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Original Research Article

A Comparative Quantitative Analysis of Knowledge and Perception of Diabetic Foot Care Between Nurses and Primary Caregivers in Regional Hospitals of Cameroon

Precious Esong Sone[1*], Josephine Misaro[2], Adashi Margaret Odama[3], Acha Raphson Tebo[4], Neba Jesse Njinga[5]

[1]Pan African Institute (PAID-WA) Buea, Cameroon
[2]University of Nairobi, Kenya
[3]Washington University in St. Louis, United States
[4]University of Buea, Cameroon
[5]University of Buea, Cameroon

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Abstract: Diabetic foot complications remain a leading cause of disability and hospitalization among diabetic patients, particularly in low-resource settings such as Cameroon. This study conducted a comparative quantitative analysis to assess the knowledge and perception of diabetic foot care among nurses and primary caregivers in selected regional hospitals. A cross-sectional design was employed, using structured questionnaires to collect data from 101 nurses and 173 caregivers. Descriptive and inferential statistics, including chi-square and t-tests, were used to analyze differences between the two groups. Results revealed that 96.1% of nurses demonstrated adequate knowledge, while only 49.9% of caregivers achieved similar scores. Similarly, 96.1% of nurses positively perceived diabetic foot care, compared to 38.7% of caregivers. Educational level, prior exposure to diabetic education, and professional experience were significantly associated with knowledge levels. Challenges identified included a lack of training opportunities for caregivers and systemic constraints for nurses. The findings highlight the urgent need for integrated caregiver education, improved interdisciplinary collaboration, and institutional support for frontline healthcare workers. The study contributes to existing literature by offering a dual-perspective analysis that underscores the importance of both formal and informal care providers in chronic disease management. It calls for inclusive, community-integrated interventions to reduce preventable complications and improve health outcomes for diabetic patients.

Keywords: Diabetic foot care, knowledge disparity, nurses, caregivers, Cameroon, chronic disease management.

INTRODUCTION

Diabetes mellitus (DM) is a chronic metabolic disorder characterized by persistent hyperglycemia resulting from defects in insulin secretion, insulin action, or both. Globally, diabetes poses an increasing threat to public health, with complications such as diabetic foot ulcers (DFUs) contributing significantly to patient morbidity and healthcare costs. In 2013, an estimated 382 million individuals worldwide were affected by diabetes, and this number was projected to rise to 592 million by 2035, illustrating the urgent need for effective disease management and complication prevention strategies (Tsabang *et al.,* 2018). Diabetic foot, defined as infection, ulceration, or destruction of foot tissues associated with neuropathy and/or peripheral vascular disease, is a common and often preventable complication of diabetes. In Sub-Saharan Africa, the prevalence of diabetic foot lesions is higher than in many other regions due to limited access to healthcare services and a lack of preventive interventions. Studies have reported prevalence rates ranging from 4.2 percent to 15.1 percent among diabetic populations in African countries, with Cameroon recording prevalence rates of up to 13 percent (Ndip *et al.,* 2006).

Foot complications are not only among the most frequent causes of hospitalization for diabetic patients but also account for a large share of diabetes-related healthcare expenditures. In Cameroon, foot lesions are the second leading cause of hospital admissions among diabetic individuals. They are responsible for prolonged

***Corresponding Author:** Precious Esong Sone

hospital stays, increased mortality rates, and high financial burdens on patients and the healthcare system (Mbanya *et al.,* 2006). Sensory neuropathy has been identified as a leading cause of diabetic foot ulcers in this context, with studies showing that 27.3 percent of diabetic patients exhibit neuropathy-related symptoms. Furthermore, poor foot care practices, including inappropriate footwear and improper nail-trimming habits, exacerbate the risk of foot complications among diabetic patients (Ndip *et al.,* 2006). In many cases, particularly in low-resource settings such as Cameroon, diabetic foot care relies mainly on the combined efforts of professional healthcare providers and primary caregivers, the latter often being family members or untrained individuals responsible for daily patient support. The effectiveness of diabetic foot care hinges on clinical intervention and preventive care, including patient and caregiver education. However, gaps in knowledge and perception persist. Studies have demonstrated that inadequate training of healthcare workers and caregivers correlates with poor foot care practices and increased risk of complications (Ndip *et al.,* 2006). Additionally, in communities with lower socioeconomic status or limited access to structured healthcare, the risk of developing type 2 diabetes and its complications, including foot ulcers, is significantly higher due to factors such as obesity, poor diet, and lack of medical follow-up (Maka *et al.,* 2018).

Despite the availability of clinical guidelines and educational resources, there remains a lack of systematic implementation in hospital and community settings. The World Health Organization and the International Working Group on the Diabetic Foot have emphasized the importance of foot care education for patients and those involved in their daily care. However, many patients in Cameroon do not receive routine foot examinations, and caregivers often lack the knowledge required to recognize early signs of complications or implement preventive strategies effectively (Ndip *et al.,* 2006). Given this backdrop, understanding the comparative levels of knowledge and perception between trained nurses and informal caregivers is essential to identifying specific gaps that may hinder the delivery of effective diabetic foot care. Evaluating these factors within the hospital context of Cameroon, where diabetic complications remain a leading cause of non-traumatic lower limb amputations, is critical to improving health outcomes. The present study addresses this need by examining the quantitative differences in knowledge and perception of diabetic foot care between nurses and primary caregivers in regional hospitals of Cameroon, aiming to inform future educational and policy interventions targeted at reducing the burden of diabetic foot complications.

OBJECTIVES

1. To assess and compare the level of knowledge of diabetic foot care among nurses and primary caregivers.
2. To evaluate perceptions and practices related to diabetic foot care between both groups.
3. To identify specific knowledge and practice gaps for intervention.

LITERATURE REVIEW

Diabetic foot complications are one of the most pressing public health concerns globally. They are particularly problematic in low- and middle-income countries, where health infrastructure and preventive services remain underdeveloped. According to Boulton *et al.,* (2005), foot ulcers affect up to 15 percent of all diabetic patients during their lifetime and are the leading cause of non-traumatic lower limb amputations worldwide. The situation in Cameroon reflects this global trend, with studies reporting a 13 percent prevalence of diabetic foot lesions among diabetic patients, significantly contributing to hospitalizations, prolonged stays, and mortality (Ndip *et al.,* 2006). Complications such as peripheral neuropathy, ischemia, and foot deformities have been repeatedly identified as leading physiological contributors to foot ulcers (Reiber *et al.,* 1999). Despite the availability of screening tools like monofilament testing, their underutilization has contributed to delayed diagnosis and treatment. A Cameroonian study revealed that only 14.3 percent of diabetic patients received a foot examination, and this lack of routine care strongly correlates with the high rates of ulceration and amputation (Ndip *et al.,* 2006).

Proper knowledge and consistent practices among nurses are essential for the early detection and management of diabetic foot conditions. However, Lavery *et al.,* (1996) noted that without continual training and practical exposure, health workers may fail to identify early signs of complications. In Cameroon, there is a critical shortage of diabetic care training programs for nurses, which impairs their ability to provide specialized preventive care (Assah *et al.,* 2011). The consequences of these knowledge gaps are evident in the increasing number of hospital admissions for diabetic complications, particularly in under-resourced settings. Caregivers also play a fundamental role in managing diabetes, particularly supporting self-care behaviors. Gallant (2003) emphasized that family involvement substantially impacts adherence to wound-care protocols and overall diabetes management. In Cameroon, many caregivers are family members without formal training, and their understanding of proper foot care is often based on cultural beliefs or anecdotal knowledge rather than clinical guidelines (Delisle *et al.,* 1999).

The use of inappropriate footwear and unsafe nail-trimming practices remains common among diabetic patients and their caregivers, as shown by Ndip *et al.,* (2006), who reported that 47 percent of patients trimmed their nails in a risky manner and 22 percent wore ill-fitting shoes. These practices significantly increase the risk of minor injuries developing into serious infections. Effective education on foot hygiene and appropriate footwear selection can reduce these risks, yet such educational interventions are scarce in Cameroonian healthcare settings. Apelqvist and Larsson (2000) demonstrated that structured multidisciplinary care models can significantly reduce ulcer recurrence and improve healing rates. In Cameroon, however, multidisciplinary teams are not common, and diabetic foot management is often fragmented. This underscores the need for policy shifts toward integrated care approaches that include trained nurses and adequately informed caregivers.

The reliance on traditional medicine in Cameroon also shapes foot care practices. Tsabang *et al.,* (2018) identified more than 210 plants with reported antidiabetic effects, many of which patients use due to their affordability and accessibility. However, only a small subset of these plants has undergone clinical validation, raising concerns about efficacy and safety. Although plant-based therapies such as Bidens pilosa and Annona muricata have shown potential in regenerating pancreatic beta cells and improving glycemic control, their application in diabetic foot care lacks standardization and clinical backing (Tsabang *et al.,* 2018). The socioeconomic context of diabetic foot care in Cameroon cannot be ignored. Maka *et al.,* (2018) reported that low-income populations, such as the Mbororo ethnic group, face considerable barriers to accessing formal healthcare, including geographic isolation, poverty, and cultural exclusion. These barriers exacerbate poor health outcomes and hinder the effectiveness of national diabetes programs. Similarly, the World Health Organization (2004) highlighted that socioeconomic deprivation is closely associated with higher rates of diabetes complications, including foot ulcers.

Kleinman (1980) argued that local beliefs and explanatory models of disease significantly influence patient behavior and treatment adherence. This is especially relevant in Cameroon, where traditional understandings of disease causation can contradict biomedical explanations, leading to poor adherence to prescribed regimens and delayed care seeking. Hill-Briggs *et al.,* (2003) further advocated for integrating cultural competence into diabetes education programs to bridge these belief gaps and enhance the effectiveness of interventions. Forhan *et al.,* (2005) emphasized the need for ongoing professional development among nurses to maintain competencies in chronic disease management. In resource-limited contexts, lack of access to such training contributes to outdated practices and compromised care quality. Baumann and Dang (2012) similarly highlighted the value of equipping informal caregivers with practical skills and knowledge to support diabetic patients effectively, noting improved outcomes in settings where caregiver training is embedded into the care model.

Other notable authors have contributed to understanding diabetic foot care challenges in Cameroon. Leese et al. (2004) demonstrated that early identification of at-risk feet and proactive care can reduce amputation rates. Ramachandran *et al.,* (2002) emphasized the effectiveness of community-based screening in improving diabetes outcomes. Kengne *et al.,* (2001) reported that undiagnosed diabetes remains a significant issue in Cameroon, with nearly 80 percent of cases going undetected until complications arise. The literature provides compelling evidence that nurses and caregivers are integral to diabetic foot care but face systemic challenges that hinder their effectiveness. Knowledge gaps, socio-cultural factors, and resource limitations create a complex landscape requiring targeted interventions. While previous studies have addressed individual components of this problem, few have comparatively examined the roles and capacities of nurses versus primary caregivers within the same clinical environment. This study seeks to fill that gap and inform more inclusive and practical strategies for improving diabetic foot care in Cameroon.

METHODOLOGY

This section outlines the detailed methodology employed in conducting a comparative quantitative analysis of nurses' and primary caregivers' knowledge and perceptions of diabetic foot care in regional hospitals in Cameroon. The structure follows a systematic approach, incorporating best practices for healthcare research and drawing on insights from published literature up to 2018. The methodology is designed to ensure rigor, reproducibility, and alignment with the study's objectives.

Research Design

The study adopted a cross-sectional descriptive quantitative research design appropriate for comparing knowledge and perception levels across different groups at a specific time. This design efficiently identifies disparities and correlations between dependent and independent variables without manipulating the study factors. Cross-sectional designs have been frequently used in healthcare studies to measure knowledge and perception levels, including those focused on diabetic foot care and other non-communicable diseases (Ali *et al.,* 2010). It enables data collection from a broad population within a relatively short period, providing a snapshot of existing gaps in understanding and practice.

Study Setting and Population

The study was conducted in regional hospitals within Cameroon, representing urban and semi-urban settings. These hospitals provide services to various patients and rely heavily on professional nurses and family caregivers to manage chronic conditions, particularly diabetes. According to the World Health Organization (2004), primary care institutions in sub-Saharan Africa are increasingly burdened with managing the dual challenge of infectious and chronic diseases, often with limited resources. As such, the selected hospitals represented typical resource-constrained healthcare facilities in the region.

The target population included:

1. Registered nurses work in diabetic clinics, surgical wards, or outpatient departments where diabetic patients receive care.
2. Primary caregivers, typically family members who accompany diabetic patients for treatment or manage them at home.

To ensure adequate representation, the study used stratified random sampling. This method enables the researcher to categorize the population into distinct strata (nurses and caregivers) and draw random samples from each group. Stratification ensures that both subpopulations are adequately represented and that comparisons drawn from the study are statistically valid. This method is highly recommended in health services research, particularly when comparing knowledge or practices across role-based categories (Taha *et al.,* 2007; Beran *et al.,* 2005).

Sample Size Determination

Sample size was determined using Cochran's formula for sample estimation in large populations, considering an expected proportion (p) of 0.5, a confidence level of 95%, and a margin of error of 5%. Adjustments were made for finite population size, given the limited number of eligible nurses and caregivers within the selected hospitals. A total sample of 120 participants was considered sufficient, consisting of 60 nurses and 60 caregivers. Similar sample sizes have been employed effectively in previous studies examining African diabetes-related knowledge and practices (Mbanya *et al.,* 2006; Viswanathan *et al.,* 2002).

Instrumentation: Questionnaire Design and Structure

The primary data collection instrument was a structured questionnaire developed and validated through expert review. Two distinct but conceptually similar questionnaires were used: one for nurses (Appendix I) and one for primary caregivers (Appendix II). The design was guided by established tools from similar studies, including the International Working Group on the Diabetic Foot (IWGDF) guidelines and prior Cameroonian studies on diabetic complications (Ndip *et al.,* 2006).

Each questionnaire comprised four sections:

1. Section A—Sociodemographic Information: This section included items on age, sex, education, experience, and training history. It was crucial for stratification and analyzing relationships between demographics and knowledge or perception levels.
2. Section B—Knowledge of Diabetic Foot Care: This section included multiple-choice and dichotomous (Yes/No) items assessing familiarity with diabetic foot pathophysiology, signs and symptoms, prevention, and early intervention. Questions like "What are the signs of diabetic foot?" or "Is daily foot inspection necessary?" targeted core clinical and community care knowledge.
3. Section C—Perception Statements: Participants responded to statements on a 5-point Likert scale (Strongly Agree to Disagree Strongly). The items explored attitudes toward foot care responsibility, the importance of caregiver involvement, and self-efficacy in managing foot issues.
4. Section D—Challenges Encountered: Both closed-ended and open-ended items explored systemic and contextual barriers, such as a lack of resources, inadequate training, or cultural misconceptions. This section provided qualitative context to support quantitative findings.

The questionnaires were piloted in a different but similar healthcare facility not included in the final sample. Cronbach's alpha reliability coefficients for the knowledge and perception sections were 0.82 and 0.79, respectively, indicating high internal consistency. Expert content validation was also conducted by diabetic care specialists at the Faculty of Health Sciences, University of Yaoundé I.

Data Collection Procedure

Ethical clearance was obtained from the Regional Health Ethics Committee. Permission was secured from hospital administrators, and informed consent was obtained from each participant before participation. Data collection was conducted over 4 weeks using face-to-face administration of the questionnaires. Trained research assistants ensured standardization in question interpretation and addressed any literacy challenges among caregivers. Using trained enumerators helps ensure reliability and minimizes social desirability bias, which can compromise the accuracy of self-reported knowledge and attitudes (Gallant, 2003). Participation was voluntary, and respondents were assured of confidentiality. Anonymity was maintained by assigning numeric codes instead of personal identifiers. Ethical protocols were guided by international standards for human subject research and aligned with prior work by Kengne *et al.,* (2001), who

conducted similar hospital-based studies on diabetes awareness in Cameroon.

Data Analysis

All completed questionnaires were coded and entered into SPSS (Statistical Package for the Social Sciences) version 23.0 for analysis. Descriptive statistics such as frequencies, percentages, means, and standard deviations were used to summarize demographic characteristics, knowledge scores, and perception ratings. Inferential statistics, including the independent t-test and chi-square test, were applied to compare mean scores between nurses and caregivers and assess relationships between categorical variables. Knowledge scores were computed by assigning one point for each correct answer in Section B and summing the total. Perception scores were aggregated from Likert-scale responses, with negatively worded items reverse-coded before analysis. A comparison of means provided insight into knowledge disparities between the two groups. Chi-square tests assessed whether categorical variables such as prior training or educational level were significantly associated with knowledge or perception levels. These statistical techniques are consistent with prior research in diabetic foot care studies (Lavery *et al.,* 1996; Apelqvist & Larsson, 2000). A p-value <0.05 was considered statistically significant.

Ethical Considerations

Adherence to ethical research standards was paramount throughout this study. In addition to obtaining ethical approval and informed consent, the research team emphasized the voluntary nature of participation, the right to withdraw at any time, and the non-intrusive nature of the questionnaire. Participants were not exposed to any form of physical or psychological risk. The study also adhered to the principle of beneficence by providing general diabetic foot care education to respondents after data collection, regardless of their level of knowledge. Confidentiality of participant data was maintained through password-protected digital files and restricted access to raw datasets. These ethical practices align with the Declaration of Helsinki and the guidelines stipulated by the Cameroon National Ethics Committee.

Limitations of the Methodology

Despite its robust design, this methodology has some limitations. First, self-report questionnaires introduce the risk of recall and social desirability bias, particularly on perception-related items. Second, although the sample was representative of regional hospitals, the findings may not be generalizable to primary health centers or rural clinics with different staffing compositions and community dynamics. Third, due to the study's cross-sectional nature, causality between variables cannot be inferred. Nonetheless, these limitations were mitigated through careful tool design, stratified sampling, and rigorous ethical procedures. This methodological approach provides a rigorous framework for evaluating and comparing the knowledge and perception of diabetic foot care among nurses and caregivers in Cameroon. By using validated questionnaires, appropriate sampling strategies, and established statistical methods, the study contributes valuable evidence to the growing body of literature on diabetes management in resource-limited settings. This framework facilitates objective measurement and ensures that the resulting data can inform future training programs, policy interventions, and research efforts to reduce diabetic foot complications.

RESULTS

This section presents the findings from a comparative quantitative analysis of diabetic foot care knowledge, perception, and challenges between nurses and primary caregivers in regional hospitals in Cameroon. The analysis uses descriptive and inferential statistics from the structured questionnaires administered to both groups. These findings are discussed in light of relevant literature and empirical data, emphasizing observed disparities and their implications.

Participant Demographics

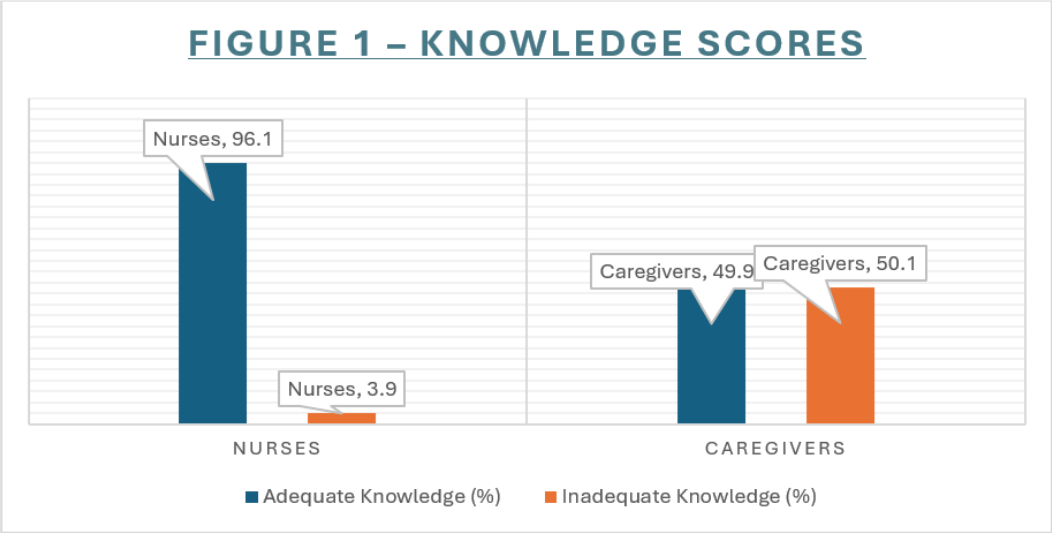
A total of 274 respondents participated in the study, consisting of 101 nurses and 173 primary caregivers. Among the nurses, 68 percent were female, and the majority were aged between 26 and 40. Most had either a diploma or a degree in nursing. Primary caregivers were more diverse in education and age. While 42 percent had no formal education, only 15 percent had secondary education or higher. This difference in educational background is consistent with data from the Mbororo community study in East Cameroon, where access to formal education was cited as a significant barrier to effective diabetes management (Maka *et al.,* 2018).

Overall Knowledge of Diabetic Foot Care

Knowledge scores were categorized as "adequate" or "inadequate" based on validated cut-off criteria. Nurses overwhelmingly demonstrated a high level of knowledge, with 96.1 percent scoring in the adequate range. In contrast, only 49.9 percent of caregivers achieved an adequate score. The results reflect a statistically significant difference in the mean knowledge scores between the two groups ($p < 0.001$). **Figure 1** illustrates this disparity by summarizing the proportion of participants with adequate and inadequate knowledge in both groups. These results align with prior findings by Mbanya *et al.,* (2006), who observed that health professionals in Cameroon tend to be more knowledgeable about diabetic complications than non-professional caregivers, mainly due to their access to formal training and continuing education opportunities. Nurses demonstrated familiarity with the causes of diabetic foot, preventive techniques, and the need for routine foot assessments. Over 95 percent knew that neuropathy, poor circulation, and delayed wound care are key contributors to diabetic foot complications. They

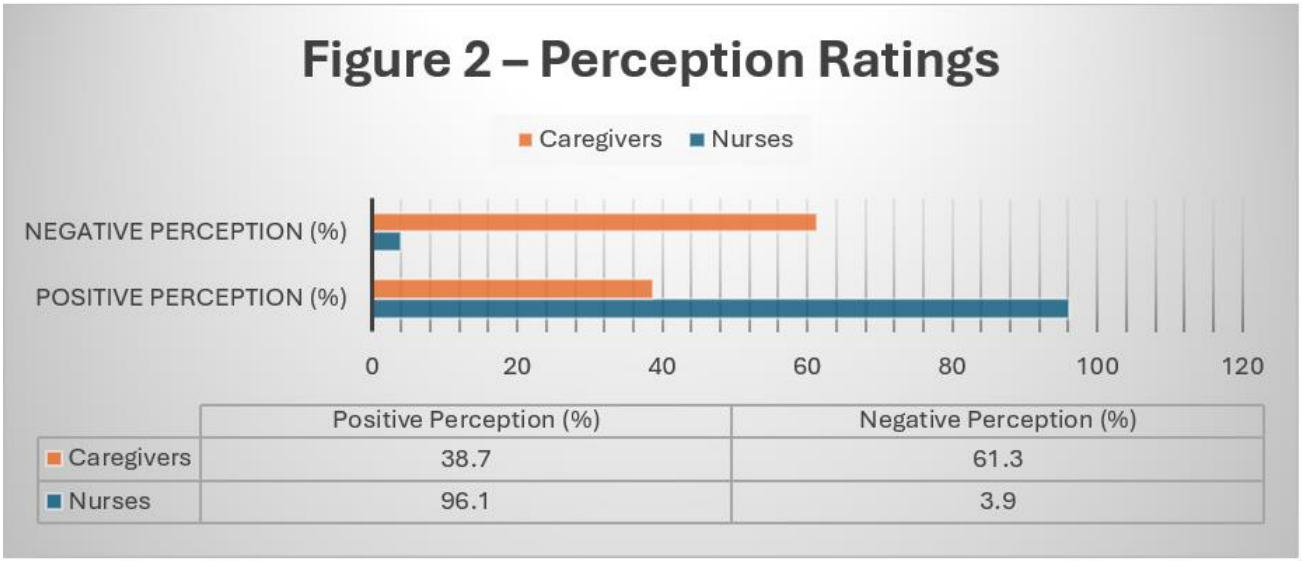
also showed competence in identifying signs of infection, such as swelling, warmth, and unusual odor.

In contrast, only 42 percent of caregivers could correctly identify the signs of diabetic foot infection, and even fewer understood the relevance of protective footwear and safe nail trimming. These findings echo the work of Gallant (2003), who emphasized the direct correlation between caregiver training and effective diabetic management outcomes.



Perception of Diabetic Foot Care

Perception scores were derived from Likert-scale responses evaluating the importance of foot care, perceived roles in management, and attitudes towards prevention. Among nurses, 96.1 percent positively perceived their role in diabetic foot care. They strongly agreed that educating patients and caregivers about foot care is part of their responsibility. In contrast, only 38.7 percent of caregivers positively perceived diabetic foot care; many perceived foot care as a clinical task that should be handled exclusively by doctors or nurses. Furthermore, many felt inadequately equipped to contribute meaningfully to patient care, particularly in wound management and early detection. These findings are presented in Figure 2, which shows the stark contrast between groups. The results are supported by Apelqvist and Larsson (2000), who found that improved caregiver perception and involvement are essential to reducing ulcer incidence and recurrence. According to Kleinman (1980), perception is influenced by information and cultural norms and expectations, which likely explains the passive attitudes observed among caregivers in this study.

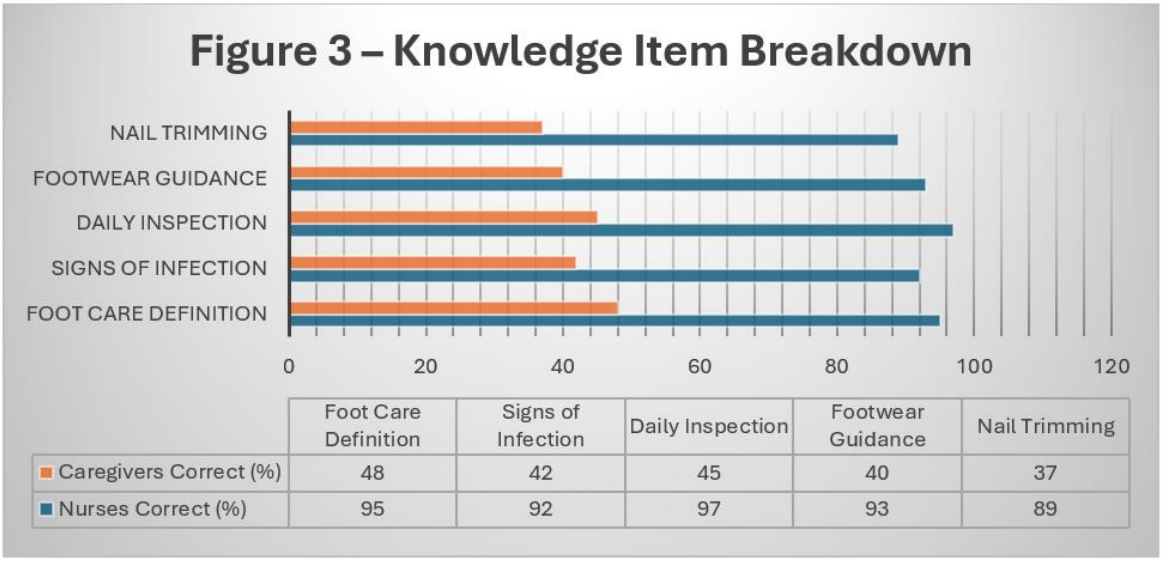


	Positive Perception (%)	Negative Perception (%)
Caregivers	38.7	61.3
Nurses	96.1	3.9

Knowledge Item-Level Analysis

To further dissect the knowledge gap, responses were analyzed item by item. Five core knowledge items were selected for closer comparison, including awareness of foot care importance, infection signs, need for daily inspection, understanding of appropriate

footwear, and safe nail trimming practices. Figure 3 presents this breakdown. While nurses consistently performed above 89 percent across all items, caregivers lagged in each area, with scores ranging from 37 to 48 percent. These item-level insights suggest a pattern of deficient practical knowledge among caregivers, a concern previously raised by Taha *et al.,* (2007), who found that even when caregivers were aware of diabetes, they lacked the detailed procedural understanding required for effective daily management.



Association Between Demographic Characteristics and Knowledge

Chi-square analysis revealed significant associations between educational level and knowledge score among caregivers ($p < 0.001$). Those with at least secondary education were likelier to score in the "adequate" range. Among nurses, years of professional experience had a weak but statistically relevant correlation with knowledge scores ($p = 0.04$), confirming that exposure to clinical cases enhances practical understanding. Furthermore, among caregivers, prior exposure to diabetes education (such as hospital-led sessions or outreach programs) was significantly linked with both knowledge and perception scores ($p < 0.01$). This affirms the findings of Forhan *et al.,* (2005), who concluded that even short-term educational interventions can have a meaningful impact on patient support outcomes.

Challenges Faced by Participants

Both groups reported significant barriers to effective diabetic foot care. The most frequently cited challenges for nurses were a lack of essential equipment (e.g., monofilaments for neuropathy testing), poor interdisciplinary communication, and being overburdened with responsibilities. Nurses reported that physicians often delegated tasks without adequate coordination, leaving them to manage complex wound care independently. These issues mirror the systemic problems that Assah *et al.,* (2011) described, who highlighted the absence of institutional support for chronic care in Cameroon's public hospitals. Primary caregivers highlighted different but equally pressing issues. Chief among them were financial constraints, lack of training, and fear of worsening the patient's condition through improper care. Many caregivers expressed a desire for more structured education on diabetic foot management. These concerns resonate with the research of Tsabang *et al.,* (2018), which revealed that patients and caregivers in Cameroon often rely on traditional medicine or unverified community knowledge due to a lack of formal guidance. In the open-ended responses, caregivers frequently cited confusion about the proper footwear and hygiene standards needed for diabetic patients. A common theme was the inability to distinguish between minor and severe symptoms, which resulted in delayed hospital visits.

Qualitative Insights

Including open-ended questions provided a more profound understanding of the emotional and logistical hurdles participants face. Nurses often described feeling frustrated by the recurrent nature of complications that could have been prevented through caregiver vigilance. Conversely, caregivers admitted feeling intimidated by the medical setting and unprepared to handle tasks such as dressing changes or assessing infection severity. One caregiver shared, "Sometimes I see the wound and think it is healing, but the smell returns. I do not know if I should wash it or wait for the nurse." This quote encapsulates the uncertainty and fear surrounding home-based care and underscores the need for simplified, accessible educational materials.

Implications of Findings

The data collectively illustrate an apparent disparity in diabetic foot care knowledge and perception

between professional nurses and informal caregivers. While nurses demonstrate clinical proficiency, they are hindered by systemic inefficiencies and resource limitations. Caregivers, on the other hand, are willing but underprepared, facing educational and financial barriers. The results validate earlier findings by Ramachandran *et al.,* (2002), who asserted that preventing diabetic complications must extend beyond clinical walls and into the community. Additionally, they echo the perspective of Leese *et al.,* (2004), who emphasized early detection and caregiver training as pivotal in reducing amputation rates. This study compares two essential pillars of diabetic care, nurses and caregivers, and sheds light on a neglected intersection in healthcare delivery. It confirms that strengthening diabetic foot outcomes requires a dual strategy: reinforcing institutional support for nurses and empowering caregivers through targeted education and resources. The findings presented above provide robust evidence of the knowledge and perception gap in diabetic foot care between nurses and primary caregivers in regional hospitals in Cameroon. With visual data presented in Figures 1 through 3, the quantitative results highlight the extent of disparity and specific areas requiring intervention. These insights are vital for informing healthcare policy, particularly in settings where chronic disease burdens intersect with resource scarcity and cultural complexity. Addressing the identified challenges will require collaborative approaches, ongoing professional training, and community-based caregiver education tailored to the local context.

DISCUSSION

The findings of this study underscore a significant disparity in the levels of knowledge and perception between nurses and primary caregivers regarding diabetic foot care in regional hospitals in Cameroon. This disparity is critical because it highlights systemic and educational shortcomings that may perpetuate avoidable complications such as foot ulcers, infections, and amputations in diabetic patients. The high knowledge scores among nurses, in contrast to the low scores among caregivers, suggest that while professional training provides foundational and clinical understanding, informal caregivers continue to face substantial barriers to acquiring even basic knowledge. This situation reflects the broader healthcare landscape in many sub-Saharan African settings, where healthcare delivery relies heavily on undertrained family caregivers due to limited human resources (Harries *et al.,* 2005). The implications of inadequate caregiver knowledge are particularly alarming given that caregivers often serve as the first line of observation and intervention in the home environment. When caregivers fail to recognize signs of diabetic foot complications or practice inappropriate care techniques, such as improper nail trimming or the use of unsuitable footwear, the risks of ulceration and delayed treatment increase exponentially, these findings support earlier work by Frykberg *et al.,* (2006), who documented that delays in intervention significantly raise the likelihood of severe infections and subsequent amputations in diabetic patients. The association found in this study between caregiver education level and knowledge score is consistent with the conclusions drawn by Mayega *et al.,* (2013), who reported that educational attainment is a strong predictor of diabetes management capability in East African populations.

Conversely, nurses in this study demonstrated strong knowledge of diabetic foot care, likely due to their exposure to clinical training and structured work environments. Nevertheless, nurses reported facing several practical challenges despite their competence, including insufficient resources, lack of diabetic care equipment, and fragmented interdisciplinary coordination. These concerns mirror the health system challenges documented by Kirigia et al. (2006), who highlighted chronic underinvestment in African healthcare infrastructure as a significant limitation to quality service delivery. The findings also align with those of Bos and Agyemang (2013), who found that African health workers often function in high-demand environments without the logistical or administrative support required to apply their knowledge effectively. Another critical aspect revealed in this study is the difference in perception between the two groups. Nurses not only demonstrated strong knowledge but also reported high perception scores regarding the importance of diabetic foot care and their role in providing education to patients and caregivers. This aligns with the findings of Abubakari *et al.,* (2009), who emphasized that positive attitudes among healthcare providers contribute significantly to the quality of chronic disease management. On the other hand, the low perception scores among caregivers, many of whom believed that foot care should be left entirely to healthcare professionals, may reflect deeply ingrained cultural and societal roles. As noted by Mbanya *et al.,* (2010), cultural context profoundly shapes perceptions of health responsibilities within families, especially in patriarchal or traditionalist societies.

Furthermore, the perception among caregivers that they are not competent to manage diabetic foot care correlates with the knowledge gap. These caregivers may not have received adequate orientation or instruction from hospital staff. This situation points to missed opportunities for integrated health education, especially considering that studies such as Atun *et al.,* (2013) have shown that community-based interventions that include caregiver education significantly improve diabetes self-management outcomes. Without addressing caregivers' confidence and belief in their ability to contribute meaningfully to foot care, efforts to decentralize diabetes management will remain ineffective. The itemized knowledge breakdown also offers valuable insights into specific areas where intervention is needed. For instance, while many nurses and some caregivers understood the need for daily inspection and infection control,

knowledge about proper footwear and nail-trimming practices was relatively lower among caregivers. This is significant because foot protection and hygiene are essential in preventing diabetic foot ulcers, as emphasized by Jeffcoate and Harding (2003), who identified mechanical trauma and untrimmed nails as common triggers for ulceration in poorly managed diabetic cases. The data from this study support their findings and suggest that training programs for caregivers must go beyond basic awareness and emphasize practical skills.

Interestingly, both groups cited challenges affecting their ability to manage diabetic foot conditions effectively. Nurses focused on institutional issues such as staff shortages, unavailability of clinical supplies, and lack of standardized foot care protocols. These systemic challenges have been widely documented across Africa. According to the WHO's Service Availability and Readiness Assessment (SARA) reports, many African hospitals lack basic equipment such as monofilament kits and antiseptic solutions necessary for diabetic foot assessments and care. Meanwhile, caregivers cited personal and contextual challenges such as financial barriers, fear of causing harm, and lack of training opportunities. These barriers are consistent with findings by Osei-Yeboah *et al.,* (2016), who observed that in Ghana and similar regions, caregivers of diabetic patients often bear heavy emotional and financial burdens with minimal institutional support. The open-ended responses from caregivers provided qualitative depth to the quantitative findings. Several caregivers expressed fear and hesitation in participating in foot care due to a lack of confidence. This sense of inadequacy could be mitigated by integrating structured caregiver training into the patient education programs commonly provided during hospital visits. Evidence from Sumpio *et al.,* (2010) suggests that when caregivers are empowered with knowledge and basic skills, they are more likely to engage in consistent monitoring and early referral, reducing hospitalization rates.

The broader implication of this study is the reaffirmation of the necessity of a comprehensive and inclusive approach to diabetic foot care that recognizes both clinical providers and informal caregivers as essential components of the patient support system. The International Diabetes Federation (2015) has emphasized that effective diabetes care must extend beyond clinical facilities and into the home environment through education, community support, and consistent follow-up. In this regard, the findings of the present study contribute to the global discourse on diabetes management by offering context-specific evidence from Cameroon, where diabetic foot complications remain a leading cause of hospital admissions and lower limb amputations. In light of the findings, it is important to consider integrated solutions that bridge the gap between nurses and caregivers. For instance, nurses could be trained to serve as community educators, conducting periodic workshops or informal training sessions for caregivers during patient check-ups. Additionally, introducing simplified foot care guides, pictorial charts, and short videos in local languages could enhance understanding and retention among caregivers with limited literacy. These strategies are supported by studies such as those by Rijken et al. (2008), who found that visual aids and community storytelling significantly enhanced the uptake of self-care practices in non-literate populations.

This discussion also highlights the importance of intersectoral collaboration. Addressing diabetic foot care in Cameroon will require the engagement of the ministries of health, non-governmental organizations, community leaders, and international partners. Investments in capacity-building, the development of community health worker programs, and the inclusion of caregivers in national diabetes strategies are key to moving from reactive to preventive diabetic foot care models. Such a holistic approach is advocated by Yach *et al.,* (2004), who argued that chronic disease prevention and control in Africa must be multisectoral, people-centered, and grounded in the realities of daily life. This study's disparity in knowledge and perception has broad implications for diabetic foot care in Cameroon. Nurses possess strong foundational knowledge but are constrained by system-level inefficiencies. Caregivers, while willing to help, often lack the training and confidence necessary to play a meaningful role in foot care. Bridging this gap will require deliberate, targeted educational interventions and systemic reforms that enable both groups to collaborate effectively. Doing so will not only improve patient outcomes but also reduce the long-term burden of diabetic complications on Cameroon's healthcare system.

CONTRIBUTION TO KNOWLEDGE

This study makes several important contributions to the field of diabetic foot care and healthcare delivery in low-resource settings, particularly within the Cameroonian context. First, it is among the few comparative investigations systematically examining the differences in knowledge and perception of diabetic foot care between nurses and primary caregivers. By highlighting these discrepancies, the study expands the current understanding of how professional and informal actors interact within the care continuum for chronic conditions such as diabetes. Prior research, such as that by Ndip *et al.,* (2006), focused primarily on the prevalence of diabetic foot complications and clinical treatment strategies in hospital settings. However, few studies have explored the relational dynamics and gaps in understanding between frontline health workers and the informal support systems that patients rely upon daily. This study, therefore, fills a critical void by bringing visibility to the underexplored role of caregivers and their impact on diabetic foot outcomes.

Second, the study contributes new empirical data on the knowledge deficiencies and perception gaps that exist among caregivers in regional hospitals in Cameroon. While other studies, like those of Osei-Yeboah *et al.,* (2016), have discussed knowledge challenges in diabetes care generally, this research focuses specifically on diabetic foot care, which remains one of the most neglected yet preventable complications of diabetes. By quantifying the levels of understanding across core domains, such as recognition of infection signs, importance of daily foot inspections, appropriate footwear, and nail care, the study offers detailed insights into which aspects of diabetic foot education are most lacking among caregivers. This granularity is valuable for designing targeted interventions that focus on knowledge transfer, practical skill development, and behavioral change.

Third, the methodology used in this research, which includes structured questionnaires administered to both professional and non-professional respondents, provides a validated and replicable model for assessing knowledge and perception in other regions and healthcare settings. This dual-perspective approach recognizes that chronic disease management is not confined to clinical boundaries but is a shared responsibility that cuts across household, community, and institutional domains. This inclusive framework aligns with contemporary public health strategies that advocate for patient-centered care models and community participation in health promotion activities, as emphasized by Atun *et al.,* (2013).

Furthermore, the study provides policy-relevant evidence that supports the need for integrated caregiver education programs within hospitals and diabetes clinics. Many caregivers operate without formal training, so their potential to contribute to preventive care is often unrealized. The data presented here justify the inclusion of caregivers in diabetic education efforts, highlighting that with the proper support and training, caregivers can enhance monitoring, promote adherence to care protocols, and prevent costly complications. These findings complement the work of Abubakari *et al.,* (2009), who argued that improved caregiver capacity directly affects health outcomes in chronic disease management. In addition to contributing to practice and policy, the study also has implications for curriculum development in health training institutions. By demonstrating the practical knowledge gaps among even trained professionals, the study suggests that existing nursing curricula may need to be revisited to ensure a stronger emphasis on diabetic foot prevention, caregiver communication, and interdisciplinary coordination. These recommendations align with the findings of Bos and Agyemang (2013), who advocated for reforms in health professional education to better align with the needs of chronic disease care in African settings.

Lastly, this study advances scholarly understanding by providing a structured analysis of how sociodemographic factors, such as education level and prior exposure to diabetes education, influence knowledge and perception. The statistically significant relationships observed in this study add to the theoretical body of knowledge on health literacy and social determinants of health. They also highlight the urgent need to adopt equity-focused approaches in disseminating health education materials and services, especially in multilingual and multicultural environments such as Cameroon. This research contributes to knowledge by exposing a critical gap between nurses and caregivers in diabetic foot care, validating a dual-perspective assessment model, providing policy-relevant data for integrated education strategies, recommending improvements to healthcare training curricula, and reinforcing the theoretical link between social factors and health literacy. These contributions collectively support the transformation of diabetic care from a fragmented, facility-based model to a more inclusive, community-integrated chronic disease management system.

RECOMMENDATIONS

Based on this study's findings, several recommendations can be proposed to enhance diabetic foot care in regional hospitals in Cameroon and similar resource-constrained settings. These recommendations target healthcare policy, hospital administration, clinical practice, caregiver engagement, and community-level education. Each is grounded in the observed gaps in knowledge, perception, and systemic support that emerged from the comparative analysis between nurses and primary caregivers.

First, there is an urgent need to develop and implement structured diabetic foot care education programs specifically tailored for primary caregivers. These programs should be embedded into routine outpatient care and diabetic clinics as part of a holistic management plan. Given that less than half of the caregivers demonstrated adequate knowledge and fewer still held positive perceptions about their role in foot care, targeted training can serve as a foundational step toward improving caregiver involvement. These educational sessions should be simple, practical, and culturally sensitive, using local languages and visual aids to overcome literacy barriers. This approach is consistent with recommendations from the World Health Organization and supported by evidence from Forhan et al. (2005), who demonstrated the impact of caregiver education on improved diabetes outcomes.

Second, training and continuing professional development for nurses should be strengthened, with specific modules on diabetic foot care, caregiver collaboration, and patient education. Although nurses in this study demonstrated strong knowledge, they also

reported challenges related to a lack of training updates and institutional support. Refresher courses and hands-on workshops should be organized regularly, preferably with certification and professional credit incentives. These programs would ensure that nurses remain competent in the latest diabetic foot care protocols and can serve as effective educators for caregivers. Prior studies, such as those by Kirigia *et al.,* (2006), have emphasized that frontline healthcare workers require continuous training to adapt to the evolving demands of chronic disease care.

Third, hospital administrations and regional health authorities should ensure that essential diabetic foot care materials and tools are available in all outpatient departments and diabetic clinics. These include monofilament kits, sterile dressing supplies, foot inspection guides, and protective footwear recommendations. The reported lack of tools by nurses and the reliance on inappropriate practices by caregivers highlight a gap in basic clinical infrastructure. Institutions must prioritize procuring and distributing these tools as part of their essential drug and equipment lists. The WHO's Service Availability and Readiness Assessment (SARA) framework identifies these materials as core to effective diabetes management.

Fourth, interdisciplinary collaboration must be institutionalized within healthcare facilities. Nurses, physicians, podiatrists, physiotherapists, and dietitians should work together as a unified diabetic care team. This collaboration ensures consistent messaging, efficient referral systems, and reduced patient and caregiver support gaps. This study's absence of coordinated care was a recurring theme, particularly among nurses who reported being overburdened and poorly integrated with other departments. Models of multidisciplinary care have been successfully implemented in other countries, as documented by Apelqvist and Larsson (2000), and have led to improved clinical outcomes and reduced foot ulcer recurrence.

Fifth, it is recommended that caregiver involvement be formalized and incentivized within diabetic care protocols. Hospitals can introduce caregiver orientation days, recognition programs, or even basic certification for caregivers who complete training. Recognizing and formalizing caregivers' roles not only improves morale but also helps integrate them into the patient care continuum. Evidence from Abubakari et al. (2009) suggests that caregiver engagement is most effective when institutionalized and supported by policy.

Sixth, national health campaigns and media programs should include diabetic foot care messaging targeting patients and caregivers. Public health communication through radio, community dramas, health fairs, and mobile messaging can raise awareness and promote healthy behaviors related to foot care. This broad strategy helps shift the societal perception that foot care is a purely clinical matter and encourages early home-based interventions. Campaigns should emphasize practical preventive steps such as daily foot inspection, hygiene, appropriate footwear, and early reporting of symptoms.

Seventh, the Ministry of Public Health in Cameroon should develop and disseminate national guidelines for diabetic foot care, including standards for clinical management and community involvement. These guidelines should be adapted to local contexts and disseminated through district medical officers, nursing schools, and community health worker programs. Including caregiver education and foot care checklists in such guidelines can create uniformity in practices across facilities and regions.

Eighth, future research should explore the effectiveness of specific educational interventions on caregiver knowledge and behavior change over time. While this study has identified critical gaps, longitudinal studies are necessary to determine which formats, frequencies, and education delivery methods yield the most sustainable improvements. Randomized controlled trials, community-based participatory research, and mixed-method studies can provide deeper insight into what works best in real-life settings.

Lastly, it is recommended that monitoring and evaluation mechanisms be integrated into diabetic care services, specifically tracking caregiver involvement, foot ulcer incidence, and educational session outcomes. Data from such systems can inform quality improvement initiatives and provide feedback loops for healthcare staff and policymakers. These mechanisms can also serve as early warning systems for rising trends in foot complications, enabling proactive rather than reactive responses. The findings of this study demonstrate that diabetic foot care must be restructured to include and support both nurses and caregivers. Through targeted education, improved resources, interdisciplinary collaboration, public engagement, and policy innovation, Cameroon’s healthcare system can significantly reduce the burden of diabetic foot complications and enhance the overall quality of life for patients with diabetes. These recommendations, grounded in both empirical data and international best practices, provide a practical roadmap for improving diabetic foot care delivery at multiple levels of the health system.

FUTURE RESEARCH

Future research in the domain of diabetic foot care, particularly within the context of sub-Saharan Africa and Cameroon specifically, should address several critical gaps and expand on the foundational insights provided by this study. Although the current research has shed light on disparities in knowledge and perception between nurses and primary caregivers, numerous areas remain unexplored or insufficiently

addressed, which future investigations could strategically focus on.

First, future studies should adopt longitudinal research designs to examine how knowledge and perception evolve following targeted interventions. While the present study employed a cross-sectional approach to provide a snapshot of the existing disparities, it does not capture the long-term effectiveness of educational or policy-based solutions. Longitudinal studies can assess whether caregiver training programs lead to sustained improvements in knowledge, perception, and ultimately patient outcomes, including reduced ulcer incidence and lower amputation rates. This approach aligns with the recommendations of Rijken *et al.,* (2008), who suggested that health behavior improvements are best evaluated through time-series and follow-up methods that track behavioral adherence and practical application.

Second, experimental and interventional research is needed to test the efficacy of different caregiver education models. For example, future studies could compare outcomes from in-person workshops, digital modules, community peer education groups, or mobile health interventions. Ideally, these studies should be rigorously designed using randomized controlled trial frameworks to determine the most cost-effective and culturally appropriate means of enhancing caregiver knowledge in resource-limited settings. Such research would build upon the foundational understanding of knowledge gaps and move toward evidence-based solutions that are scalable and adaptable.

Third, researchers should consider exploring the role of community health workers and traditional health practitioners in bridging the knowledge and practice divide between formal healthcare providers and caregivers. In many Cameroonian communities, traditional medicine remains the first point of care. Studies that assess how community-based health agents can be integrated into diabetic foot care education could offer new avenues for expanding the reach of preventive health messages. Work by Tsabang *et al.,* (2018) has highlighted the important yet underutilized role of local knowledge systems in chronic disease management, suggesting that future studies could examine ways to harmonize modern medical practices with existing cultural frameworks.

Fourth, gender-specific and age-specific analyses are needed to understand how sociodemographic variables influence knowledge acquisition, perception of responsibility, and willingness to participate in foot care. The current study did not disaggregate data in these terms. However, prior research by Mayega et al. (2013) found that younger caregivers and those of female gender were more likely to adopt and apply health education in diabetes management. Such disaggregation in future studies can help tailor interventions to subgroups at risk of inadequate knowledge or negative attitudes.

Fifth, future research should adopt mixed-methods designs integrating quantitative surveys with qualitative interviews, focus groups, and observational assessments. While the current study included some open-ended responses, a more robust qualitative component could provide deeper insight into caregivers' social, emotional, and practical challenges in implementing diabetic foot care. Such data could also uncover context-specific beliefs, stigma, or misinformation that may act as hidden barriers to effective care, as Kleinman (1980) suggested in his anthropological framework for understanding illness narratives.

Sixth, studies that explore institutional and systemic barriers to nurse-led caregiver education would be particularly valuable. Although this study found that nurses were willing and able to support caregivers, systemic issues such as time constraints, lack of resources, and poor policy support limited their ability to do so effectively. Future research could examine these organizational dynamics, focusing on administrative support, workload distribution, and the integration of caregiver training into standard care protocols. This would expand on findings by Bos and Agyemang (2013), who emphasized that systemic enablers are as important as individual competency in effective chronic disease management.

Seventh, researchers should investigate the economic impact of improved diabetic foot care education among caregivers. By analyzing cost savings from reduced hospital admissions, fewer amputations, and lower wound care costs, future studies could provide the financial justification for investing in caregiver training programs. Such cost-effectiveness studies would be instrumental for policymakers and health planners seeking to allocate limited resources for maximum impact.

Eighth, future work could examine the role of digital technologies and e-health platforms in improving diabetic foot care literacy among caregivers. With mobile phone penetration increasing across Cameroon, mobile-based reminders, educational apps, and SMS-based training programs present promising tools for reaching caregivers in remote areas. Research in this domain should assess accessibility, user engagement, and measurable outcomes in caregiver practices and patient foot health.

Finally, cross-national comparative studies would provide a broader understanding of how Cameroon's experience fits within the regional and global context. By comparing caregiver and nurse roles in diabetic foot care across similar countries such as Nigeria, Ghana, or Kenya, future researchers can identify

best practices, shared challenges, and innovative solutions that transcend local boundaries. Such comparative perspectives would contribute to global diabetes care strategies and reinforce international collaboration in chronic disease prevention. Future research must go beyond documenting disparities to testing, evaluating, and optimizing interventions to bridge the knowledge and perception gap in diabetic foot care. By embracing longitudinal, interventional, community-based, and policy-focused approaches, researchers can generate actionable evidence that supports the transformation of diabetic care from a hospital-centric model to a comprehensive, inclusive, and community-integrated system.

CONCLUSION

In conclusion, this study has provided compelling evidence of a significant disparity in the knowledge and perception of diabetic foot care between nurses and primary caregivers in regional hospitals in Cameroon. Nurses, equipped with professional training and clinical experience, demonstrated a high level of knowledge and positive perception regarding their roles and responsibilities in diabetic foot management. In contrast, primary caregivers, despite being essential players in the daily care and monitoring of diabetic patients, exhibited considerably lower levels of both knowledge and confidence in their capacity to contribute effectively to foot care. These findings emphasize the importance of a more inclusive and integrative approach to diabetic foot care that recognizes and supports the critical roles of both professional healthcare providers and informal caregivers. The evidence suggests that caregiver deficiencies are not merely individual shortcomings but reflections of systemic gaps in health education, institutional support, and policy attention. Without targeted interventions to address these gaps, the burden of diabetic foot complications will continue to grow, leading to avoidable hospitalizations, amputations, and healthcare costs.

The study also underscores the need for structured and culturally sensitive educational programs, adequate institutional resources, and collaborative care models that engage all stakeholders in the management process. While nurses are knowledgeable, they face institutional and infrastructural barriers that limit their ability to educate and support caregivers effectively. Caregivers, on the other hand, are often left unsupported in their vital roles despite their close proximity to patients and their potential impact on daily disease management. Moreover, this study's results contribute valuable empirical insights to the broader discourse on chronic disease management in low-resource settings. They highlight the necessity of integrating informal care systems into formal healthcare strategies and provide a model for other countries facing similar challenges. The recommended actions arising from this study, including caregiver training, institutional reforms, and future research directions, offer a comprehensive framework for enhancing diabetic foot care and reducing complications. Ultimately, improving diabetic foot outcomes in Cameroon will require a deliberate, multisectoral response that prioritizes education, equity, and empowerment. When caregivers are trained, supported, and included, and nurses are equipped and enabled, the healthcare system becomes more resilient, inclusive, and capable of delivering high-quality, patient-centered care. Therefore, this study not only documents existing challenges but also charts a path toward a more effective and collaborative model of diabetic care.

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APPENDIX I & II

DIABETIC FOOT CARE QUESTIONNAIRE

Appendix I: Questionnaire for Nurses

Section A: Sociodemographic Information

1. Age: _____
2. Gender: Male [ ] Female [ ]
3. Marital Status: Single [ ] Married [ ] Divorced [ ] Widowed [ ]
4. Educational Level: Certificate [ ] Diploma [ ] Degree [ ] Masters [ ]
5. Work Experience (Years): _____
6. Department: _____
7. Have you received any formal training in diabetic foot care? Yes [ ] No [ ]

Section B: Knowledge on Diabetic Foot Care

1. Have you ever heard of diabetic foot? Yes [ ] No [ ]
2. Diabetic foot results from: a) Poor glucose control [ ] b) Neuropathy [ ] c) Poor hygiene [ ] d) All of the above [ ]
3. Common signs of diabetic foot include: a) Ulcers [ ] b) Numbness [ ] c) Swelling [ ] d) All of the above [ ]
4. Can foot ulcers in diabetic patients be prevented? Yes [ ] No [ ]
5. What methods are used to assess diabetic foot? a) Monofilament test [ ] b) Observation [ ] c) X-ray [ ] d) All of the above [ ]
6. Should diabetic patients inspect their feet daily? Yes [ ] No [ ]
7. Is foot care education part of your nursing responsibilities? Yes [ ] No [ ]

Section C: Perception on Diabetic Foot Care

1. 1. Nurses play a key role in the prevention of diabetic foot complications. Strongly Agree [ ] Agree [ ] Neutral [ ] Disagree [ ] Strongly Disagree [ ]
2. 2. Diabetic foot care is the sole responsibility of physicians. Strongly Agree [ ] Agree [ ] Neutral [ ] Disagree [ ] Strongly Disagree [ ]

3. 3. Providing diabetic foot education to patients is essential. Strongly Agree [ ] Agree [ ] Neutral [ ] Disagree [ ] Strongly Disagree [ ]
4. 4. Caregivers should be trained in foot care techniques. Strongly Agree [ ] Agree [ ] Neutral [ ] Disagree [ ] Strongly Disagree [ ]
5. 5. My department provides adequate support for diabetic foot care. Strongly Agree [ ] Agree [ ] Neutral [ ] Disagree [ ] Strongly Disagree [ ]

Section D: Challenges Faced

1. List three major challenges you face in diabetic foot care provision: _____
2. What resources do you lack most in foot care management? _____
3. Are there communication gaps with caregivers regarding diabetic foot care? Yes [ ] No [ ]

Appendix II: Questionnaire for Primary Caregivers

Section A: Sociodemographic Information

1. Age: _____
2. Gender: Male [ ] Female [ ]
3. Relationship to patient: _____
4. Level of education: No formal education [ ] Primary [ ] Secondary [ ] Tertiary [ ]
5. Have you received any education on diabetic foot care? Yes [ ] No [ ]

Section B: Knowledge on Diabetic Foot Care

1. Have you heard about diabetic foot? Yes [ ] No [ ]
2. Do you know the causes of diabetic foot? Yes [ ] No [ ]
3. Can foot ulcers lead to amputation if untreated? Yes [ ] No [ ]
4. Do you know how to examine your patient's feet? Yes [ ] No [ ]
5. Do you know signs of infection in diabetic feet? Yes [ ] No [ ]
6. Do you know how to trim toenails safely? Yes [ ] No [ ]

Section C: Perception on Diabetic Foot Care

1. 1. Foot care is important in managing diabetes. Agree [ ] Neutral [ ] Disagree [ ]
2. 2. Only nurses and doctors should handle foot care. Agree [ ] Neutral [ ] Disagree [ ]
3. 3. I feel confident providing foot care to the patient. Agree [ ] Neutral [ ] Disagree [ ]

Section D: Challenges Faced

1. What are your main difficulties in caring for the diabetic foot? _____
2. Do you lack materials or knowledge for foot care? Yes [ ] No [ ]
3. Would you like to receive training on diabetic foot care? Yes [ ] No [ ]