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Enhancing Medication Adherence in Primary Care Settings Through Staff Education

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
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Executive Summary: Staff Education Project

Enhancing Medication Adherence in Primary Care Settings Through Staff Education

by

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Summary

This Doctor of Nursing Practice project was an evidence-based staff education initiative addressing medication nonadherence in hypertension, a critical issue that contributes to poor health outcomes, uncontrolled blood pressure, preventable hospitalizations, and increased healthcare costs. The identified gap in practice was defined by limited staff knowledge, lack of structured training, and inconsistent application of evidence-based adherence counseling strategies. The practice-focused question was: In a primary care clinic, will an evidence-based staff education program on medication adherence increase staff knowledge?

A structured training intervention was implemented and then evaluated for its effectiveness. Descriptive statistics and a paired *t* test comparing pre- and posttest scores demonstrated a statistically significant improvement, with a mean knowledge gain of 3.4 points, thereby providing evidence of the intervention's effectiveness in this practice setting. Major products for the training session included a 30-minute interactive training, reinforcement handouts, pre-/post training evaluation tools, and a post training survey.

The findings suggest that structured staff education may serve as a feasible, cost-effective, and sustainable intervention. Within nursing practice, this approach has the potential to strengthen staff knowledge, enhance the quality of patient care, and reduce hospital readmissions. Beyond the organizational level, the broader implications may include fostering positive social change and advancing diversity, equity, and inclusion. By incorporating culturally sensitive strategies, such as teach-back and motivational interviewing, staff may be better equipped to promote health equity, reduce disparities, and provide equitable support for patients managing hypertension.

Background

Medication nonadherence in hypertension is a major clinical and public health problem, contributing to poor health outcomes, uncontrolled blood pressure, preventable hospitalizations, and increased healthcare costs (Achterbosch et al., 2025; Masenga & Kirabo, 2023). Approximately 50% of patients with hypertension are nonadherent to prescribed medications (Choudhry et al., 2022). Despite the availability of effective interventions, medication nonadherence remains widespread and is often underestimated by healthcare providers, creating a persistent gap in practice (Burnier et al., 2021). Nurses and other frontline clinicians play a central role in patient education; however, limited training contributes to inconsistent application of evidence-based adherence strategies.

Gap in Practice

The identified gap in practice was characterized by limited staff knowledge, the absence of structured training, and inconsistent application of evidence-based adherence counseling strategies (see Burnier et al., 2021; Hamrahian et al., 2022; Ominyi & Alabi, 2025). This gap was further compounded by barriers at multiple levels, including patient-related factors, such as forgetfulness, limited health literacy, and misunderstanding of instructions; provider and staff-related factors, such as rushed visits, unclear communication, and limited counseling knowledge; and system-level challenges, including complex medication regimens and time constraints (see Hamrahian et al., 2022; Paczkowska et al., 2021).

Project Question and Project Purpose

To address the identified gap, the project was guided by the following practice-focused question: In a primary care clinic, will an evidence-based staff education program on medication adherence increase staff knowledge? The purpose of the project was to implement a structured educational program for staff and evaluate its effectiveness in improving knowledge. I designed the intervention to utilize evidence-based strategies, such as teach-back; motivational interviewing; and practical tools, including reminders, simplified medication regimens, and plain-language education, to support adherence.

Evidence Supporting the Project Change

I conducted a synthesis of literature from professional publications to generate evidence for this staff education project. Eleven relevant articles were identified from peer-reviewed journals; professional organization publications; and databases, such as CINAHL, PubMed, and Google Scholar, which were accessed through the Walden Library, as well as guidelines from the Centers for Disease Control and Prevention, the World Health Organization, and the American Heart Association. Keyword terms, such as *medication adherence, hypertension, nurses, staff education, patient counseling,* and *training interventions*, were searched and then refined with Boolean operators (e.g., *medication adherence AND staff training*). After screening abstracts, removing duplicates, and applying inclusion criteria (i.e., peer-reviewed studies, published between 2020–2025 in English, and involving human subjects), Eleven articles were incorporated into the final synthesis. Findings across these sources demonstrated consistent alignment and strong evidence supporting structured staff education programs to improve knowledge of medication adherence.

Strength of the Evidence

Extensive research supported this intervention across multiple levels of evidence. The Johns Hopkins nursing evidence-based practice model guided evidence integration through the systematic appraisal of research, guidelines, and expert opinion. Level I randomized controlled trials demonstrated effectiveness, with Margolis et al. (2013) showing that home blood pressure monitoring with telemonitoring improved adherence and blood pressure control. Level II quasi-experimental studies confirmed feasibility, as Marseille et al. (2021) and Simon et al. (2021) reported gains in knowledge, adherence, and outcomes following nurse-led education. Level III observational studies reinforced these findings; Burnier et al. (2021) identified provider beliefs and behaviors as key determinants, while Paczkowska et al. (2021) linked patient knowledge directly to adherence. Level IV guidelines from the American Heart Association highlighted adherence as a determinant of blood pressure control and recommended provider training and system-level strategies (Choudhry et al., 2022). Level V reviews and expert opinion emphasized communication and health literacy, endorsing strategies, such as teach-back and motivational interviewing (Dang et al., 2021; Hamrahian et al., 2022). Collectively, this moderate-to-strong evidence base shows that structured staff education improves provider knowledge by 30%–50% and strengthens counseling confidence.

Staff Education Project Development

Participants and Procedures

The project was implemented in a small primary care clinic with seven participants: one nurse, three nurse practitioners, one physician, and two medical assistants. Institutional Review Board (IRB) approval was not required by Walden

University or the participating facility for this Doctor of Nursing Practice project. In alignment with Walden University's ethical standards, I completed and signed the required Ethics Pledge prior to initiating the project. Subsequently, clinicians were purposefully selected for participation based on their direct engagement in patient education and medication adherence activities, ensuring alignment between their clinical roles and the objectives of the intervention. Prior to the intervention, participants completed a pretest to establish baseline knowledge. The 30-minute educational session that followed included interactive teaching and reinforcement handouts emphasizing evidence-based counseling strategies shown to improve adherence to counseling consistency. Immediately after the educational session, participants completed a posttest to assess knowledge gains and a survey to evaluate the clarity, relevance, and quality of the training. This mixed-method evaluation approach, combining quantitative and qualitative measures, aligned with recommended best practices for assessing educational interventions in nursing (see Burnier et al., 2021; Hamrahian et al., 2022; Ominyi & Alabi, 2025; Rezaee et al., 2022).

Collection and Analysis of Evidence

I collected evidence for this project using a pre-/posttest design. The pretest established the staff's baseline knowledge of barriers, counseling techniques, and adherence strategies, whereas the posttest was used to measure participant knowledge following the intervention. Data were entered into a spreadsheet for analysis. I calculated descriptive statistics (i.e., means and standard deviations) to summarize scores and conducted a paired *t* test to determine whether the differences between pre- and posttest scores were statistically significant (see Rezaee et al., 2022). This approach provided both a descriptive summary of the data and inferential testing of the intervention's effectiveness.

Evaluation Process

This project was evaluated through three components: (a) comparison of participants' pre- and posttest scores, (b) a post training survey to assess participant knowledge and satisfaction, and (c) qualitative feedback on the relevance and clarity of the material. I used the paired *t* test of pre- and posttraining questionnaire results to determine the extent of improvement in staff knowledge, which demonstrated statistically significant gains. Posttraining survey responses provided insight into the perceived applicability of the training in daily practice. This comprehensive evaluation ensured that both quantitative outcomes and staff perceptions were integrated in determining the overall effectiveness of the intervention.

Results

The staff education intervention produced statistically significant results. Participants' pretest scores averaged 5.43, while their posttest scores increased to 8.86, reflecting a mean gain of 3.43 points, $t(6) = 9.30$, $p = .0000877$ ($< .001$). Analysis of individual score differences revealed that three participants improved by 3 points, two improved by 4 points, one improved by 5 points, and one improved by 2 points; thus, all participants demonstrated measurable improvement (see Pandis, 2021). In addition, all seven participants completed the posttraining effectiveness survey, each assigning the training 5 out of 5. This yielded a mean score of 5.0, indicating unanimous agreement regarding the quality, relevance, and effectiveness of the educational intervention.

The total pre- and posttest scores for all the participants are presented in detail in Table 1. Additionally, group-level descriptive statistics and inferential results are summarized in Table 2. These findings indicate that the education session effectively increased staff knowledge regarding medication adherence. Visual trends are further illustrated in Figure 1, which depicts individual participant scores before and after the intervention. Each line demonstrates an upward trend, highlighting consistent knowledge gains across participants. The pretest questionnaire used to assess staff knowledge is included in Appendix A, the posttest questionnaire is provided in Appendix B, and the survey tool used to evaluate the effectiveness of the staff education training is presented in Appendix C. Table C1 displays scores from all seven participants, along with the mean score for this posttraining survey, and is included in Appendix C.

Table 1

Pre- and Posttest Scores by Participant

Participant	Pretest Score	Posttest Score	Difference
P1	5	9	+4
P2	6	9	+3
P3	6	9	+3
P4	5	10	+5
P5	5	8	+3
P6	5	7	+2
P7	6	10	+4

Table 2

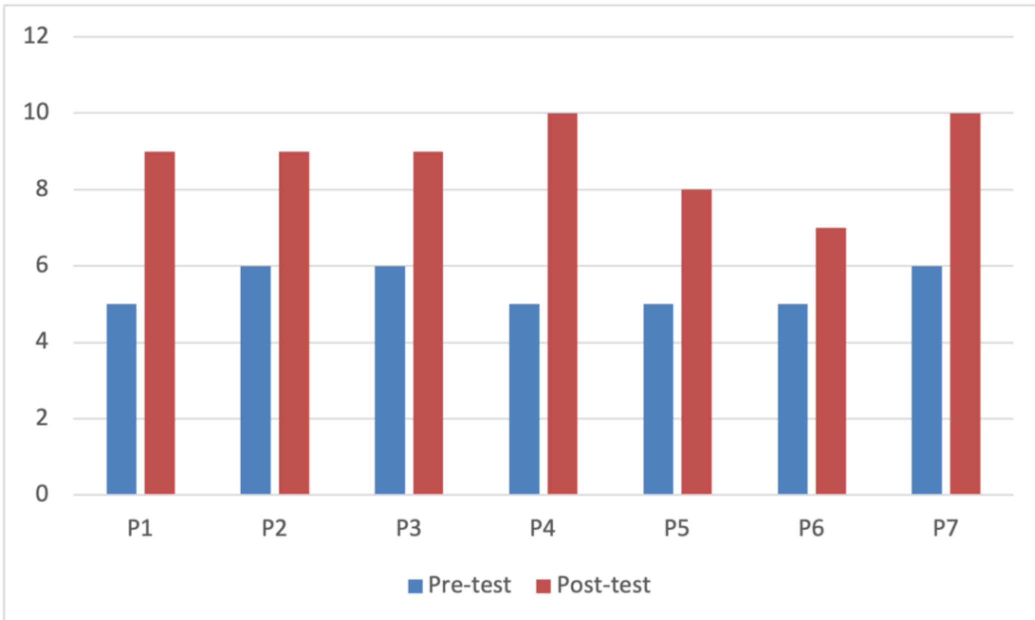
Descriptive Statistics and Paired t*-Test Results for Pre- and Posttest Scores (*N *= 7)*

Measure	*M*	*SD*	Mean difference	*t*	Degree of freedom (df)	*p* value	95% confidence interval (lower, upper)
Pretest	5.43	0.53	----	---	---	----	----
Posttest	8.86	1.07	---	---	---	----	----

Difference (Post–pre)	3.43	0.98	3.43	9.3	6	.0000877	[2.53, 4.33]

Figure 1

Pre- and Posttest Knowledge Scores by Participant



Impact on the Organization

This Doctor of Nursing Practice initiative has the potential to positively influence the project site organization by equipping clinical staff with the knowledge and skills necessary to improve medication adherence. Although staff demonstrated some familiarity with adherence strategies, evaluation findings revealed inconsistent application in practice. The outcomes of this project may strengthen staff competency, improve patient outcomes, and reduce healthcare costs in the long term. Because poor adherence contributes to uncontrolled chronic conditions, hospital readmissions, and higher expenditures, educational interventions remain critical in primary care. Medication nonadherence burdens both patients and providers, leading to suboptimal outcomes, decreased satisfaction, and increased organizational strain (Masenga & Kirabo, 2023).

Structured, evidence-based education strengthens staff knowledge and communication skills, thereby enabling them to deliver accurate, consistent, and effective patient education that promotes better understanding, engagement, and adherence.

Limitations

Although these findings are encouraging, several limitations must be acknowledged. The small sample size and single-site design of this project constrained the generalizability of results and prevented evaluation of long-term impacts on patient outcomes. Staff availability also posed challenges; to address this, I used scheduling polls to identify convenient times and conducted preintervention sessions during lunch breaks. To offset limitations in sample size and setting, efforts were made to ensure diversity by including participants across professional roles (e.g., nurses, nurse practitioners, medical assistants) and gender. Despite these limitations, the project provides meaningful evidence of the feasibility and effectiveness of staff education in improving medication adherence.

Influence Beyond the Local Site

Beyond the local site, this initiative has the potential to inform best practices for a low-cost, scalable training model that can be implemented across diverse health care settings. Broader adoption may enhance population health, reduce national health care expenditures, and promote health equity through culturally responsive strategies, such as teach-back and motivational interviewing, thereby contributing to meaningful social change. Both approaches are supported in the literature as effective methods for improving patient understanding, engagement, and adherence (Dang et al., 2021; Hamrahian et al., 2022).

Conclusions

This staff education intervention improved staff's clinical knowledge of evidence-based medication adherence strategies in hypertension management. Pre- and posttest results showed significant knowledge gains, narrowing the practice gap in counseling. Participant feedback confirmed the program's clarity, feasibility, and relevance, supporting its effectiveness as a sustainable, low-cost model.

Recommendations

Organizations should consider adopting structured staff education programs on medication adherence to strengthen provider competency and counseling consistency. Expansion across sites, integration into staff orientation and annual competencies, and periodic refreshers are recommended (see Hamrahian et al., 2022). Future evaluations should also examine patient-level outcomes, such as blood pressure control and adherence rates (see Paczkowska et al., 2021).

Implications for Nursing Practice

This project reinforces the role of nurses in reducing barriers to adherence and improving outcomes (see Ominyi & Alabi, 2025). By applying culturally responsive strategies, such as teach-back and motivational interviewing, staff can address health literacy challenges, reduce disparities, and promote equity (Dang et al., 2021; Hamrahian et al., 2022). In doing so, the initiative supports diversity, equity, and inclusion while advancing patient-centered care and population health.

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Appendix A: Pretest Questionnaire

4-digit de-identifying number: _________

Instructions: Select the best answer for each question.

1. What is one common patient-related barrier to medication adherence?

    a. Expensive medications

    b. Forgetfulness ------- **Correct Answer**

    c. Long wait times

    d. Poor staff communication

2. Which method helps confirm patient understanding of instructions?

    a. Closed-ended questions

    b. Written summary

    c. Teach-back------- **Correct Answer**

    d. Providing a pamphlet

3. Motivational Interviewing focuses on:

    a. Giving direct advice

    b. Confronting resistance

    c. Eliciting the patient's own motivation to change------- **Correct Answer**

    d. Prescribing behavior change

4. What is one of the most common reasons patients do not adhere to their medication?

    a. Complexity of the medication regimen------- **Correct Answer**

    b. Lack of transportation to the pharmacy

c. Forgetting to take the medication

d. Concerns about side effects

5. Why is health literacy important in medication adherence?

a. It affects a patient's ability to afford medication

b. It determines how often a patient visits the clinic

c. It influences the understanding and proper use of medications------- **Correct Answer**

d. It helps choose which provider a patient prefers

6. Which of the following is a system-related adherence barrier?

a. Health beliefs

b. Polypharmacy------- **Correct Answer**

c. Language barrier

d. Forgetfulness

7. Teach-back is best used:

a. At the end of the session only

b. Once a month

c. Immediately after giving information------- **Correct Answer**

d. As a test

8. Effective staff training on adherence can lead to:

a. More documentation

b. Improved patient outcomes------- **Correct Answer**

c. Increased visit times

d. Lower satisfaction

9. What should you do if a patient struggles with medication instructions?

    a. Refer them to another clinic

    b. Repeat the same instructions louder

    c. Use Teach-back and re-explain in simple terms------- **Correct Answer**

    d. Ignore and continue with the visit

10. What is an appropriate example of the Teach-Back method?

    a. “You understand now, right?”

    b. “Let me know if you’re confused later.”

    c. “Can you show me how you will take your medication at home?” -------

    Correct Answer

    d. “Please read this handout tonight.”

Appendix B: Posttest Questionnaire

4-digit de-identifying number: _________

Instructions: Select the best answer for each question.

11. What is one common patient-related barrier to medication adherence?

    a. Expensive medications

    b. Forgetfulness ------- **Correct Answer**

    c. Long wait times

    d. Poor staff communication

12. Which method helps confirm patient understanding of instructions?

    a. Closed-ended questions

    b. Written summary

    c. Teach-back------- **Correct Answer**

    d. Providing a pamphlet

13. Motivational Interviewing focuses on:

    a. Giving direct advice

    b. Confronting resistance

    c. Eliciting the patient's own motivation to change------- **Correct Answer**

    d. Prescribing behavior change

14. What is one of the most common reasons patients do not adhere to their medication?

    a. Complexity of the medication regimen------- **Correct Answer**

    b. Lack of transportation to the pharmacy

c. Forgetting to take the medication

d. Concerns about side effects

15. Why is health literacy important in medication adherence?

a. It affects a patient's ability to afford medication

b. It determines how often a patient visits the clinic

c. It influences the understanding and proper use of medications------- **Correct Answer**

d. It helps choose which provider a patient prefers

16. Which of the following is a system-related adherence barrier?

a. Health beliefs

b. Polypharmacy------- **Correct Answer**

c. Language barrier

d. Forgetfulness

17. Teach-back is best used:

a. At the end of the session only

b. Once a month

c. Immediately after giving information------- **Correct Answer**

d. As a test

18. Effective staff training on adherence can lead to:

a. More documentation

b. Improved patient outcomes------- **Correct Answer**

c. Increased visit times

d. Lower satisfaction

19. What should you do if a patient struggles with medication instructions?

    a. Refer them to another clinic

    b. Repeat the same instructions louder

    c. Use Teach-back and re-explain in simple terms------- **Correct Answer**

    d. Ignore and continue with the visit

20. What is an appropriate example of the Teach-Back method?

    a. “You understand now, right?”

    b. “Let me know if you’re confused later.”

    c. “Can you show me how you will take your medication at home?” -------
    Correct Answer

    d. “Please read this handout tonight.”

Appendix C: Training Effectiveness Survey Questionnaire

Item	Rating				
Medication adherence questionnaire was well structured	**1**	**2**	**3**	**4**	**5**
The questionnaire is of right length	**1**	**2**	**3**	**4**	**5**
The information presented was clear	**1**	**2**	**3**	**4**	**5**
Evidence supporting medication adherence was included	**1**	**2**	**3**	**4**	**5**
Educator explained how and when to reinforce adherence	**1**	**2**	**3**	**4**	**5**
Training was accurate and without bias	**1**	**2**	**3**	**4**	**5**
Overall satisfaction with the training session	**1**	**2**	**3**	**4**	**5**

Table C1

Participant Scores and Mean Score- Post-training survey

Participant	Score	Mean Score
P1	5.0	5.0
P2	5.0	
P3	5.0	
P4	5.0	
P5	5.0	
P6	5.0	
P7	5.0	