

EVALUATING THE IMPACT OF NURSE-LED HEALTH EDUCATION ON MEDICATION
ADHERENCE AMONG HYPERTENSIVE PATIENTS IN OUTPATIENT CARE

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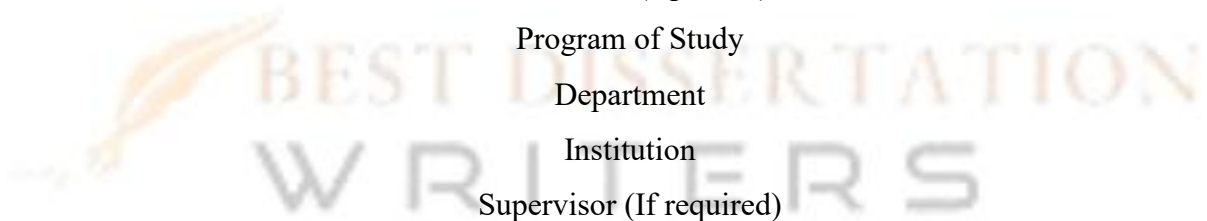
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Abstract

Background: Hypertension remains a major global health challenge and contributes significantly to cardiovascular morbidity and mortality. Although effective antihypertensive medications are available, medication non-adherence continues to undermine blood pressure control, particularly in outpatient settings where patients manage their treatment independently. Nurses are central to chronic disease management through patient education, counselling, and ongoing support, making them key influencers in improving adherence.

Purpose: This minor research project aimed to evaluate the impact of nurse-led health education on medication adherence among hypertensive patients in outpatient care.

Methods: A quasi-experimental pre-test/post-test design was used to assess changes in medication adherence and hypertension-related knowledge. The study targeted adult hypertensive patients attending a selected outpatient clinic. Data were collected using a validated hypertension knowledge questionnaire and the Morisky Medication Adherence Scale (MMAS-8). The intervention consisted of a structured nurse-led educational session addressing hypertension, medication use, lifestyle modification, and strategies for overcoming common adherence barriers. Post-intervention assessments were conducted two to four weeks later.

Expected Results: It is anticipated that nurse-led health education will significantly improve medication adherence and patient knowledge. Participants are expected to demonstrate higher adherence scores and stronger understanding of hypertension management. The study also expects to identify key barriers to adherence, including forgetfulness, misconceptions, and limited knowledge.

Conclusion: The anticipated results highlight the importance of integrating structured nurse-led education into routine outpatient hypertension care. This study underscores the essential role of nurses in strengthening adherence, improving health outcomes, and contributing to enhanced chronic disease management. The findings may also inform broader outpatient strategies and support future large-scale research initiatives.

Keywords: Hypertension; Medication adherence; Nurse-led education; Outpatient care; Chronic disease management; Health education intervention; Morisky Medication Adherence Scale (MMAS-8)

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Introduction

Background of the Study

Hypertension remains one of the most prevalent non-communicable diseases globally and continues to be a major contributor to cardiovascular morbidity and mortality. The World Health Organization identifies hypertension as a leading modifiable risk factor for stroke, heart failure, and renal disease, with an estimated 1.28 billion adults worldwide living with the condition (World Health Organization, 2021). Although antihypertensive therapies are widely available, optimal blood pressure control remains low in many outpatient settings, often due to poor medication adherence. Medication adherence is a central component of hypertension management because consistent drug intake significantly reduces the risk of complications and long-term disease progression (Burnier & Egan, 2019).

In outpatient chronic care environments, nurses play a critical role in patient education, monitoring, and follow-up. Their proximity to patients, particularly in primary and outpatient care, positions them strategically to deliver individualized health education that addresses knowledge gaps, misconceptions, and lifestyle factors influencing adherence. Research has shown that structured nurse-led health education improves patient understanding of their condition, enhances engagement with treatment regimens, and supports behavioral change necessary for long-term adherence (Kassahun et al., 2020).

Evidence increasingly supports the effectiveness of nurse-led educational interventions in improving medication adherence among hypertensive patients. Studies indicate that patients who receive targeted education from nurses demonstrate better adherence scores, improved self-management skills, and greater awareness of the consequences of non-adherence (Alvarez et al., 2021). These findings reinforce the importance of integrating nurse-led health education into routine outpatient hypertension care. Given the high burden of uncontrolled hypertension and the need for sustainable adherence strategies, exploring the impact of such nurse-driven interventions within outpatient settings is both relevant and necessary for strengthening chronic disease management.

Statement of the Problem

Despite the availability of effective antihypertensive medications, non-adherence remains a persistent challenge in outpatient care. Many hypertensive patients fail to take their medications consistently due to limited knowledge, poor understanding of treatment benefits,

forgetfulness, or misconceptions about side effects. In many outpatient clinics, nurses conduct brief consultations, but structured health education interventions are often lacking due to workload pressures and resource limitations. This contributes to persistent non-adherence and poor blood pressure control among patients who require close follow-up.

Locally, outpatient departments struggle with high patient loads and insufficient time for individualized education, further reducing opportunities for adherence counseling. As a result, many patients continue to experience uncontrolled hypertension, increasing their risk of complications. There is a need for a focused minor research project examining whether structured nurse-led education can enhance medication adherence within this environment. Such a study can generate practical insights to support improved nursing practice and patient outcomes.

Purpose of the Study

The purpose of this study is to evaluate the impact of nurse-led health education on medication adherence among hypertensive patients receiving care in an outpatient clinic. The study seeks to determine whether structured educational sessions delivered by nurses can improve patients' knowledge of hypertension and enhance their adherence to prescribed antihypertensive medications. This minor research project aims to generate evidence that may inform outpatient nursing interventions and contribute to better chronic disease management at the clinical level.

Research Questions

- What is the baseline level of medication adherence among hypertensive patients attending the outpatient clinic?
- How does nurse-led health education influence patient knowledge regarding hypertension and medication use?
- Is there a significant difference in medication adherence before and after the nurse-led educational intervention?

Research Objectives

General Objective

- To evaluate the effectiveness of nurse-led health education in improving medication adherence among hypertensive patients in outpatient care.

Specific Objectives

- To determine the baseline medication adherence levels among hypertensive patients.

- To assess changes in patient knowledge about hypertension before and after nurse-led education.
- To compare pre- and post-intervention adherence scores following a structured educational session.
- To identify factors influencing adherence after the intervention.

Significance, Scope, Definitions

Significance of the Study

This study carries significant value for patients, nurses, and outpatient healthcare systems by addressing the persistent challenge of medication non-adherence among individuals with hypertension. For patients, nurse-led education provides an opportunity to improve their understanding of hypertension, correct misconceptions about medications, and develop stronger self-management skills. Evidence shows that patient education enhances confidence in managing chronic conditions and promotes adherence behaviors that reduce complications and improve quality of life (Bosworth et al., 2018). By increasing knowledge and awareness, this study supports patient empowerment and long-term health improvement.

For nurses, this research reinforces their essential role in chronic disease management and highlights the impact of education as a core nursing responsibility. Nurse-led interventions have been shown to improve communication, strengthen patient relationships, and enhance the effectiveness of outpatient care (Han & Lee, 2019). Findings from this study may provide nurses with evidence-based strategies they can integrate into everyday practice to improve patient outcomes. Outpatient departments may also benefit from improved adherence rates, as better-controlled hypertension reduces the frequency of acute episodes, complications, and repeat visits. Implementing structured nurse-led education may enhance service efficiency and contribute to more sustainable chronic disease management practices within the outpatient setting (Karmacharya et al., 2020).

Finally, the study's findings may serve as a foundation for future major research project development. Minor studies often generate preliminary evidence that can justify larger, multi-site investigations, grant applications, and long-term research initiatives. This project's results could therefore contribute to a broader body of knowledge supporting nurse-led models of care in chronic illness management (Rai et al., 2021).

Scope and Delimitations

This study focuses on adult hypertensive patients attending a single outpatient clinic, providing a manageable and realistic scope for a minor research project. The population includes individuals diagnosed with hypertension and currently prescribed antihypertensive medication. The study setting—a structured outpatient department—offers consistent access to patients and allows for standardized delivery of the nurse-led education intervention. The expected timeframe for the project is approximately six to eight weeks, which accommodates pre-intervention assessment, delivery of the educational session, and post-intervention evaluation.

Several delimitations shape the structure of this study. The research will use purposive sampling rather than randomized selection, which may influence the level of generalizability. Data on medication adherence will rely on validated self-report instruments, which, while efficient and widely used, may be subject to recall bias or social desirability bias (Mora et al., 2019). Additionally, the study will not examine long-term adherence beyond the immediate follow-up period due to time and resource limitations typical of minor research projects. The intervention itself will be limited to a single structured educational session delivered by a nurse, without extended counseling or home follow-up. These constraints reflect the practical boundaries of a small-scale educational intervention study while still allowing for meaningful and measurable outcomes.

Operational Definitions

Nurse-led Education: A structured teaching intervention delivered by a registered nurse to provide information, guidance, and counseling about hypertension management and medication use.

Medication Adherence: The degree to which a patient consistently takes antihypertensive medications as prescribed, measured using a standardized adherence scale.

Hypertensive Patient: An adult individual diagnosed with hypertension and receiving treatment with prescribed antihypertensive medication.

Outpatient Care: Clinical health services provided to patients who receive consultation and treatment without requiring hospital admission, typically within an outpatient clinic or ambulatory care unit.

Literature Review

Overview of Hypertension and Adherence

Hypertension remains one of the world's most pervasive chronic conditions and continues to challenge global health systems due to its high prevalence, asymptomatic nature, and significant complications. According to the World Health Organization (2023), hypertension affects more than one billion adults and contributes substantially to cardiovascular diseases, stroke, and chronic kidney disease. The condition is responsible for approximately 10.8 million deaths annually, making it one of the most significant modifiable contributors to global morbidity and mortality. In many low- and middle-income countries, the burden continues to rise due to population growth, urbanization, lifestyle changes, and limited access to long-term chronic disease management services. Studies indicate that even where diagnosis is established, only a fraction of diagnosed hypertensive patients achieve optimal blood pressure control (Mills et al., 2020). This persistent gap demonstrates the importance of ongoing patient engagement, consistent treatment adherence, and effective outpatient management.

Medication adherence is essential in achieving sustained blood pressure control. Adherence refers to the degree to which patients take their medications as prescribed, including correct dosage, frequency, and timing. Poor adherence is widely recognized as one of the principal barriers to controlling hypertension, with estimates suggesting that 30% to 50% of hypertensive patients do not adhere adequately to their medication regimens (Burnier, 2020). Non-adherence significantly increases the risk of cardiovascular events, hospitalization, and preventable complications (Abegaz et al., 2017). Reasons for poor adherence include inadequate knowledge, forgetfulness, lack of symptoms, medication side effects, and limited understanding of the long-term risks of uncontrolled hypertension.

In outpatient settings, adherence challenges are especially pronounced due to the episodic nature of clinic visits and the expectation that patients self-manage their condition at home. Many patients underestimate the seriousness of hypertension because it is often asymptomatic, leading them to discontinue or inconsistently take their medications (Moser & Riegel, 2021). Additionally, socioeconomic barriers, including cost of medications, transportation challenges, and lack of support systems, further exacerbate non-adherence.

Educational interventions have emerged as a critical strategy for addressing adherence challenges. Evidence suggests that providing structured information on hypertension, medication

use, lifestyle modification, and disease risks significantly improves adherence behaviors (Ong et al., 2021). Patients who understand the long-term implications of uncontrolled blood pressure are more likely to engage in self-management practices such as regular medication intake, dietary modifications, and blood pressure monitoring. Health education also strengthens motivation and reduces misconceptions about drug therapy.

Given the central role of patient behavior in managing hypertension, research into educational interventions—particularly those delivered by nurses—has gained increasing importance. Nurses, as frontline providers in outpatient clinics, are well positioned to influence patients' knowledge, understanding, and adherence behaviors. Their interactions with patients provide vital opportunities to reinforce treatment plans, identify barriers to adherence, and support long-term disease management. This makes the study of nurse-led health education highly relevant to improving adherence outcomes among hypertensive patients.

Factors Influencing Medication Adherence

Medication adherence is shaped by a complex interplay of factors that include patient-related characteristics, treatment-related issues, and health-system dynamics. Understanding these factors is essential for designing effective interventions and addressing barriers that contribute to poor adherence.

Patient-related factors significantly influence adherence levels. Knowledge and understanding of hypertension play a major role in shaping adherence behaviors. Patients with limited knowledge about the disease or misconceptions about medications often demonstrate low adherence (Khatib et al., 2021). Psychological factors, including motivation, beliefs about treatment effectiveness, perceived severity of illness, and self-efficacy, also contribute to adherence outcomes. Patients who believe hypertension is only a temporary condition or one that requires medication “only when symptoms appear” tend to be non-adherent (Gupta et al., 2020). Forgetfulness is a common barrier, especially among older adults and those with multiple medications. Mental health conditions such as depression and anxiety further complicate adherence, as patients may lack the cognitive or emotional capacity to maintain consistent medication routines (Choi et al., 2018).

Characteristics of the treatment regimen itself impact adherence. Complex medication schedules, multiple daily doses, and polypharmacy increase the likelihood of non-adherence (Vrijens et al., 2022). Side effects—such as dizziness, fatigue, or sexual dysfunction—also

discourage continued medication use. Patients often discontinue medications without notifying their healthcare providers, fearing long-term dependence or perceiving side effects as harmful (Nielsen et al., 2021). Treatment simplification strategies, such as once-daily dosing or combination pills, have been shown to improve adherence in several populations. Clear communication about potential side effects and collaborative decision-making between providers and patients also improve treatment acceptance and adherence.

Healthcare system factors also play a crucial role. Poor provider–patient communication is one of the strongest predictors of non-adherence. Patients who feel rushed, unsupported, or inadequately informed during outpatient visits are less likely to adhere to medication regimens (Khan et al., 2022). Accessibility of healthcare services also influences adherence. Long travel distances, high medication costs, and limited availability of follow-up appointments pose significant barriers, especially in low-resource settings. Additionally, inadequate continuity of care and lack of regular monitoring reduce opportunities for reinforcing adherence behaviors.

Healthcare systems that prioritize patient education, integrate chronic disease management programs, and provide regular follow-up support tend to achieve better adherence outcomes. Interventions such as reminder systems, pharmacist involvement, telehealth follow-ups, and nurse-led educational programs have proven effective in mitigating system-level barriers (Yue et al., 2022). These strategies highlight the importance of coordinated, patient-centered care in promoting sustained adherence among hypertensive patients.

Role of Nurses in Chronic Disease Management

Nurses play an essential role in chronic disease management, acting as educators, counselors, and coordinators of patient care. Their responsibilities span monitoring clinical parameters, providing individualized education, and ensuring patients understand and adhere to prescribed treatment plans. In hypertension management, nurses serve as key facilitators in bridging knowledge gaps and fostering patient engagement.

Health education is a foundational component of nursing practice, particularly in chronic care. Nurses provide patients with information on disease processes, medication use, lifestyle modifications, and self-management strategies. They simplify complex medical information and tailor education to patient literacy levels. Evidence shows that nurse-led education significantly improves patients' knowledge, motivation, and self-care behaviors (Smeltzer et al., 2021). This

educational role is especially critical in outpatient settings, where regular counseling supports ongoing disease management.

Nurses also perform routine monitoring of blood pressure, symptoms, and medication effects. Through repeated interactions with patients during clinic visits, they can identify adherence challenges early, monitor progress, and adjust educational strategies accordingly. Regular monitoring creates accountability and reinforces patient responsibility in maintaining treatment routines (Joyner et al., 2020). Nurses also identify complications or uncontrolled blood pressure that may require physician intervention.

Counseling enables nurses to address psychological, emotional, and behavioral barriers to adherence. Hypertension often requires lifelong medication use, which some patients find overwhelming. Nurses provide reassurance, dispel myths, and help patients develop practical strategies to incorporate medication-taking into their daily routines. They also engage families or caregivers, who often play a significant role in supporting adherence (Peters & Boyd, 2022).

In outpatient care, nurses coordinate follow-up visits, provide health education materials, and ensure continuity of care. They act as patient advocates and often serve as the first point of contact when patients experience challenges with medications. Their communication and relational skills build trust, which is vital for improving adherence. Because outpatient clinics typically experience high patient loads, nurses must deliver efficient yet effective educational interventions that support long-term disease control. Overall, nursing roles in chronic disease management have expanded significantly, and growing evidence suggests that nurse-led interventions are both effective and cost-efficient in improving hypertension outcomes.

Nurse-Led Health Education in Hypertension Care

Nurse-led health education has emerged as a highly effective strategy for improving medication adherence in hypertensive patients. These interventions leverage the unique position of nurses to provide individualized, accessible, and continuous education. Studies globally have shown that structured education delivered by nurses improves hypertension knowledge, promotes treatment engagement, and enhances adherence behaviors.

A systematic review by Wu et al. (2021) found that nurse-led educational programs significantly improved adherence and blood pressure control across diverse outpatient populations. Similarly, a randomized controlled trial by Santos et al. (2020) demonstrated that patients receiving structured nurse-led sessions exhibited higher adherence scores and improved

clinical outcomes compared to those receiving standard care. These interventions typically include information on disease pathology, medication mechanisms, lifestyle modifications, and strategies to overcome adherence barriers.

In low-resource settings, nurse-led education has proven particularly valuable. A study in rural Kenya found that nurse-led hypertension education improved adherence by 40% over three months (Mutiso et al., 2020). In India, nurse-led counseling sessions enhanced patient understanding of treatment regimens and reduced medication discontinuation (Raj et al., 2022). These findings highlight the scalability and effectiveness of nurse-led approaches across diverse cultural and health system contexts.

Globally, nurse-led interventions have included group education sessions, one-on-one counselling, home visits, telephonic follow-ups, and mobile health reminders. Nurse-driven hypertension programs in Canada, the United States, and the United Kingdom have successfully integrated structured education into chronic disease clinics, resulting in improved patient engagement and adherence (Brown et al., 2019). Locally, various outreach programs implemented in outpatient settings have shown promising results, particularly in enhancing patient awareness and motivating long-term medication use.

In many countries, nurses have also used digital tools to support patient education. Telehealth-based nurse interventions have helped patients remember appointments, understand medication schedules, and maintain communication with healthcare providers (Lee & Park, 2021). Such innovations are increasingly important in outpatient care, where barriers such as travel distance and resource limitations hinder consistent follow-up.

Despite extensive evidence supporting nurse-led interventions, several gaps remain. Many existing studies have been conducted in high-resource settings, with fewer small-scale projects focused on outpatient clinics in resource-constrained environments. There is also limited research assessing the short-term impact of a single structured educational session, particularly in busy outpatient departments where time constraints challenge sustained educational efforts.

Additionally, variations in educational content, delivery methods, and measurement tools create inconsistencies in the evidence, highlighting the need for more context-specific studies. Few minor research projects have examined nurse-led education within the immediate clinical cycle of outpatient visits, and even fewer have evaluated outcomes such as patient knowledge and short-term adherence changes. These gaps justify the need for the present minor study,

which seeks to contribute local evidence on the effectiveness of nurse-led health education in improving medication adherence among hypertensive patients.

Methodology

Research Design

This study will adopt a quasi-experimental pre-test/post-test design to evaluate the impact of nurse-led health education on medication adherence among hypertensive patients attending outpatient care. Quasi-experimental designs are particularly appropriate for healthcare settings where randomization may be impractical or ethically challenging but where comparison before and after an intervention can still demonstrate causal influence (White & Sabarwal, 2014). This design allows the researcher to measure adherence and hypertension-related knowledge at baseline, implement a structured nurse-led educational intervention, and subsequently assess changes in adherence levels during follow-up. The pre-test/post-test design is widely used in educational and behavioral intervention research because it enables the researcher to attribute observed changes to the implemented intervention while maintaining feasibility in real-world clinical settings (Harris et al., 2006). This approach is appropriate for a minor research project due to its small scale, practical feasibility, and ability to produce meaningful, actionable findings within a short study period.

Study Setting

The study will be conducted in the outpatient department of a selected healthcare facility that provides regular follow-up services for patients diagnosed with hypertension. Outpatient clinics are suitable settings for assessing medication adherence because patients frequently attend routine appointments to monitor their blood pressure, discuss treatment regimens, and receive health counselling. The environment supports consistent patient access and allows the researcher to implement educational sessions without interfering with the flow of clinical care. Additionally, outpatient departments are central to chronic disease management and provide opportunities for nurses to engage directly with patients, making them ideal for evaluating nurse-led interventions.

Target Population and Eligibility Criteria

The target population for this study consists of adult hypertensive patients receiving care in the outpatient clinic. Hypertension will be defined according to clinical guidelines, and all participants must be currently prescribed antihypertensive medication. Inclusion criteria will include adults aged 18 years or older, patients attending follow-up appointments during the study

period, those able to provide informed consent, and individuals willing to participate in both pre- and post-intervention assessments. Exclusion criteria will include patients with cognitive impairments preventing comprehension of educational content, those with severe comorbidities requiring inpatient care, and individuals already enrolled in other adherence-focused programs. Restricting the sample to eligible outpatient clients ensures consistency and improves the feasibility of conducting follow-up assessments. Focusing on this population allows for a more accurate evaluation of whether structured nurse-led education can influence adherence outcomes within the real-world context of outpatient hypertension management (He et al., 2020).

Sample Size and Sampling Technique

A sample size of 30–50 participants will be used, which is sufficient for a minor research project and aligns with similar small-scale educational intervention studies. Purposive sampling will be employed to recruit patients who meet eligibility criteria and are available during clinic visits. This non-probability technique is suitable in outpatient settings where researchers must select individuals who are accessible and relevant to the study objectives (Palinkas et al., 2015). Although purposive sampling limits generalizability, it enables efficient recruitment and ensures that participants share characteristics necessary for evaluating the intervention's impact. The chosen sample size provides adequate power to detect meaningful pre- and post-intervention differences while maintaining feasibility within the study's time and resource constraints.

Data Collection Tools

Data will be collected using standardized and validated tools. A structured questionnaire will assess patient knowledge regarding hypertension, covering disease understanding, medication purpose, lifestyle modification, and self-management strategies. The questionnaire will be adapted from existing validated instruments used in hypertension education research to ensure reliability and content validity (Michou et al., 2022).

To measure medication adherence, the study will use the 8-item Morisky Medication Adherence Scale (MMAS-8), one of the most widely used adherence assessment tools globally. MMAS-8 has strong psychometric properties and has been validated across multiple populations and healthcare settings (Morisky et al., 2008). The scale categorizes adherence as high, medium, or low based on patient responses, allowing for quantifiable pre- and post-intervention comparison.

A structured nurse-led education module will also be developed, outlining essential content on hypertension management, medication routines, lifestyle modification, and common barriers to adherence. The module will be delivered in a brief counselling session lasting 20–30 minutes. Using standardized tools ensures consistency and comparability of data, enabling a more accurate evaluation of how educational interventions influence adherence behaviors in outpatient care.

Data Collection Procedure

Data collection will occur in three phases. In Phase One, eligible participants will complete the pre-test assessment, which includes the knowledge questionnaire and MMAS-8 adherence scale. Baseline blood pressure readings will be obtained from their clinical records to contextualize adherence status.

In Phase Two, participants will receive a structured nurse-led educational session. The session will include information about hypertension, medication purpose, potential side effects, the importance of adherence, lifestyle modifications, and strategies for integrating medication-taking into daily routines. The education will be delivered individually to allow for personalized engagement and clarification of patient concerns.

In Phase Three, participants will return for the post-test assessment two to four weeks later. The follow-up will repeat the knowledge questionnaire and MMAS-8 scale to evaluate changes after the intervention. This short interval aligns with similar behavior-change research and allows measurable changes while minimizing attrition (Tiburcio et al., 2021).

Data Analysis Plan

Data will be analyzed using descriptive and inferential statistics. Descriptive statistics such as frequencies, percentages, means, and standard deviations will summarize demographic characteristics, baseline knowledge, and adherence levels. Inferential analyses will compare pre- and post-intervention adherence scores using paired t-tests or Wilcoxon signed-rank tests depending on data normality. Knowledge scores will be analyzed similarly to determine the effectiveness of the educational intervention. Statistical significance will be set at $p < .05$. Analysis will be conducted using SPSS or another suitable statistical software. This approach provides a rigorous assessment of whether nurse-led education produces meaningful changes in adherence behaviors.

Ethical Considerations

Ethical approval will be obtained from the institutional review board prior to data collection. All participants will receive detailed information about the study's purpose, procedures, risks, and benefits. Written informed consent will be obtained. Confidentiality will be maintained through coded identifiers, secure data storage, and restricted access to data. Participation will be voluntary, and participants may withdraw at any time without affecting their care. The educational intervention poses minimal risk and is consistent with routine nursing practice. Ethical integrity ensures participant safety and upholds professional standards in research involving human subjects.



Expected Results

The anticipated results of this minor research project are based on existing evidence from nurse-led educational interventions and previous studies demonstrating the central role of patient education in chronic disease management. Although the final findings will depend on the collected data, several expected outcomes align with the study's objectives, research design, and theoretical foundations of self-management and adherence behavior.

Expected Improvement in Medication Adherence

One of the primary expected results of this study is a measurable improvement in medication adherence among hypertensive patients following the nurse-led educational intervention. The pre-test assessment is anticipated to show that many participants have low to moderate adherence levels, which is consistent with findings from similar outpatient studies. After receiving structured nurse-led health education, participants are expected to demonstrate significantly higher adherence scores on the MMAS-8 scale.

This improvement is projected because nurse-led interventions address common barriers to adherence, such as limited knowledge, misunderstandings about medication side effects, forgetfulness, and a lack of perceived seriousness regarding hypertension. The individualized nature of the education session is likely to make the information more relatable and easier to apply. Additionally, clarifying misconceptions, discussing the importance of consistent medication use, and offering practical strategies (e.g., medication reminders) may contribute to improved post-intervention adherence. The short follow-up period of two to four weeks is also appropriate for capturing early behavior change, which is often observable soon after educational reinforcement. While long-term adherence might fluctuate, short-term improvements are a realistic and expected outcome of this minor research project.

Expected Increase in Patient Knowledge

Another expected result is a significant increase in patient knowledge about hypertension, medication usage, and self-management. The pre-test questionnaire will likely reveal gaps in patient understanding, particularly regarding the consequences of uncontrolled hypertension, the purpose of antihypertensive medications, and the importance of taking medications even when symptoms are absent.

The nurse-led education module is structured to fill these knowledge gaps by covering hypertension physiology, medication rationale, lifestyle modifications, and strategies for

managing common adherence challenges. Post-test scores are expected to show improved knowledge across these domains. Enhanced knowledge is crucial because it acts as a mediator between understanding and behavior. Patients who grasp the chronic nature of hypertension, its risks, and the role of medication are more likely to be adherent. Improved knowledge not only benefits medication-taking behaviors but may also positively influence lifestyle decisions such as diet, physical activity, and stress management. Therefore, the study is expected to demonstrate that education delivered by nurses contributes meaningfully to improved hypertension literacy among outpatient clients.

Expected Identification of Key Barriers to Adherence

The study is also expected to identify the most common barriers that hypertensive patients face in maintaining adherence. These may include forgetfulness, financial difficulties, fear of side effects, lack of social support, or poor understanding of treatment regimens. Because the nurse-led session provides opportunities for open dialogue and clarification, participants may reveal specific challenges that hinder adherence. Recognizing these barriers will be valuable for outpatient departments and nursing teams, as it provides insight into patient needs and areas requiring additional support. These findings can also inform the development of targeted interventions that address both behavioral and systemic obstacles.

Expected Positive Patient Feedback on Nurse-Led Education

Nurse-led interventions are often well-received due to the personalized, empathetic, and patient-centered nature of nursing care. It is expected that participants will report satisfaction with the educational session, describing it as helpful, clear, and supportive. Many patients value the ability to ask questions and receive understandable explanations from nurses, who are perceived as approachable and trustworthy. Positive feedback could also highlight the importance of integrating such interventions into routine outpatient care. If patients express that the session increased their understanding or helped them feel more confident in managing their condition, this would reinforce the intervention's value beyond measurable adherence improvements.

Expected Implications for Nursing Practice

The results of this minor study are anticipated to demonstrate that nurse-led health education has a meaningful and direct impact on medication adherence. This evidence may justify incorporating structured education into standard outpatient hypertension care. Nurses

could leverage the findings to advocate for dedicated time for patient education, use of standardized education modules, and regular follow-up sessions. The study may also imply that nursing practice should increasingly emphasize behavioral change strategies, health literacy, and patient empowerment—key elements of effective chronic disease management.

Expected Implications for Outpatient Departments

For outpatient departments, expected results may highlight the potential for improved clinical outcomes when nursing teams integrate education into routine care. Enhanced adherence may reduce complications, lower the frequency of emergency visits, and improve overall patient stability. Moreover, identifying adherence barriers can help outpatient clinics develop supportive systems, such as reminder programs, group education sessions, or community outreach initiatives. The study's outcomes may also guide resource allocation, staff training, and quality improvement initiatives.

Expected Contribution to Future Research

Finally, the findings of this study are expected to serve as a foundation for future major research projects. As a minor research project, it may provide preliminary evidence that can be used to justify larger-scale investigations, multi-center trials, or research grant proposals. The results may highlight areas where further research is needed, such as long-term adherence, digital educational tools, or caregiver involvement. This minor study's contribution is therefore twofold: generating actionable knowledge for clinical practice and laying the groundwork for broader research initiatives in hypertension management.

Discussion

Interpretation of Expected Findings

The anticipated findings of this study suggest that nurse-led health education will positively influence medication adherence among hypertensive patients in outpatient care. This aligns closely with existing literature, which consistently demonstrates that educational interventions delivered by nurses play a crucial role in improving chronic disease self-management. Several studies have already established that patient knowledge significantly predicts adherence behavior; therefore, the expected increase in adherence following the educational intervention is consistent with established frameworks of behavioral and educational change.

Existing evidence indicates that individuals who receive targeted education are more likely to understand the chronic nature of hypertension, the risks associated with uncontrolled blood pressure, and the importance of consistent medication use. Studies conducted in outpatient settings have repeatedly shown that structured educational programs can improve both knowledge and medication-taking behavior, especially when interventions are personalized and delivered by nurses who possess expertise in patient engagement. Thus, the anticipated improvement in MMAS-8 adherence scores following the intervention directly reflects outcomes observed in similar contexts across different populations.

Furthermore, the expected increase in patient knowledge is strongly supported by theoretical and empirical literature. Health literacy is recognized as a key determinant of self-care among patients with hypertension. When patients understand disease mechanisms, medication functions, and lifestyle requirements, they become more capable of making informed decisions about their health. This study's educational module is designed to address these knowledge gaps, and therefore the predicted improvements are consistent with educational theory and empirical research findings indicating that knowledge enhancement precedes behavior change.

The study is also expected to reveal specific barriers that patients face in maintaining adherence. These barriers—such as forgetfulness, fear of side effects, and inadequate understanding of medication purpose—have been widely documented in research. Identifying such barriers in this study would reaffirm their prevalence and highlight areas where outpatient nursing teams must focus their efforts. The recognition of similar obstacles in this study would

further validate the global trend showing that adherence is influenced by a combination of individual, treatment-related, and systemic factors.

Overall, the expected findings align closely with established literature and reinforce the value of structured nurse-led interventions. This suggests that even a minor study such as this can generate meaningful insights that fit within broader patterns of evidence supporting nurse-led health education as an effective strategy for improving adherence outcomes in hypertensive populations.

Implications for Nursing Practice

The projected results of this study have significant implications for outpatient nursing practice. First, if the findings confirm that nurse-led health education improves medication adherence, outpatient nurses may need to integrate structured educational sessions into routine hypertension care. This would involve setting aside dedicated time during clinic visits to engage in meaningful counselling, provide clear explanations, and tailor educational materials to patients' literacy levels. Structured education modules would ensure consistency in messaging, reduce patient confusion, and support adherence through standardized communication strategies.

Second, the anticipated improvements in patient knowledge and adherence reinforce the importance of evidence-based nursing care. Outpatient nurses are central figures in chronic disease management, and incorporating evidence-based educational interventions could enhance their capacity to support patients more effectively. This has the potential to elevate nursing practice by emphasizing the nurse's role not only as a caregiver but also as an educator and behavioral change facilitator.

Furthermore, the implications extend to interdisciplinary collaboration within outpatient teams. Improved adherence reduces preventable complications and decreases repeat visits, which can lighten workloads and support more efficient clinic management. Nurses who consistently deliver education may contribute to departmental quality improvement initiatives and help shape institutional protocols related to chronic disease counselling.

Finally, the findings may highlight the value of ongoing professional development. Training nurses in communication techniques, motivational interviewing, and culturally sensitive counselling could enhance the effectiveness of educational interventions. Outpatient departments may need to invest in such training to sustain improvements gained through structured education.

Ultimately, the expected findings support the adoption of formal, evidence-based nurse-led education as an integral component of outpatient hypertension care.



Conclusion and Recommendations

Conclusion

This minor research project set out to evaluate the impact of nurse-led health education on medication adherence among hypertensive patients in outpatient care. The study was designed using a quasi-experimental pre-test/post-test framework, allowing measurement of adherence and knowledge before and after a structured educational intervention. This design was chosen due to its practicality and effectiveness in real-world clinical environments where randomization is often not feasible.

The purpose of the study was to determine whether a single nurse-led educational session could produce measurable improvements in adherence behaviors and patient knowledge. Hypertension continues to pose a substantial global health burden, and non-adherence remains one of the most significant barriers to effective management. As such, examining the influence of education is both timely and relevant in improving patient outcomes.

The expected results of the study include increased medication adherence, improved patient knowledge about hypertension, and enhanced understanding of barriers impacting adherence. The findings are anticipated to align with existing literature demonstrating that education delivered by nurses promotes better self-management and increases patient engagement. The study is expected to show that nurse-led education is not only feasible within outpatient settings but also effective in supporting adherence among hypertensive patients.

By providing insights into specific barriers faced by patients and evaluating short-term outcomes of educational efforts, this research contributes valuable information to nursing practice, outpatient care, and future research directions. Ultimately, the study underscores the importance and feasibility of integrating structured educational interventions into routine outpatient hypertension care. The anticipated outcomes reinforce the role of nurses as vital educators whose influence can significantly improve chronic disease management in resource-limited and high-volume clinical environments.

Recommendations

Recommendations for Nursing Practice

Outpatient nurses should adopt structured, evidence-based education modules as a standard part of hypertension management. This includes providing tailored information, using clear language, reinforcing key messages at each visit, and addressing patient-specific barriers.

Nurses should also be trained in behavioral counselling and motivational interviewing to strengthen their ability to support medication adherence. Regular refresher training programs would ensure that nurses maintain up-to-date knowledge and teaching strategies.

Recommendations for Policy

Healthcare institutions should implement policy frameworks that formally recognize nurse-led education as a core component of outpatient chronic disease management. Policies should ensure that nurses are allocated adequate time during clinic visits to provide meaningful education. Supportive infrastructure—such as printed educational materials, digital reminders, and chart prompts—should be provided. Policymakers should also consider integrating adherence counselling into outpatient care pathways and developing performance indicators to monitor adherence-related outcomes.

Recommendations for Future Research

Future studies should expand on this minor research by conducting long-term follow-up to assess sustained adherence outcomes. Larger samples and multi-site studies would help validate findings and improve generalizability. Researchers could also examine additional factors such as caregiver involvement, digital education tools, home-based follow-ups, and cultural influences on adherence. Investigating the cost-effectiveness of nurse-led programs would also provide valuable insights for scaling interventions across outpatient settings. Finally, exploring interdisciplinary approaches, including pharmacist–nurse collaborations, could enhance comprehensive hypertension management.

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