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## Patient Education Brochure on Diabetic Foot Care in a Primary Care Setting

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# Walden University

College of Nursing

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 the review committee have been made.

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Executive Summary: Quality Improvement Initiative  
Patient Education Brochure on Diabetic Foot Care in a Primary Care Setting

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Executive Summary Submitted in Partial Fulfillment  
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## Summary

This Doctoral Nursing Practice (DNP) project was an evidence-based quality improvement (QI) initiative. The practice problem was the absence of expert-validated diabetic foot care education materials, insufficient and inconsistent patient education, and patients' limited knowledge of self-care for diabetic foot care, all of which led to the persistence of diabetic foot complications in primary care settings. Due to the organization's identified lack of patient education materials, an evidence-based diabetic foot care brochure for diabetic self-foot care education was developed. The patient education materials assessment tool (PEMAT) was used to evaluate the brochure's efficacy. The practice question was designed to determine whether the use of this tool will result in  $\geq 70\%$  scores for understandability and actionability among primary care patients, as assessed by an expert panel. Three clinical experts validated PEMAT's usability, with a mean score of 98%, indicating exceptional comprehensibility and actionability. This project enhances preventive care and standardized nursing practice, supports positive social change, and promotes patient-centered care, in line with the American Association of Colleges of Nursing competencies and nurse leadership.

## **Background**

Diabetic foot disease is one of the most serious, costly, and preventable complications of diabetes mellitus and remains a significant public health concern globally (Edmonds et al., 2021). An estimated 15 to 25% of individuals with diabetes will develop diabetic foot ulcer (DFU) during their lifetime, with recurrence rates remaining high despite advances in medical treatment (Akkus & Sert, 2022; Boulton et al., 2024). In the United States, more than 38 million adults live with diabetes, and approximately twenty percent experience foot-related complications associated with peripheral neuropathy, peripheral arterial disease, and structural foot deformities (American Diabetes Association [ADA], 2024). Diabetic foot ulcers precede nearly 85% of nontraumatic lower-extremity amputations and are associated with 5-year mortality rates comparable to several malignancies (Edmonds et al., 2021). These outcomes highlight the critical need for effective prevention strategies. The burden of diabetic foot disease extends beyond clinical outcomes to include substantial economic, functional, and psychosocial consequences. DFU-related care accounts for billions of dollars in healthcare expenditures annually, driven by frequent hospitalizations, prolonged wound care, surgical interventions, and rehabilitation (Akkus & Sert, 2022). Individuals with DFUs often experience reduced mobility, diminished quality of life, loss of independence, and social isolation (Edmonds et al., 2021). Importantly, evidence suggests that up to 75% of DFUs are preventable through early risk identification, routine foot screening, and consistent patient engagement in daily foot self-care behaviors (Nather et al., 2022).

Patient education is widely recognized as a cornerstone of diabetic foot prevention. International and national guidelines emphasize daily foot inspection, appropriate footwear, skin care, and early reporting of abnormalities (ADA, 2024; Bus et al., 2023). However, despite these recommendations, patient adherence to preventive foot care remains suboptimal. Research consistently demonstrates gaps in patient knowledge, inconsistent self-care practices, and delayed recognition of foot problems, particularly among individuals with limited health literacy (Bosun-Arije, 2023). These gaps are frequently linked to the quality of educational materials provided in clinical settings. Many patient education materials are written at reading levels beyond patients' comprehension, lack clear instructions, or fail to translate information into actionable behaviors (Shoemaker et al., 2014). The World Health Organization (2023) identified health literacy as a key determinant of chronic disease outcomes, emphasizing that health information must be both understandable and actionable to influence behavior change. When educational materials do not meet these criteria, opportunities for prevention are missed, contributing to avoidable diabetic foot complications. Nurses play a leading role in delivering diabetic foot education and reinforcing preventive behaviors. Diabetic self-footcare knowledge will also help prevent diabetic foot complications and hospitalizations. However, without standardized, evidence-based methods to evaluate educational materials, the effectiveness and consistency of teaching vary widely (Bastable, 2021). The PEMAT provides a validated framework for assessing the understandability and actionability of patient education resources (Shoemaker et al., 2014). Integrating PEMAT into the development and evaluation of a diabetic foot care

education brochure addresses a critical gap by ensuring that materials are literacy-appropriate, patient-centered, and support sustained self-care behaviors essential to preventing diabetic foot complications.

### **Project Development and Evaluation**

Project development focused on creating and evaluating a patient-centered diabetic foot care educational brochure using a structured, evidence-based approach. The primary outcome variables for evaluation were understandability and actionability, as measured by the PETMAT for printable materials (PEMAT-P). These outcomes were selected because evidence demonstrates that patient comprehension and ability to act on health information are critical determinants of adherence to preventive behaviors and clinical outcomes in diabetic foot care (Bus et al., 2023; Shoemaker et al., 2014; WHO, 2023b). Three independent evaluators, a clinical preceptor, a DNP nursing faculty reviewer, and a DNP content expert assessed the final brochure using the PEMAT-P tool.

### **Data Analysis**

The expert panelists reviewed the PEMAT-P tool, reporting 0 = disagree or 1 = agree for all items. Understandability scores ranged from 94.7% *agree* to 100%, while actionability scores were 100% *agree* across all materials, exceeding the recommended 70% benchmark for effective patient education materials (Shoemaker et al., 2014). These findings indicate that the material was clear, well-organized, and provided actionable guidance to support preventive foot care behaviors consistent with national and international recommendations (ADA, 2024). Table 1 depicts the expert panelists' results for understandability. Table 2 depicts the results for actionability.

**Table 1**

Understandability PEMAT Results (Disagree = 0, Agree = 1)

Item#	Item description	Expert1	Expert2	Expert3
1	The material makes its purpose completely evident.	1	1	1
2	The material does not include information or content that distracts from its purpose.	1	1	1
3	The material uses common, everyday language	1	1	1
4	Medical terms are used only to familiarize the audience with the terms. When used, medical terms are defined.	1	1	1
5	The material uses the active voice.	1	1	1
6	Numbers appearing in the material are clear and easy to understand.	1	1	1
7	The material does not expect the user to perform calculations.	1	1	1
8	The material breaks or “chunks” information into short sections.	1	1	1
9	The material sections have informative headers.	1	1	1
10	The material presents information in a logical sequence.	1	1	1
11	The material provides a summary.	1	1	1
12	The material uses visual cues (e.g., arrows, boxes, bullets, bold, larger font, highlighting) to draw attention to key points.	1	1	1
13	The material uses visual aids whenever they can make content more easily understood (e.g., an illustration of healthy portion size).	0	1	1
14	The material’s visual aids reinforce rather than distract from the content.	1	1	1
15	The material’s visual aids have clear titles or captions.	1	1	1
16	The material uses clear, uncluttered illustrations and photographs.	1	1	1
17	The material uses simple tables with short and clear row and column headings.	1	1	1
18	The material uses visual aids whenever they can make content more easily understood (e.g., an illustration of healthy portion size).	1	1	1
19	The material’s visual aids reinforce rather than distract from the content.	1	1	1

**Table 2**

Actionability PEMAT Results (Disagree = 0, Agree = 1)

Item #	Item description	Expert 1	Expert 2	Expert 3
20	The material clearly identifies at least one action	1	1	1
21	The user can take.	1	1	1
22	The material addresses the user directly when	1	1	1
23	describing actions.	1	1	1
24	The material breaks down any action into	1	1	1
25	manageable, explicit steps.	1	1	1
26	The material provides a tangible tool (e.g., a menu	1	1	1

**Organizational Impact**

Standardized, evidence-based educational materials reduce variability in teaching practices and support nurses in delivering clear, patient-centered instruction efficiently (Bastable, 2021; Doğruel et al., 2022). Improved educational clarity may facilitate earlier patient recognition of foot problems, timely reporting, and adherence to daily self-care practices, which are critical to preventing diabetic foot ulcers and downstream complications (Edmonds et al., 2021; Nather et al., 2022). This brochure also aligns health literacy priorities, supporting organizational goals related to quality improvement and patient safety (see World Health Organization, 2023).

**Limitations**

Several limitations are encountered. Single provider clinic with a few medical staff involved. The evaluation relied on a small sample of expert reviewers rather than

direct patient outcome data, limiting generalizability. Additionally, the PEMAT-P assesses material quality rather than behavioral change or clinical outcomes, which may be influenced by external factors such as patient motivation and access to care (World Health Organization, 2023). Future evaluation incorporating patient feedback and longitudinal outcome measures would strengthen conclusions regarding real-world effectiveness. Despite these limitations, this project is important beyond the local site. Diabetic foot issues are a global public health issue, and preventable complications continue to drive morbidity, mortality, and healthcare costs worldwide (Akkus & Sert, 2022; Boulton et al., 2024). Applying PEMAT to diabetic foot education offers a scalable, evidence-based strategy to improve health literacy and standardize patient education across diverse settings. Broader adoption of PEMAT-guided materials supports guideline-concordant care, enhances patient engagement, and contributes to sustainable prevention (ADA, 2024; Shoemaker et al., 2014).

### **Conclusions**

In this initiative, I addressed a critical gap in diabetic foot care by developing and evaluating a standardized, evidence-based clinical practice guideline informed by health literacy principles. Inconsistent education and voids in patient self-care practices are the primary reasons why diabetic foot disease remains a significant public health concern (Edmonds et al., 2021; Nather et al., 2022). The initiative improved the actionability, understandability, and clarity of patient education materials by incorporating national guidelines, instructional design frameworks, and structured evaluation using the PEMAT tool (Shoemaker et al., 2014). The implementation was substantiated by the high scores

achieved in both understandability and actionability during the expert panel review.

Standardizing diabetic foot care education can enhance nursing practice, improve patient engagement, and mitigate preventable complications (Happi, 2025).

This initiative offers a replicable approach to developing and evaluating patient education guidelines across a variety of clinical settings, despite its limitations in sample size and scope. The initiative extends beyond the local site to support broader endeavors to enhance chronic disease management, promote health literacy, and align nursing practice with evidence-based standards (ADA, 2024; Shoemaker et al., 2014). The critical role of nurses in translating evidence into actionable, accessible guidance is underscored by this initiative, which ultimately improves patient safety and diabetes care outcomes.

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