1-29-2026

Enhancing Medication Adherence in Home-Based Hypertension Care Through Targeted 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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Walden University
2026

Executive Summary: Staff Education Project

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by

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Executive Summary Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

Walden University

August 2026

Summary

In this practice-based, quality improvement project, I incorporated a one-group, pre-/posttest design with the aim to evaluate a staff education intervention, reflecting on key principles in improving practice, including continuous evaluation and informing locally based change. This Doctor of Nursing Practice (DNP) project addressed the issue of inconsistent adherence to medication and the lack of staff skills in home-based hypertension management. Notably, the nurse plays an important role in medication adherence to care and in the consistent, evidence-based care with chronic diseases. The practice-focused question was: For home health staff, how does participation in an evidence-based medication adherence education program affect staff knowledge and confidence, as measured by pre- and posttest scores?

In this doctoral study, I designed and tested an intervention for increasing the staff's knowledge, confidence, and performance levels for assessing and documenting the levels of medications taken for home management of hypertension. Descriptive statistics assessed nurses' knowledge. I measured pre- and post-intervention performance using mean, minimum, and maximum values. Learning gains were calculated using the normalized learning gain (NLG) method. Staff knowledge improved, with a 55.2% NLG, demonstrating the effectiveness of targeted staff education. I recommended to maintain staff education and use checklist-generated data to improve quality and evidence-based, inclusive nursing practice to close health gaps. Sound, accurate, and equitable hypertension care is an essential element vital for bringing positive social change and contributing to the reduction of health inequities among diverse populations in home-based settings.

Background

In home-based blood pressure management, medication nonadherence is a challenge associated with poor health outcomes and increased health expenditures (Zhou et al., 2024). For continuity and quality purposes, it is necessary that the level of adherence be assessed and monitored by the home care staff, but this is challenged by the lack of education and utilization of standardized instruments (Okwonna, 2024). Educational programs have been shown to be effective in significantly improving staff understanding of evidence-based approaches to medication compliance (Okwonna, 2024). Previous literature has also identified persistent gaps in staff knowledge and confidence related to the application of evidence-based approaches to medication adherence.

The practice-based question that guided this DNP quality improvement project was: For home health staff, how does participation in an evidence-based medication adherence education program affect staff knowledge and confidence, as measured by pre- and posttest scores? The aim of the project was analyzing the effect of education on home health personnel's medication adherence assessment and documentation knowledge and confidence. In the project, I aimed to provide the home health personnel with evidence-based information and resources to enhance their medication documentation and adherence. Evidence has shown that home-health personnel education enhances medication compliance in home-based care (Okwonna, 2024).

There is evidence of a practice gap that is associated with inconsistencies in the training of the staff on the assessment and documentation of medication adherence in the home health care context. Okwonna (2024) highlighted that structured, evidence-based

training of staff significantly improved their understanding, confidence, and consistency in the assessment of medication adherence. The assessment of medication documentation was inconsistent with limited training, which suggests that focused staff education could be used to close medication adherence documentation and care gaps.

Studies have substantiated the need for specialized training of care staff for better medication adherence in home care settings. The importance of health care workers for guiding, monitoring, and encouraging adherence was identified by Gualtieri et al. (2024), who reported variability and disparities in medication adherence and adherence-related processes for home settings. The authors suggested that a standardized training program for home health workers could minimize disparities in organized care and documentation processes.

The strength of evidence was moderate when combined with quality improvement data, indicating that an evidence-based, organized education program for health care workers improves the awareness, efficiency, and consistency of adherence assessments. In an effort to minimize disparities identified for medication adherence documentation and adherence-related processes, an evidence-based intervention program for health care worker education was justified through the aforementioned evidence.

Staff Education Project Development

Hypertension remains the main and modifiable risk factor for cardiovascular diseases and all-cause mortality that affect 31.1% of the global population (Mills et al., 2024). Collaboration skills and training are strategies that can be utilized in future studies and result in better control of blood pressure; however, Mills et al. (2024) identified task-shifting solutions, including team-based practices, to overcome care delivery barriers. In

this approach, different professionals, for example, pharmacists, nurses, or health educators, are assigned tasks, such as adjusting drugs or conducting health teaching (Mills et al., 2024). Nyame et al. (2024) reported that community-based multicomponent strategies enhance the management of hypertension. In a systematic review, they focused on multicomponent strategies, such as health education, training of the community health worker, home visit programs, blood pressure measurement, communication programs, telemedicine, and blood pressure self-management.

I conducted this staff education project in a home care agency. This agency had a variety of nurses working with home based hypertensive care. During the implementation phase of the DNP project, the nursing staff at the homecare were scheduled to come to the office to take part in the training. Eighteen nurses were signed up to participate, but only 16 of them came to the office and took part.

All the nursing staff who registered for the training received an official communication from the office manager, along with a copy of the pretest survey to fill out before visiting the office. The participants' demographics and professional backgrounds varied widely. Six licensed practical nurses, six registered nurses with an associate's degree in nursing, and four nurses with a bachelor's degree in nursing made up the learning group (see Table 1).

Table 1

Demographic and Professional Background

Characteristics	Number of staff nurses
Age	
20–29	4
30–39	3
40–49	4
50–59	3
60 and older	2
Gender	
Male	5
Female	11
Years of nursing experience in home health care	
Less than 1 year	3
1–3 years	6
4–7 years	4
More than 7 years	3
Highest level of nursing education completed	
LPN	6
Associate degree in Nursing	6
Bachelor of Science in Nursing	4

Note. LPN = licensed practical nurse.

Evaluation Process

In this project, I aimed to determine whether the educational intervention of the hospital staff increased their knowledge and understanding of evidence-based medication adherence in home-based hypertensive care. Pre- and posttest evaluation of the intervention was carried out to determine the hospital staff's knowledge before and after the educational program. The same knowledge test was administered to all participants.

I employed the pre-/posttest study design to measure the change in staff knowledge following the educational program. Pre- and post-training standardized knowledge tests were performed. To enable easy outcome summary and comparison, the mean scores and minimum and maximum scores were used to calculate the NLG.

Results

Mohamed et al. (2024) noted that nurses' knowledge, abilities, and attitudes toward evidence-based practice were improved by using a quasi-experimental pre-/posttest research design method. For this project, I used a 10-item pretest questionnaire before the educational session and the same 10-item questionnaire immediately after the session to measure changes in participants' knowledge objectively. All the participants submitted both the pre- and the posttests, and the results are provided in Table 2. The educational session was evidence based and provided information about the purpose of the staff behavior checklist in home-based hypertension care.

Table 2

Pre- and Posttest Scores of Participants

Participant number	Before exposure to the intervention	After exposure to the intervention
1	80	90
2	80	90
3	80	90
4	90	100
5	70	90
6	90	100
7	70	90
8	90	100
9	80	90
10	80	90
11	70	90
12	80	90
13	80	90
14	70	80
15	80	90
16	90	100
Mean score	80.6	91.3
Minimum score	70	80
Maximum score	90	100

I used the NLG equation to calculate the participants' learning gains, as explained by Brigham and Women's Hospital for Nursing Excellence (n.d.). Statistically significant increases in the scores of the mean knowledge and skills of the nurses after participating in a web-based training activity were identified by Mohamed et al. (2024), thus validating the effectiveness of educational activities in improving participant competency. The NLG indicated an overall learning gain of 55.2%, representing reasonable to significant improvement of the staff's knowledge (see Figure 1).

Figure 1

Normalized Leaning Gain Calculation

How to calculate the NLG:

(Postlearning score - prelearning score / maximun score - prelearning score) X 100

NLG = (91.3 - 80.6 / 100-80.6) X 100 =

NLG = (10.7 / 19.4) X 100 = 55.2%

The pre-/posttest design is also in accordance with the existing literature, underlining the value of continuous education. Within the context of the current study, increased confidence after the training activity was evinced by the participants, who are now sufficiently competent to provide proper responses to questions concerning the staff behavior checklist within the context of home care management of hypertension. The NLG calculation also identified a total learning gain of 55.2%, reflecting a moderate to large improvement in staff's existing knowledge after the educational activity.

Organizational Impact

Results indicated that the staff education program led to improved medication adherence and standards of medication documentation in home-based hypertension management, benefiting the project site organization. An NLG of 55.2% and a higher score on the participants' posttests indicated that the workforce is now prepared to apply standardized methods for medication adherence, hence promoting standardized methods of collaboration and quality improvement. This enhances the capacity of the organization to offer evidence-based treatment and quality improvement.

Limitations

I employed a one-group, pre-/posttest design without the control group in this project, thus limiting the causal analysis of the results. The posttest scores and lack of generalizability can be attributed to testing and the small sample size. Additionally, the study of retained information over an extended time cannot be performed when there are no extended follow ups.

Implications Beyond the Local Site

This project has implications beyond the localized setting because the results show how targeted staff training can be used as a means of increasing the understanding of medication adherence procedures and documentation related to managing hypertension in the home-based setting. In an effort to promote more cohesive treatment procedures, improve the level of quality initiatives, and facilitate more effective communication among disciplines, the organized and evidence-based strategy used in this project can also be employed for better results in other home healthcare facilities.

Conclusion

Through increased staff confidence and understanding of the assessment and documentation of medication adherence in home-based care for hypertensive, this project has brought about significant positive change for the project site organization. The participants' improved posttest results show more systematic use of standardized procedures, which, in turn, should improve collaboration between disciplines with the provision of accurate data for ongoing quality improvement endeavors. Overall, the results emphasize a culture of continuous learning with increased readiness for projects within the organization and the provision of evidence-based care.

To integrate the staff behavior checklist within the usual work activities (e.g., orientation, annual competency, brief refresher huddles) and incorporate reassessment steps (e.g., 3–6 months) to assess retention of behaviors and reinforce habitual maintenance of adherence documentation practices, evidence supports that structured nurse education can increase knowledge and skills in the postintervention period (Mohamed et al., 2024). Completion of the checklist should be incorporated as a reporting instrument since the instrument allows for segmentation of the staff assessment monitoring work (e.g., missed doses, assessment completions, and follow-up activities) to be analyzed and trends identified to drive plan- do-study-act activities, as described within published quality improvement projects using audit data to direct improvement to practice. Lastly, through electronic health record system support mechanisms (i.e., nudges) to the structured documentation fields reflecting the checklist, improved documentation practices and selected quality measures were improved through nurse-focused system changes (see Nguyen et al., 2024).

To maintain the participants' gains in knowledge, my other recommendations include the integration of the educational component of the intervention into the existing training sessions and staff orientation. Evaluation of the retention of the knowledge over time is also recommended to be done at regular intervals. Use of electronic health records systems with the staff behavior checklist may help in ensuring adherence and proper documentation. The generalizability of the study can be improved by conducting the study in different settings or with a bigger number of staff.

Improving staff knowledge, confidence, and consistency in medication adherence assessment and documentation has significant implications for nursing practice. This project summarizes also benefits communication between members of the interdisciplinary care team, positively impacting care by ensuring adherence to evidence-based practices, improving the standard of care, and ensuring the safety in the management of hypertension in the home healthcare setting. In addition, implementation of this standardized education initiative also fosters positive social change by ensuring consistency in care delivery across different populations, which helps in decreasing variability in the delivery of care.

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