated with improved HRQoL in hypertensive patients. Patients who adhere to their prescribed medication regimens generally report better physical and mental health outcomes, such as reduced blood pressure, lower risk of complications, and fewer symptoms, which contribute to an enhanced quality of life. Improved HRQoL due to medication adherence emphasizes the importance of patient education and support in managing hypertension. Healthcare providers should prioritize interventions that encourage adherence, such as simplified medication regimens, regular follow-up, and addressing barriers to adherence. The relationship between medication adherence and HRQoL may be influenced by various factors, including the severity of hypertension, the presence of comorbidities, and patient demographics. Further research is needed to explore these factors and develop targeted strategies to enhance adherence and improve HRQoL. Given the strong link between medication adherence and HRQoL, healthcare systems should implement comprehensive strategies to support adherence in hypertensive patients, thereby improving their overall quality of life and reducing the burden of hypertension-related complications.

### ACKNOWLEDGEMENT

The authors thank the principal of the National College of Pharmacy, Manassery, Kozhikode for providing an opportunity for this review.

### CONFLICT OF INTEREST

The authors declare no conflict of interest.

### ABBREVIATIONS

**HRQoL:** Health-related quality of life, **HTN:** Hypertension, **BP:** Blood pressure.

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