Effectiveness of Peer Support on Foot Self-Care Practices among Diabetic Patients in Western Kenya

Lucy K. Kavinguha[1], Tecla P. Sum[2], John O. Okoth[3], Morris S. Senghor[4]

[1]School of Nursing, Masinde Muliro University of Science and Technology, Kakamega, Kenya.
e-mail: lkageha@mmust.ac.ke
[2]School of Nursing, Masinde Muliro University of Science and Technology, Kakamega, Kenya.
e-mail: tsum@mmust.ac.ke
[3]School of Nursing, Masinde Muliro University of Science and Technology, Kakamega, Kenya.
e-mail: jokoth@mmust.ac.ke
[4]School of Nursing, Kibabii University, Bungoma, Kenya.
e-mail: sengomoris@gmail.com

Received August 27, 2024, accepted October 24, 2024, Published April 1, 2025.

ABSTRACT

Context: The global burden of diabetes is steadily rising with a parallel increase in related complications. Individuals with chronic conditions such as diabetes need assistance in learning, mastering, and sustaining complex self-care practices that support healthy living and prevent the development of complications. Peer support is an effective and cost-friendly intervention in the self-management of chronic health conditions to not only enhance self-care practices among diabetic patients but also prevent complications. Despite numerous literature showing evidence that peer support has benefits if implemented, its effectiveness on foot self-care practices among diabetic patients remains variable with very few studies documenting its use.

Aim: The study aimed to assess the effectiveness of peer support on foot self-care practices among diabetic patients in Western Kenya.

Methods: This was a quasi-experimental, nonequivalent control group post-test-only study. The intervention involved peer support in addition to standard treatment compared to standard treatment only in the control group. The study population was diabetic patients attending clinics in tiers five and six hospitals in Western Kenya. The sample size was calculated using the Charan and Biswas formula, and 58 participants per study site, totaling 116 individuals participated. Participants were conveniently sampled into the intervention and control groups. Data was collected using researcher-administered structured questionnaires while foot self-care practices were assessed using the Nottingham Assessment of Functional Footcare Questionnaire (NAFF).

Results: The intervention group showed significantly higher mean foot care practice scores of 61.1 compared to the mean of 35.7 in the control group ($F=444.7$, $p<.001$) with a substantial partial Eta^2 of 0.84. Level of education, employment status, positive attitude towards foot care, and self-evaluation significantly influenced foot self-care practices.

Conclusion: Peer support significantly enhances foot self-care practices among diabetic patients, potentially preventing diabetic foot complications. Based on the study's findings, it is recommended to integrate peer support programs into diabetes care settings to improve foot self-care practices.

Keywords: Diabetic patients, foot self-care practices, peer support, Western Kenya

Citation: *Kavinguha, L. K., Sum, T. P., Okoth, J. O., & Senghor, M. S. (2025). Effectiveness of peer support on foot self-care practices among diabetic patients in Western Kenya. Evidence-Based Nursing Research, 7*(2), 40-52. https://doi.org/10.47104/ebnrojs3.v7i2.387

1. Introduction

Diabetic foot complications are among the most distressing adverse health outcomes of diabetes and constitute a major public health problem *(Armstrong et al., 2017).* These complications include several pathologies, mainly diabetic peripheral neuropathy and peripheral arterial disease, which result in foot ulceration. Diabetic foot ulceration may ultimately lead to amputation, especially when wound infection or osteomyelitis are involved *(Amin & Doupis, 2016).*

Diabetic foot complications are associated with major morbidity, mortality, and reduced quality of life and are one of the most serious complications of diabetes mellitus *(Jupiter et al., 2016).* Five-year mortality rates from diabetes-related foot complications are similar or worse compared to mortality rates of many common cancers, including cancer of the colon, breast, and prostate *(Wukich et al., 2017).* Given the morbidity and mortality associated with diabetic foot ulcers and infections, more attention should be focused on prevention *(Bus et al., 2016).*

The lifetime risk of patients with diabetes developing a foot-related complication is as high as twenty-five to forty percent compared to the non-diabetic population, whose risk is fifteen percent *(International Diabetes Federation [IDF], 2017).* Limb amputations are the costliest and most feared consequence of foot ulcers. In people with diabetes, 84% of non-traumatic limb amputations are preceded by foot ulcers. The key to managing diabetic foot complications is prevention *(Jupiter et al., 2016).*

According to a study by *Zhang et al. (2017)*, the prevalence of foot complications among diabetic patients ranges from 3% to 13% globally. The burden of diabetes as a disease is higher in developing countries than in developed high-income countries. In sub-Saharan Africa,

[1]*Correspondence author: Lucy Kageha Kavinguha*

the burden of diabetic foot complications is increasing due to late diagnosis, poor awareness among patients, poor access to health care, poor self-care management, and constrained resources *(Zhang et al., 2017).* A study by *Achoki et al. (2019)* estimated that the prevalence of non-communicable diseases has been highest in western Kenya over the last five decades *(Achoki et al., 2019).*

As a result of this increasing burden, particularly in health services and related costs, individuals with chronic conditions such as diabetes need assistance in learning and maintaining self-care practices that support healthy living and prevent the development of complications *(Hailu et al., 2019).* Educating patients to promote self-care is essential in preventing foot complications and reducing their recurrence by enhancing patient compliance through improved understanding. Self-care practices refer to a person's ability to manage the symptoms, treatment, physical, psychosocial, and lifestyle changes associated with a chronic condition *(Gobeil-Lavoie et al., 2019).*

One strategy that supports self-care practices is peer support *(Fisher et al., 2017).* Peer support is an effective and cost-friendly intervention in the self-management of chronic health conditions. Peer support is "support from a person who has experiential knowledge of a specific behavior or stressor and has similar characteristics as the target population." Thus, people with a common illness can share knowledge, challenges, and opportunities less formally or hierarchically and in more reciprocal relationships than between the clients and the healthcare providers *(Mahlke et al., 2014).*

Peer support has been shown to improve self-care and reduce diabetes-associated complications due to increased knowledge and social connectedness *(Debussche et al., 2018).* Peers can support their own recovery and the recovery of others through practical and emotional support, positive self-disclosure, promoting hope, empowerment, self-efficacy, and expanding social networks *(Mahlke et al., 2014).*

2. Significance of the study

The clinical impact of peer support in type 2 diabetes varies in different populations. Few health economic analyses of diabetes peer support have been undertaken, and those that have been undertaken have been contradictory *(Mohebi et al., 2018).* While contact between healthcare providers and patients remains the cornerstone to mastering foot self-care practices for preventing diabetic foot complications, patients face several barriers to care, particularly a shortage of healthcare providers in the required patient-health-provider ratio *(Kasiya et al., 2017).*

There is an urgent need to find new, effective ways to improve diabetes self-care practices and prevent diabetes-related complications; peer support is a promising, evidence-based strategy. This study's findings will help revolutionize diabetes health care by proposing an innovative, cost-effective model for preventing diabetic foot complications. They will also help inform the development of a long-term peer support program supported by public policy and assist with a sustainable revenue model to provide value to patients with diabetes.

Further, the study findings will be significant to several parties, including healthcare service providers, policy designers, the Kenyan national government, County governments in Western Kenya, diabetic patients, and future scholars interested in preventing diabetic foot complications. The health service providers within and outside JOOTRH, SCTRH and KCTRH will benefit from an empirically proven audit in preventing diabetic foot complications using the proposed PEER-CARE framework.

This framework will also enable them to redesign and refine their strategy toward providing and improving peer support to diabetic clients. Policy designers are also expected to be rewarded through study recommendations as inputs in formulating policies and approaches anchored on appropriate health safeguards. Through the Ministry/Department of Health, national and County governments are expected to be kept abreast of the independent inferences to quantify progress toward Vision 2030 and the realization of Millennium Development Goals (MDG) goals. The resident citizens will benefit from possible improved investment from interested stakeholders based on the established gaps. Also, scholars will find an additional reference in focusing on future related or advanced studies.

3. Aim of the study

The aim of the study was to assess the effectiveness of peer support on foot self-care practices among diabetic patients in Western Kenya

3.1. *Research hypothesis*

Peer support is not effective in foot self-care practices for the prevention of foot complications among diabetic patients in Western Kenya

4. Subjects & Methods

4.1. Research Design

The study used a quasi-experimental, nonequivalent control group post-test-only design to assess the effectiveness of peer support for foot self-care practices in preventing foot complications among diabetic patients in Western Kenya.

4.2. Study setting

Jaramogi Oginga Odinga Teaching and Referral Hospital (JOOTRH) was the intervention site, while Kakamega County Teaching and Referral Hospital (KCTRH) was the control site. Siaya County Teaching and Referral Hospital was used to conduct the pilot study. JOOTRH, located in Kisumu County. Kisumu County is one of the 47 Counties in Kenya. It lies within longitudes 33° 20'E and 35° 20'E and latitudes 0° 20'South and 0° 50'South. Homa Bay County borders the County to the South, Nandi County to the Northeast, Kericho County to the East, Vihiga County to the North West, and Siaya County to the West.

The County covers a total land area of 2,009.5 km^2 and another 567 km^2 covered by water. According to the 2009 Population and Housing Census, the County's population was estimated at 968,909 persons, 474,687

males and 494,222 females. The County consists of seven constituencies: Kisumu East, Kisumu West, Kisumu Central, Seme, Nyando, Muhoroni, and Nyakach. There are 35 wards in the County.

JOOTRH is the Major Referral Hospital in Nyanza, Western, and North Rift Kenya, serving a population of more than 7 million; the average annual outpatient visits are 197,200, and inpatient admissions are about 21,000. JOOTRH serves this population as the regional referral hospital. Jaramogi Oginga Odinga Teaching Hospital is a tier six-level health facility built in 1965 and operated in 1969. It is funded by the Government of Kenya and overseen by the Ministry of Health.

Approximately 810 operational inpatient beds and four dedicated outpatient clinics are available to all Kisumu and Nyanza province citizens. The diabetic services here encompass both inpatient and outpatient. The clinic at JOOTRH sees diabetic patients every day of the week, besides Saturday and Sunday. On average, they serve about eleven patients a day, both type 1 and type 2 diabetics. On Fridays, specifically trained diabetic doctors work at the clinic, and they can see up to thirty patients.

4.3. Subjects

The people participating in the research were specifically diabetic patients attending the diabetes clinics at JOOTRH and KCTRH. This population was because patients attending these clinics represented all elements of diversity and would, therefore, reflect the vast diabetic population in Western Kenya.

Sampling procedure

Each study area had sixty-four (64) participants. The participants were purposively selected for a period of one month. Thereafter, the participants were placed in their groups using the study's selection criteria. An optimum number for group therapy is 8-12 participants *(Ezhumalai, 2018).* Seven groups were formed per study area. JOOTRH was the intervention site, while KCTRH was the control site.

The peer support groups were designed to ensure diversity and balance across various demographic and clinical characteristics. The following criteria were considered for grouping:

Demographic characteristics:

Age: Participants were stratified into age groups to ensure a mix of younger and older adults in each peer support group.

Gender: An almost equal distribution of male and female participants was maintained across all groups.

Clinical Characteristics:

Duration of diabetes: Participants were categorized based on the number of years they have been diagnosed with diabetes to ensure that they can share their journey and experiences with managing diabetes.

Socioeconomic status:

Participants were grouped to ensure a mix of different socioeconomic backgrounds, which could influence their access to healthcare resources and support systems.

Geographical location:

Participants were grouped based on their geographical proximity to facilitate in-person meetings and support.

Group Composition

Each of the seven peer support groups consisted of 8-9 participants. The groups were designed to be heterogeneous, promoting diverse interactions and shared learning experiences.

The participants at KCTRH received standard treatment alone. At the end of the study, they were assessed for foot self-care practices based on their NAFF score.

The participants at JOOTRH received peer support in addition to standard treatment. At the end of the study, they were assessed for foot self-care practices based on NAFF scores.

Sample Size

The sample size was calculated using *Charan and Biswas's (2013)* formula. Considering the 5% types I error and 80% power of the study. At a 95% confidence interval, considering effect sizes in two previous studies and the sample size-to-event ratio in the development of foot complications and considering a 10% non-response, a total of 128 participants were recruited, 64 in each site. Six participants were, however, lost to follow in the intervention group. The researcher, therefore, reduced the number of participants in the control group to 58 to allow for comparison.

Inclusion criteria

- All diabetes patients seeking diabetes clinic services at the study sites and who consented to participate.
- Diabetes patients who are currently not in any peer-led support interventions.
- Patients who have had diabetes for not more than ten years.

Exclusion criteria

- Diabetes patients currently have diabetic foot complications.

4.4. Tools of data collection

4.4.1. Nottingham Assessment of Functional Foot Care (NAFF)

Foot self-care practices were assessed using the Nottingham Assessment of Functional Footcare Questionnaire (NAFF), a 29 items instrument consisting of foot assessment (2 questions), footwear (13 questions), foot hygiene (3 questions), prevent foot injury (7 questions), toenails, callus/corn care (2 questions), and wound/ulcer care (2 questions). In their methodological review of instruments that measure foot care behavior among diabetes patients, *Sipilä et al. (2023)* found the NAAF as the most comprehensive tool. The tool was modified to a 26-item instrument to apply to the study setting.

Attached to the NAFF was a data sheet that assessed the participants' sociodemographic and clinical characteristics. The focused group discussions also explored foot care perceptions, including attitudes toward foot care, evaluation of foot care, and beliefs about foot care, which are recorded in a separate section.

Scoring system

A quantitative 26-item self-report measure of how frequently people comply with recommended foot care practices with a maximum score of 78 and a minimum

score of 0. Scores of 0- 26 [below satisfactory], 27-52 [satisfactory], 53-78 [above satisfactory).

4.5. Procedures

Ethical considerations: The study was conducted in conformance with the Declaration of Helsinki. The Research and Ethics Committee of the Masinde Muliro University of Science and Technology approved the study per the university research policy. The research also sought approval from the ethical review committees of the three participating hospitals. All participants gave written informed consent, stating that they understood the details of the study procedures and aims, that they were aware of their right to withdraw from the study at any point in time, that the information given would remain confidential, and that there would be no detrimental effect to their medical care whether they decided to participate or not. Participants were informed that data from the study would be kept strictly confidential and used for academic purposes and the development of a foot care model only. In addition, participants were informed that there would be no incentives awarded and that there would be minimal to no risk in this study.

Reliability of the Instrument: According to *Polit and Beck (2022),* reliability refers to the accuracy and consistency of information collected in the study. Repeated trials on the data are expected to consistently yield similar or near similar results, thus implying its replicability *(Mugenda & Mugenda, 2003).* For this purpose, a tool must be checked for its content and structure to ensure it is relevant in collecting the required information. The research tool was subjected to specific tests depending on the nature of the tool. Questionnaires were subjected to Cronbach alpha to measure internal consistency, thus ensuring the tool's reliability, and had a score of 0.8. Acceptable internal consistency is 0.7 and above

Validity of the Instrument: According to *Creswell (2013),* validity is the degree to which the sample of test items represents the content the test is designed to measure. *Mugenda and Mugenda (2003)* contend that the usual procedure for assessing the content validity of a measure is to use a professional or expert in a particular field *(Mugenda & Mugenda, 2003).* This study sought professional advice from experts in the subject matter. Construct validity was measured by administering a few questionnaires to some respondents and analyzing the results to evaluate whether the questionnaire measured what it was required to measure. Criterion validity was measured by analyzing the outcome of the data collected using the questionnaires.

Pretesting of the data collection tool: The data collection tools were pretested to check for consistency, acceptability, and the approximate time required for completion. The pretest was done at Siaya County Teaching and Referral Hospital using ten conveniently sampled respondents.

The process began by identifying and training the peer mentors in the experimental group. Before their training, the peer mentors in the experimental group were subjected to a mentorship competency assessment, during which they were taken through the expected activities they undertook with the peer mentees. These included the number of sessions (one weekly virtual session and one monthly face-to-face session) they were to have with the mentee and the objectives for each session. They were also expected to briefly evaluate themselves and the peer mentee for every session.

The peer support groups formed the Focus Group Discussion (FGD) groups in the intervention site. At the same time, the healthcare providers working at the diabetes clinics were the key informants for all the study sites. The research assistants were also instructed on their expected activities during the experiment and what to expect from the peer mentee and the peer mentor on every occasion of their meeting. The research assistants provided frequent feedback to enhance the smooth flow of information and data during the experiment.

Pre-intervention Requirements for Peer Mentors

In addition to patient inclusion criteria, the peer mentors were required to be interested in the group's education, leadership, and participation in the research. This criterion was assessed through participant self-expression of interest. Participants were asked if they were interested and willing to be peer mentors, and if they agreed, they were recruited as peer mentors.

Peer mentors should be able to educate and communicate with the group. Peer mentors were allowed to demonstrate their ability to educate and communicate with the group through role-playing. Thereafter, feedback was collected from the group on understanding of the communication shared. The peer mentors were selected from patients who, from the point of view of the diabetic clinic in charge and based on physical examinations, were found to be self-sufficient in foot care. They also must have a satisfactory or above satisfactory score on the Nottingham Assessment test.

Peer Mentor Training

A training manual adopted from peers for progress (A program developed by the Gillings School of Public Health at the University of North Carolina *(Aziz et al., 2018)* that focuses on leveraging peer support to improve health outcomes, especially in chronic illnesses) was used to train the peer mentors on how to support daily management of foot care for diabetes patients, provide social and emotional support and facilitate communication and support for access to clinical care and ongoing support.

The necessity of the practice, the intervention method, the research process, and the training content were fully described and taught in the training session. The training consisted of four monthly workshops, each lasting eight hours, for thirty-two hours. Healthcare experts in diabetes clinics led the workshops, including didactic and interactive components such as role-playing and group sharing. The main components of the training were:

Appraisal support: This training section focused on positive thinking, empathetic listening, and appropriate questioning, sustaining motivation for daily physical activity

Informational support: The training in this section focused on positive thinking, goal setting, decision-making, coping with stress, the importance of wearing

appropriate footwear, and recognizing early signs of infection.

Instrumental support: Physical activities training while taking precautions to prevent injuries while ensuring the exercises are effective, including precautions to take during exercise, stretching exercises, foot care techniques, and the role of glucose control in foot health delivered by a nurse qualified in fitness training

Emotional support: Peer mentors were evaluated on their ability to learn the correct information through questioning and role-playing. A training session was also held to increase their skills, promote practical and information support, and empower them in the field of support.

At the end of each training session, the information presented was reviewed as a role-play to ensure learning. The training took place at JOOTRH's diabetic clinic. Seven peer mentors were trained, one for each group.

Study Intervention Activities

Peer-Led Support Groups: The established peer-led support groups for diabetic patients focused on exchanging knowledge, experiences, and challenges related to foot self-care practices to prevent foot complications. The patients meet regularly to discuss foot care and overall diabetes management. Peer mentors facilitated discussions, addressed concerns, and reinforced foot care practices. Group members provide mutual support and accountability in adhering to recommended self-care practices.

Mobile Health Peer Support Platform: WhatsApp, a mobile platform, was created to send educational messages, reminders for foot checks, and alerts on upcoming peer group meetings. Peer mentors and mentees also used the platform to answer questions, promote knowledge-sharing, emotional support, and motivation, and provide real-time feedback on foot self-care practices.

Home Visits by Peer Mentors: The peer support program provided a visitation plan where group members visited each other in their homes to assess their foot self-care practices and offer hands-on guidance. During visits, the peer mentors inspected patients' feet, demonstrated proper care techniques, identified the need for medical attention, and provided educational materials.

Foot Self-Care Assessment tool: Participants received foot care assessment tools to record their daily foot self-care practices and symptoms. Peer mentors review these tools during group meetings or home visits to monitor adherence and provide personalized advice.

Collaboration with Healthcare Providers: The program integrates peer support with professional healthcare services, ensuring continuous monitoring and intervention for diabetic foot care. Peer mentors collaborate with healthcare providers in clinics to identify at-risk patients and refer them for medical evaluation when necessary. Regular joint meetings between peer mentors and healthcare providers were held to review patient progress and address emerging foot care issues. Healthcare professionals provide technical guidance, while peer mentors focus on day-to-day support and reinforcement of self-care practices.

The above interventions, centered on peer support, provide an integrated approach to improving foot self-care practices among diabetic patients in Western Kenya. Through education, social support, personalized care, and collaboration with healthcare providers, these interventions aim to prevent diabetic foot complications, reduce hospitalizations, and improve the quality of life for patients managing diabetes.

4.6. Limitation of the study

Despite these positive outcomes, the study is weakened by its quasi-experimental design, which could have introduced selection bias and the convenience sampling method, which limits the generalizability of the findings.

4.7. Data analysis

The completed questionnaires were checked for errors and completeness, entered in Microsoft 2010 Excel, and subsequently analyzed with version 28 of the Statistical Package for the Social Sciences (SPSS Inc. Chicago). Raw data collected was analyzed by assigning numerical values to each response and entering them in a coding table. The numbers representing questionnaire responses were transferred to a code sheet to obtain quantitative results from the closed-ended questionnaires. Frequencies, means, range, and standard deviations were obtained.

ANOVA was used, and significant levels were evaluated. A regression model was also applied to determine whether peer support is effective for foot self-care practices in preventing diabetic foot complications.

All moderating variables were subjected to multiple regression model analysis to determine their effect on peer support for foot self-care practices in preventing diabetic foot complications.

Bivariate analysis of dependent and independent variables was done with p values less than or equal to 0.05 being considered significant.

Between arm differences and effect size were assessed. The effect of sociodemographic characteristics, disease-related aspects, and foot care perceptions on foot self-care practices based on the NAFF scores was also assessed. Secondary variables in the study included sociodemographic data and clinical characteristics of patients. The variables evaluated were age, gender, level of education, employment status, marital status, comorbidity, type of diabetes mellitus, and duration with diabetes mellitus.

5. Results

Table 1 shows the participants' sociodemographic characteristics and disease-related aspects of participants using descriptive analysis. The mean age of the participants was 51.7±10.9 years. Most individuals in the study were aged 50 or older, comprising 62 individuals (53.4%) in total, with 32(51.6%) in the intervention group and 30(48.4%) in the control group. In contrast, those under 50 years old were 54(46.6%), with 26(48.1%) in the intervention group and 28(51.9%) in the control group.

Female participants slightly outnumbered male participants, with 64 individuals (55.2%) in total,

comprising 34(53.1%) in the intervention group and 30 (46.9%) in the control group. The highest level of education represented was secondary education, with 51 participants (44.0%), followed by college-educated participants, at 34(32.8%). Primary education and advanced degree holders were less common, and the distribution across the intervention and control groups remained relatively even for all education levels.

The employed participants constituted the largest group, totaling 42(36.2%) individuals, with 26(61.9%) in the intervention group and 16(38.1%) in the control group. Business owners were 37 (31.9%), with 15 (40.5%) and 22 (59.5%) individuals in the control and intervention groups, respectively. On the other hand, retired and unemployed individuals were fairly evenly distributed across both arms.

The total number of married individuals totaled 84 (72.4%), and there was a near-even distribution across the study groups, with the control group having 45(53.6%) individuals, compared to 39(46.4%) in the intervention group. Single individuals were 8(6.9%), and they were more prevalent in the intervention group, with 6(75%) individuals.

Regarding medical data, 28.4% of the participants had comorbid conditions, 18(54.5%) in the intervention group and 15(45.5%) in the control group. Conversely, 71.6% of the participants had no comorbid conditions. Regarding Diabetes Mellitus types, 26.7% had type 1 diabetes totals, 54.8% in the intervention group, and 45.2% in the control group. Type 2 diabetes was most common, totaling 71 (61.2%), with 38(53.5%) in the control group and 33(46.5%) in the intervention group. Gestational diabetes had 1 case (0.9%), occurring in the control group, and late-onset type 1 diabetes totaled 13(11.2%), with 8(61.5%) in the intervention group and 5(38.5%) in the control group.

Finally, the mean number of years with diabetes was 10±7.3 years. Regarding the duration with DM, 50(43.1%) participants had diabetes for 15 years or less, with 25(50%) in each arm. Those with diabetes for more than 15 years total 66(56.9%), with 33(50%) in each arm.

Table 2 shows the analysis of the variance of foot self-care practices. Variance (ANOVA) analysis was conducted to investigate the relationship between foot self-care practices based on NAFF score and various studies and participants' characteristics. The study compared the foot care practices in the two different study groups: The intervention group and the control group. The mean foot care practices score in the intervention group was notably higher at 61.1(95% CI: 59.5-62.8) compared to the control group at 35.7(95% CI: 34.2-37.1). There was a significant difference between the study arms (F=444.7, P<0.001).

Among participants aged below 50, the mean foot care practices score was 47.4 (95% CI: 45.8 - 48.9), with a marginal difference between the two groups (F= 3.2, p=0.077, Partial Eta^2=0.036). Participants aged 50 or older showed a higher mean score of 50.3, emphasizing the subtle age-related variation.

Examining gender differences, female respondents had an average foot care practices score of 48.0 (95% CI: 46.5-49.6) as compared to male respondents showed a slightly higher mean score of 49.5 with marginal statistical difference (F=3.3, p=0.072, Partial Eta^2=0.036), reflecting the limited gender-based impact on foot care practices.

Further, participants with a primary level of education demonstrated a higher mean foot care practices score of 53.7(95% CI: 50.5–57). There was no significant difference in foot care practices between the level of education (F=0.2, p=0.913) with Partial Eta^2 of 0.005. However, participants with secondary education had a mean score of 47.5. Those with a college education scored 49.4, and participants with an advanced degree scored 49.6, each demonstrating a step-wise increase in foot care practice scores.

Table 3 shows the determinants of foot self-care practices. The study utilized the generalized linear model (GLM) to determine predictors of foot self-care practices based on the NAFF Score. The variables assessed included patient characteristics (sociodemographic characteristics and disease-related aspects). The analysis reveals that several factors, including study arm, level of education, and employment status, were significant predictors of foot care practices among diabetic patients. However, age group, gender, marital status, type of diabetes, duration with diabetes, and comorbidity were not statistically significant in determining foot care practices.

Table 4 demonstrates that logistic regression analysis was further used to assess foot care perceptions that significantly predict foot care practices based on the NAFF scores. Among the significant factors, participants who held a positive attitude toward foot care displayed a highly significant influence on foot care practices based on the total NAFF Score (p<0.001). Participants who self-evaluated their foot care practices were significantly influenced the NAFF scores (p=0.007). Conversely, several factors did not exhibit significant associations with foot care practices. These non-significant factors included participants who expressed that they received adequate information for foot care (p=0.442) and participants who stated they had adequate resources (p=0.798).

Table (1): Frequency and percentage distribution of patients sociodemographic and disease-related characteristics (n=116).

Participant characteristics	Intervention (n=58)		Control (n=58)		Total (n=116)	
	No.	%	No.	%	No.	%
Age Group (Years)						
<50	26	48.1	28	51.9	54	46.6
≥50	32	51.6	30	48.4	62	53.4
Gender						
Male	24	46.2	28	53.8	52	44.8
Female	34	53.1	30	46.9	64	55.2
Level of education						
Primary	7	58.3	5	41.7	12	10.3
Secondary	23	46.8	28	53.2	51	44.0
College	21	55.3	17	44.7	34	32.8
Advanced degree	7	46.7	8	53.3	25	12.9
Employment status						
Employed	26	61.9	16	38.1	42	36.2
Business	15	40.5	22	59.5	37	31.9
Retired	8	57.1	6	42.9	14	12.1
Unemployed	9	39.1	14	60.9	23	19.8
Marital status						
Married	39	46.4	45	53.6	84	72.4
Single	6	75	2	25	8	6.9
Divorced	4	50	4	50	8	6.9
Widowed	9	56.3	7	43.8	16	13.8
Comorbidity						
Yes	18	54.5	15	45.5	33	28.4
No	40	48.2	43	51.8	83	71.6
DM Type						
Type 1	17	54.8	14	45.2	31	26.7
Type 2	33	46.5	38	53.5	71	61.2
Gestational	0	0	1	100	1	0.9
Late-onset type 1	8	61.5	5	38.5	13	11.2
Duration with DM						
≤15 Years	25	50	25	50	50	43.1
>15 Years	33	50	33	50	66	56.9

DM: Diabetes Mellitus

Table (2): Comparison of foot self-care practice scores among the study and control groups (n=116).

Client aspects	N	Mean	95% CI of Mean	F	*P*-Value	Partial Eta^2
Arm						
Intervention	58	61.1	59.5-62.8	444.7	<0.001	0.840
Control group	58	35.7	34.2-37.1			
Marital status						
Married	84	48.7	46.3-49.4			
Single	8	43.6	39.8-42.9	3.0	0.086	0.032
Divorced	8	41.1	42.3-45.6			
Widowed	16	44.0	45.1-48.2			
Employment status						
Employed	42	45.9	45.1-48.2			
Business	37	42.8	41.7-45.0	2.4	0.194	0.003
Retired	14	41.6	40.9-42.7			
Unemployed	23	43.0	42.4 - 45.7			
Age Group (Years)						
<50	54	47.4	45.8-48.9	3.2	0.077	0.036
≥50	62	50.3	48.7-51.9			
Gender						
Female	64	48.0	46.5-49.6	3.3	0.072	0.036
Male	52	49.5	48-51.1			
Level of education						
Primary	12	53.7	50.5-57			
Secondary	51	47.5	47.3-50.1	0.2	0.913	0.005
College	38	49.4	45.1-49			
Advanced degree	15	49.6	44.2 - 48.6			

Table (3): Participants' characteristics as determinants of foot care practices.

Factor	B	95% CI	X^2	*P*-Value
Intercept	14.8	3.6–26.0	6.7	0.01
Study Arm				
Intervention	26.3	24.5-28.1	836.9	<0.001
Control (Ref)	0[a]			
Age group				
≥50	1.8	-0.4-4.1	2.7	0.103
<50 (Ref)	0[a]			
Gender				
Male	1.6	-0.1-3.3	3.3	0.071
Female (Ref)	0[a]			
Level of education				
Advanced degree	5.0	1.4-8.5	7.7	0.006
College	3.3	0.3-6.4	4.5	0.034
Secondary	3.1	0.2-6.0	4.4	0.036
Primary (Ref)	0[a]			
Employment				
Employed	5.2	1.5-8.9	7.7	0.006
Business	4.1	1.1-7.2	7.1	0.008
Retired	3.1	-0.5-6.7	2.9	0.088
Unemployed (Ref)	0[a]			
Marital Status				
Married	1.0	-2.5-4.5	0.3	0.567
Widowed	1.0	-3.3-5.2	0.2	0.649
Divorced	2.9	-1.8-7.6	1.4	0.232
Single (Ref)	0[a]			
Comorbidity				
No	0.5	-1.9-2.8	0.1	0.703
Yes (Ref)	0[a]			
DM Duration				
>10 years	1.7	-0.4-3.9	2.3	0.060
<10 years (Ref)	0[a]			
DM Type				
Type 1	8.8	-0.4-17.9	3.5	0.061
Type 2	9.9	0.9-18.9	4.7	0.131
Late-onset	7.6	-1.5-16.7	2.7	0.101
Gestational (Ref)	0[a]			

Dependent Variable: Total NAFF Score
a. Set to zero because this parameter is redundant, reference category.

Table (4): Foot care perceptions as determinants of foot care practices

Parameter group	No.	%	B	SE	95% CI	X^2	df	P Value
Intercept			34	2.1	29.8 - 38.1	258.4	1	<0.001
Foot care perceptions								
Has a positive attitude towards footcare								
Yes	102	58.6	10.5	2.7	5.2 - 15.8	15.2	1	<0.001
No	62	35.6	0[a]					
Foot care-related services from the hospital								
Yes	88	50.5	4.5	1.6	1.3 - 7.7	7.4	1	0.066
No	86	49.5	0[a]					
Adequate information								
Yes	124	71.3	1.1	1.4	-1.7 - 3.9	0.6	1	0.442
No	50	28.3	0[a]					
Adequate resources								
Yes	100	57.5	0.6	2.3	-4 - 5.2	0.1	1	0.798
No	74	42.5	0[a]					
Self-evaluation								
Yes	110	63.2	4.4	1.6	1.2 - 7.5	7.3	1	0.007
No	64	36.8%	0[a]					

Dependent Variable: Total NAFF Score
a. Set to zero because this parameter is redundant, reference category.
SE- Standard error
95% CI – for B
X^2 - Wald Chi-square
B - Estimated coefficients for each variable. Impact of each variable on the dependent variable compared to the reference category

6. Discussion

Peer support can enhance foot care behaviors in diabetic patients. Therefore, using people who successfully educate and support patients has a significant role, and nurses can use them as support in the field of care and follow-up. However, health agencies are responsible for providing patients with the best guidelines, and these results can be useful as evidence for them *(Ghasemi et al., 2021).* The study aimed to assess the effectiveness of peer support on foot self-care practices among diabetic patients in Western Kenya.

Participants' sociodemographic characteristics and disease-related aspects are essential for contextualizing the findings within the broader scope of diabetes management. The participants' age profile, predominantly middle-aged and older adults, aligns with the increased vulnerability to diabetes-related complications in this age group. Thus, the study was conducted in a population with the highest risk of foot complications. This finding equally ensured optimized benefits if the proposed intervention conferred protection against foot complications among diabetic patients. As such, research has shown that age-specific interventions guarantee optimal outcomes *(Rossboth et al., 2020).*

Most participants had attained secondary-level education, suggesting a moderate degree of health literacy, which is crucial for successful educational interventions in diabetes self-management *(Marciano et al., 2019).* Over a third of the participants were employed and had a higher representation in the intervention group. This result could occasion a potential variation in engagement with the intervention. *Nwobodo et al. (2023)* pointed out that employment can influence an individual's participation in health programs due to time constraints or work-related stress. Previous research has demonstrated a relationship between economic stability and diabetes outcomes *(Hill-Briggs et al., 2020).* The high proportion of married participants, linked to better health outcomes in chronic diseases due to potential spousal support, adds another layer to understanding participant dynamics that are key in interpreting the findings *(Gray et al., 2023).*

Regarding health status, the prevalence of comorbidities in nearly a third of the participants mirrors global trends of co-occurrence of chronic conditions in individuals with diabetes *(Nowakowska et al., 2019).* The prevalence of Type 2 diabetes, accounting for around two-thirds of the cases in our study, corresponds with the upward trend in the worldwide occurrence of type 2 diabetes compared to other types, notably in low- and middle-income nations *(Khan et al., 2017).*

The diverse range of diabetes duration observed among the study participants highlights the necessity for a multifaceted approach to diabetes management. This diversity could signify that the challenges and strategies involved in managing diabetes differ with the progression of the disease. It is important to note that the risk of foot complications increases with the duration of diabetes *(Rossboth et al., 2021).*

Effectiveness of peer support for foot self-care practices in the prevention of diabetic foot complications among patients in Western Kenya revealed by the significantly higher mean score in foot self-care practices among the intervention group compared to the control group with a substantial partial Eta reiterates the effectiveness of peer support in enhancing self-care practices. Peer support involves patients receiving assistance and encouragement from individuals with similar health conditions and experiences. This approach has been increasingly recognized for its effectiveness in improving health outcomes in chronic diseases, including diabetes, as shown by several other studies *(Aziz et al., 2018; Doull et al., 2017; Ghasemi et al., 2021; Thompson et al., 2022).*

There are diverse mechanisms by which peer support achieves this. These include sharing personal experiences and practical tips, emotional support, motivation through shared understanding, and creating a supportive community that understands the specific challenges of living with diabetes. These factors collectively contribute to better self-care practices, as individuals feel more understood, less isolated, and more equipped with practical strategies to manage their condition *(Fisher et al., 2017; Ghasemi et al., 2021; Yin et al., 2015).* Effective self-care practice is essential for managing diabetes, including monitoring blood glucose, medication adherence, physical activity, diet maintenance, and foot care to prevent complications. This self-care significantly improves glycemic control, reduces complications, and enhances overall quality of life *(Alodhayani et al., 2021; Gao et al., 2013; Maina et al., 2023).* Therefore, the results from the current study show that peer support plays a crucial role in promoting self-care by providing a platform for sharing knowledge and experiences, offering emotional and social support, and empowering individuals to manage their condition effectively. Other studies have shown that peer support contributes to better foot health among diabetic patients, especially when deliberate, structured efforts are put in place *(Tazangi et al., 2022; Wang et al., 2022).*

The study found that age-related variations in foot self-care practices were noteworthy, suggesting that peer support is equally effective across different age groups. Managing diabetes presents distinct challenges at different life stages. Younger individuals experience issues such as integrating diabetes management with an active lifestyle, career, or education. In contrast, older adults might grapple with comorbidities and the complexities of managing diabetes alongside other age-related health issues *(Beverly et al., 2014; Pandya et al., 2020).* The minimal variation in effectiveness across age groups implies that peer support strategies are adaptable and can address individuals' diverse needs and challenges at different life stages. However, studies have demonstrated better foot care among older patients, who were more conscious of their foot health than younger patients *(Sari et al., 2020; Tuha et al., 2021).*

The study shows that gender differences had a marginal impact on the effectiveness of peer support for foot self-care among participants resonates with broader research on diabetes self-management. Historically, there has been an assumption that gender plays a significant role in how individuals manage chronic illnesses like diabetes. However, recent studies indicate that the differences in self-management behaviors between genders are not as

pronounced as previously thought *(Burner et al., 2013).* This finding suggests that effective diabetes management strategies, including peer support, can be universally applied across genders. It also highlights the need for diabetes care programs to focus more on individual needs than broad gender-based assumptions *(Iregbu et al., 2023).*

Another significant finding from the current study is the higher scores in foot self-care practices among participants with primary education compared to other educational levels. This finding suggests that these peer support programs were uniquely adaptable to individuals with varying educational backgrounds, thus buttressing the perception that the intervention was simple, scalable, and one that could be understood even without a higher level of education, making it relevant to the general population.

Blanchette et al. (2022) emphasize the importance of adaptability in the success of diabetes interventions. The ability of peer support programs to effectively communicate and engage with individuals with varying health literacy and educational attainment levels is crucial. It ensures that the program goals are inclusive and can cater to a wider population, enhancing their overall impact *(Sharma & Khan, 2021).* The success of peer support in individuals with primary education could be attributed to the program's emphasis on practical, experiential knowledge rather than academic or technical information. This approach may resonate more with less formal education individuals, as it aligns more closely with their learning experiences and preferences. Additionally, peer support often involves sharing personal experiences and practical tips for managing diabetes, which can be more relatable and easier to understand and apply for individuals with varying educational levels. Previous studies have indicated that those with higher education tend to be less open to sharing personal experiences than those with lower education *(Haregu et al., 2023; Johansson et al., 2016).*

The NAFF score demonstrated sociodemographic variables such as education and employment status as determinants of foot self-care practices. As indicated by Partial Eta2, the effect sizes provide insights into the magnitude of these differences, contributing to our understanding of the relationships between these variables and foot care practices. This finding is supported by other research that reflects the understanding that sociodemographic factors have a bearing on health-seeking behavior *(Dey et al., 2022).* A study by *Nugent et al. (2023)* supports the notion that education level plays a significant role in diabetes self-management. Education influences an individual's health literacy, which refers to their ability to understand and apply health-related information. Individuals with lower education levels may struggle to comprehend the complexities of diabetes care recommendations, such as medication management, dietary choices, and blood glucose monitoring and their bearing on foot health *(Ahmed et al., 2019).* This knowledge gap can hinder their ability to effectively manage their condition.

Additionally, lower health literacy is associated with poorer health outcomes and increased healthcare utilization for diabetic clients *(Dahal & Hosseinzadeh, 2019).* Employment status is another important socioeconomic factor that can impact diabetes management. Individuals with stable employment often have better access to healthcare resources *(Hill-Briggs et al., 2020).* Employment may provide health insurance coverage, which can be critical for financial access to necessary medications, regular check-ups, and diabetes-related medical technologies *(Chin et al., 2007).* Moreover, individuals with full-time jobs may have more flexible schedules to accommodate medical appointments and self-care routines *(Sari et al., 2020).* On the other hand, unemployment can limit access to health resources, making it challenging for individuals to maintain consistent self-care practices and manage their diabetes effectively *(Ahmed et al., 2019).*

Regarding foot care perceptions, including attitudes toward foot care, evaluation of foot care, and foot care beliefs, the current study did not reveal a significant association between most of these factors. These findings provide valuable insights into the factors contributing to variations in the foot care practices based on the NAFF scores among participants, with particular attention to the substantial influence of a positive attitude toward foot care and self-evaluation.

Previous research has consistently highlighted the importance of these elements in effective diabetes management *(Ayele et al., 2012; Gulentie et al., 2020; Helgeson et al., 2009; Rana et al., 2022). Helgeson et al. (2009)* and *Rana et al. (2022)* demonstrate how psychological factors, including attitudes and beliefs about diabetes, can significantly impact self-management behaviors. These studies emphasize that psychological factors, such as attitudes, beliefs, and perceptions about diabetes, are pivotal in shaping self-management behaviors among individuals with diabetes. A positive attitude toward foot care will likely enhance engagement with self-care practices, leading to better health outcomes. When individuals hold positive beliefs and perceptions about the significance of foot care in diabetes management, they are more inclined to prioritize foot health and adhere to recommended foot care practices. Conversely, negative attitudes or misconceptions about foot care may hinder self-care efforts, potentially increasing the risk of foot neglect and developing diabetic foot complications *(Helgeson et al., 2009; Rana et al., 2022).*

7. Conclusion

Peer support significantly improved foot self-care practices among patients in the intervention group compared to the control groups. Positive predictors of better foot care practices included a positive attitude towards foot care, self-evaluation of foot care practices, employment status, and level of education.

8. Recommendations

Health institutions should incorporate peer support programs in diabetes care settings: Based on the study's findings, it is recommended to integrate peer support programs into diabetes care settings to improve foot self-care practices. These programs should promote a positive attitude toward foot care and self-evaluation.

Ultimately, future randomized controlled trials with larger sample sizes and diverse populations must validate the findings. However, as discussed, peer support's impact on diabetes-related complications (especially foot care) is crucial. Applying peer support over the long term could help forestall many of these complications.

9. References

Achoki, T., Miller-Petrie, M. K., Glenn, S. D., Kalra, N., Lesego, A., Gathecha, G. K., Alam, U., Kiarie, H. W., Maina, I. W., Adetifa, I. M. O., Barsosio, H. C., Degfie, T. T., Keiyoro, P. N., Kiirithio, D. N., Kinfu, Y., Kinyoki, D. K., Kisia, J. M., Krish, V. S., Lagat, A. K., Mooney, M. D., … Naghavi, M. (2019). Health disparities across the counties of Kenya and implications for policymakers, 1990–2016: A systematic analysis for the Global Burden of Disease Study 2016. *The Lancet Global Health, 7*(1), e81-e95. https://doi.org/10.1016/S2214-109X(18)30472-8

Ahmed, S. A., Badi, S., Tahir, H., Ahmed, M. H., & Almobarak, A. O. (2019). Knowledge and practice of diabetic foot care in Sudan: A cross-sectional survey. *Diabetes & Metabolic Syndrome, 13*(4), 2431–2435. https://doi.org/10.1016/J.DSX.2019.06.016

Alodhayani, A., Almutairi, K. M., Vinluan, J. M., Almigbal, T. H., Alonazi, W. B., Ali Batais, M., & Mohammed Alnassar, M. (2021). Association between self-care management practices and glycemic control of patients with type 2 diabetes mellitus in Saud Arabia: A cross-sectional study. *Saudi Journal of Biological Sciences*, *28*(4), 2460–2465. https://doi.org/10.1016/J.SJBS.2021.01.047

Amin, N., & Doupis, J. (2016). Diabetic foot disease: From the evaluation of the 'foot at risk' to the novel diabetic ulcer treatment modalities. *World Journal of Diabetes, 7*(7), 153-164. https://doi.org/10.4239/wjd.v7.i7.153

Armstrong, D. G., Boulton, A. J. M., & Bus, S. A. (2017). Diabetic foot ulcers and their recurrence. *New England Journal of Medicine, 376*(24), 2367–2375. https://doi.org/10.1056/NEJMra1615439

Ayele, K., Tesfa, B., Abebe, L., Tilahun, T., & Girma, E. (2012). Self-care behavior among patients with diabetes in Harari, Eastern Ethiopia: The health belief model perspective. *PLoS One, 7*(4), e35515. https://doi.org/10.1371/journal.pone.0035515

Aziz, Z., Riddell, M. A., Absetz, P., Brand, M., Oldenburg, B., & Australasian Peers for Progress Diabetes Project Investigators (2018). Peer support to improve diabetes care: An implementation evaluation of the Australasian Peers for Progress Diabetes Program. *BMC Public Health, 18*(1), 262. https://doi.org/10.1186/S12889-018-5148-8

Beverly, E. A., Wray, L. A., Chiu, C. H., & Lacoe, C. L. (2014). Older adults' perceived challenges with health care providers treating their type 2 diabetes and comorbid conditions. *Clinical Diabetes: The American Diabetes Association, 32*(1), 12–17. https://doi.org/10.2337/DIACLIN.32.1.12

Blanchette, J. E., Aaron, S. P., Allen, N. A., & Litchman, M. L. (2022). Equity in the provision of diabetes self-management education and support. *Diabetes Spectrum, 35*(3), 284–294. https://doi.org/10.2337/DSI22-0005

Burner, E., Menchine, M., Taylor, E., & Arora, S. (2013). Gender differences in diabetes self-management: A mixed-methods analysis of a mobile health intervention for inner-city Latino patients. *Journal of Diabetes Science and Technology, 7*(1), 111–118. https://doi.org/10.1177/193229681300700113

Bus, S. A., van Netten, J. J., Lavery, L. A., Monteiro-Soares, M., Rasmussen, A., Jubiz, Y., Price, P. E. & International Working Group on the Diabetic Foot (2016). IWGDF guidance on the prevention of foot ulcers in at-risk patients with diabetes. *Diabetes/Metabolism Research and Reviews, 32*(S1), 16-24. https://doi.org/10.1002/dmrr.2696

Charan, J., & Biswas, T. (2013). How to calculate sample size for different study designs in medical research? *Indian Journal of Psychological Medicine, 35*(2), 121–126. https://doi.org/10.4103/0253-7176.116232

Chin, M. H., Walters, A. E., Cook, S. C., & Huang, E. S. (2007). Interventions to reduce racial and ethnic disparities in health care. *Medical Care Research and Review: MCRR, 64*(5 suppl), 7S-28S. https://doi.org/10.1177/1077558707305413

Creswell, J. W. (2013). Research design: Qualitative, quantitative, and mixed methods approaches. 4th ed. SAGE Publications, Inc., London.

Dahal, P. K., & Hosseinzadeh, H. (2019). Association of health literacy and diabetes self-management: A systematic review. *Australian Journal of Primary Health*, *25*(6), 526–533. https://doi.org/10.1071/PY19007

Debussche, X., Besançon, S., Balcou-Debussche, M., Ferdynus, C., Delisle, H., Huiart, L., & Sidibe, A. T. (2018). Structured peer-led diabetes self-management and support in a low-income country: The ST2EP randomized controlled trial in Mali. *PLoS One, 13*(1), e0191262. https://doi.org/10.1371/journal.pone.0191262

Dey, S., Mukherjee, A., Pati, M. K., Kar, A., Ramanaik, S., Pujar, A., Malve, V., Mohan, H. L., Jayanna, K., & Swaroop, N. (2022). Sociodemographic, behavioral and clinical factors influencing control of diabetes and hypertension in urban Mysore, South India: A mixed-method study conducted in 2018. *Archives of Public Health, 80*(1), 1–15. https://doi.org/10.1186/S13690-022-00996-Y

Doull, M., O'Connor, A. M., Welch, V., Tugwell, P., & Wells, G. A. (2017). Peer support strategies for improving the health and well-being of individuals with chronic diseases. *Cochrane Database of Systematic Reviews*, 2017(6), CD005352. https://doi.org/10.1002/14651858.CD005352.pub2

Ezhumalai, S., Muralidhar, D., Dhanasekarapandian, R., & Nikketha, B. S. (2018). Group interventions. *Indian Journal of Psychiatry, 60*(Suppl 4), S514-S521. https://doi.org/10.4103/psychiatry.IndianJPsychiatry_42_18

Fisher, E. B., Boothroyd, R. I., Elstad, E. A., Hays, L., Henes, A., Maslow, G. R., & Velicer, C. (2017). Peer

support of complex health behaviors in prevention and disease management with special reference to diabetes: Systematic reviews. *Clinical Diabetes and Endocrinology, 3*(1), 4. https://doi.org/10.1186/s40842-017-0042-3

Gao, J., Wang, J., Zheng, P., Haardörfer, R., Kegler, M. C., Zhu, Y., & Fu, H. (2013). Effects of self-care, self-efficacy, social support on glycemic control in adults with type 2 diabetes. *BMC Family Practice*, *14*(1), 66. https://doi.org/10.1186/1471-2296-14-66

Ghasemi, Z., Yousefi, H., & Torabikhah, M. (2021). The effect of peer support on foot care in patients with type 2 diabetes. *Iranian Journal of Nursing and Midwifery Research*, *26*(4), 303–309. https://doi.org/10.4103/ijnmr.IJNMR_163_18

Gobeil-Lavoie, A. P., Chouinard, M. C., Danish, A., & Hudon, C. (2019). Characteristics of self-management among patients with complex health needs: A thematic analysis review. *MBJ Open, 9*(5), e028344. https://doi.org/10.1136/bmjopen-2018-028344

Gray, K. E., Silvestrini, M., Ma, E. W., Nelson, K. M., Bastian, L. A., & Voils, C. I. (2023). Gender differences in social support for diabetes self-management: A qualitative study among veterans. *Patient Education and Counseling*, *107*. https://doi.org/10.1016/j.pec.2022.107578

Gulentie, T. M., Yesuf, E. M., Yazie, T. S., & Kefale, B. (2020). Predictors of diabetes self-care practice among patients with type 2 diabetes in public hospitals in Northeastern Ethiopia: A facility-based cross-sectional study. *Diabetes, Metabolic Syndrome and Obesity: Targets and Therapy*, *13*, 3137-3147. https://doi.org/10.2147/DMSO.S273682

Hailu, F. B., Moen, A., & Hjortdahl, P. (2019). Diabetes self-management education (DSME) - Effect on knowledge, self-care behavior, and self-efficacy among type 2 diabetes patients in Ethiopia: A Controlled clinical trial. *Diabetes, Metabolic Syndrome and Obesity: Targets and Therapy*, *12*, 2489–2499. https://doi.org/10.2147/DMSO.S223123

Haregu, T., Aziz, Z., Cao, Y., Sathish, T., Thankappan, K. R., Panniyammakal, J., Absetz, P., Mathews, E., Balachandran, S., Fisher, E. B., & Oldenburg, B. (2023). A peer support program results in greater health benefits for peer leaders than other participants: Evidence from the Kerala diabetes prevention program. *BMC Public Health*, *23*(1), 1175. https://doi.org/10.1186/S12889-023-16049-0

Helgeson, V. S., Lopez, L. C., & Kamarck, T. (2009). Peer relationships and diabetes: Retrospective and ecological momentary assessment approaches. *Health Psychology: Official Journal of The Division of Health Psychology, American Psychological Association, 28*(3), 273–282. https://doi.org/10.1037/a0013784

Hill-Briggs, F., Adler, N. E., Berkowitz, S. A., Chin, M. H., Gary-Webb, T. L., Navas-Acien, A., Thornton, P. L., & Haire-Joshu, D. (2020). Social determinants of health and diabetes: A scientific review. *Diabetes Care*, *44*(1), 258–279. https://doi.org/10.2337/DCI20-0053

International Diabetes Federation. (2017). IDF Diabetes Atlas. 8th Edition. International Diabetes Federation. Brussels. http://www.diabetesatlas.org/resources/2017-atlas.html

Iregbu, S., Spiers, J., Duggleby, W., Salami, B., & Schick-Makaroff, K. (2023). Nigerian health care providers and diabetes self-management support: Their perspectives and practices. *Qualitative Health Research*, *33*(1–2), 92-105. https://doi.org/10.1177/10497323221143889

Johansson, T., Keller, S., Winkler, H., Ostermann, T., Weitgasser, R., & Sönnichsen, A. C. (2016). Effectiveness of a peer support program Programme versus Usual Care in Disease Management of Diabetes Mellitus Type 2 regarding Improvement of Metabolic Control: A Cluster-Randomised Controlled Trial. *Journal of Diabetes Research*, *2016*, 3248547. https://doi.org/10.1155/2016/3248547

Jupiter, D. C., Thorud, J. C., Buckley, C. J., & Shibuya, N. (2016). The impact of foot ulceration and amputation on mortality in diabetic patients. I: From ulceration to death, a systematic review. *International Wound Journal*, *13*(5), 892–903. https://doi.org/10.1111/IWJ.12404

Kasiya, M. M., Mang'anda, G. D., Heyes, S., Kachapila, R., Kaduya, L., Chilamba, J., Goodson, P., Chalulu, K., & Allain, T. J. (2017). The challenge of diabetic foot care: Review of the literature and experience at Queen Elizabeth Central Hospital in Blantyre, Malawi. *Malawi Medical Journal: The Journal of Medical Association of Malawi*, *29*(2), 218–223. https://doi.org/10.4314/MMJ.V29I2.26

Khan, Y., Khan, M. M., & Farooqui, M. R. (2017). Diabetic foot ulcers: A review of current management. *International Journal of Research in Medical Sciences*, *5*(11), 4683–4689. https://doi.org/10.18203/2320-6012.ijrms20174916

Mahlke, C. I., Krämer, U. M., Becker, T., & Bock, T. (2014). Peer support in mental health services. *Current Opinion in Psychiatry, 27*(4), 276–281. https://doi.org/10.1097/YCO.0000000000000074

Maina, P. M., Pienaar, M., & Reid, M. (2023). Self-management practices for preventing complications of type II diabetes mellitus in low and middle-income countries: A scoping review. *International Journal of Nursing Studies Advances*, *5*, 100136. https://doi.org/10.1016/J.IJNSA.2023.100136

Marciano, L., Camerini, A. L., & Schulz, P. J. (2019). The role of health literacy in diabetes knowledge, self-care, and glycemic control: A meta-analysis. *Journal of General Internal Medicine*, *34*(6), 1007–1017. https://doi.org/10.1007/S11606-019-04832-Y

Mohebi, S., Parham, M., Sharifirad, G., Gharlipour, Z., Mohammadbeigi, A., & Rajati, F. (2018). Relationship between perceived social support and self-care behavior in type 2 diabetics: A cross-sectional study. *Journal of Education and Health Promotion*, *7*(1), 48. https://doi.org/10.4103/JEHP.JEHP_73_17

Mugenda, O. M., & Mugenda, A. G. (2003). *Research methods, quantitative and qualitative approaches.* ACTS Press, Nairobi, Kenya.

Nowakowska, M., Zghebi, S. S., Ashcroft, D. M., Buchan, I., Chew-Graham, C., Holt, T., Mallen, C., Van Marwijk, H., Peek, N., Perera-Salazar, R., Reeves, D., Rutter, M. K., Weng, S. F., Qureshi, N., Mamas, M. A., & Kontopantelis, E. (2019). The comorbidity burden of type 2 diabetes mellitus: Patterns, clusters, and predictions from a large English primary care cohort. *BMC Medicine*, *17*(1), 145. https://doi.org/10.1186/S12916-019-1373-Y

Nugent, T. L., Galea, A. M., & Sammut, R. (2023). Health literacy, self-management and glycaemic control in persons living with type 2 diabetes mellitus: A cross-sectional study. *Practical Diabetes*, *40*(4), 28–34. https://doi.org/10.1002/PDI.2467

Nwobodo, E. P., Strukcinskiene, B., Razbadauskas, A., Grigoliene, R., & Agostinis-Sobrinho, C. (2023). Stress management in healthcare organizations: The Nigerian context. *Healthcare Basel, Switzerland), 11*(21). https://doi.org/10.3390/HEALTHCARE11212815

Pandya, N., Hames, E., & Sandhu, S. (2020). Challenges and strategies for managing diabetes in the elderly in long-term care settings. *Diabetes Spectrum, 33*(3), 236–245. https://doi.org/10.2337/ds20-0018

Polit, D., & Beck, C. (2022). *Essentials of nursing research: Appraising evidence for nursing practice*. Wolters Kluwer.

Rana, D., Kumar, R., & Kant, R. (2022). Psychological predictors of adherence to self-care behavior amongst patients with type 2 diabetes mellitus (T2DM) visiting public hospital, North India. *Indian Journal of Endocrinology and Metabolism*, *26*(6), 558–564. https://doi.org/10.4103/IJEM.IJEM_116_22

Rossboth, S., Lechleitner, M., & Oberaigner, W. (2020). Risk factors for diabetic foot complications in type 2 diabetes—A systematic review. *Endocrinology, Diabetes & Metabolism, 4*(1), e00175. https://doi.org/10.1002/edm2.175

Rossboth, S., Rossboth, B., Schoenherr, H., Lechleitner, M., & Oberaigner, W. (2021). Risk factors for diabetic foot complications among patients with type 2 diabetes in Austria – A registry-based retrospective cohort study. *Endocrinology, Diabetes & Metabolism, 4*(4), e00286. https://doi.org/10.1002/edm2.286

Sari, Y., Upoyo, A. S., Isworo, A., Taufik, A., Sumeru, A., Anandari, D., & Sutrisna, E. (2020). Foot self-care behavior and its predictors in diabetic patients in Indonesia. *BMC Research Notes, 13*(1), 38. https://doi.org/10.1186/S13104-020-4903-Y

Sharma, N. D., & Khan, W. (2021). Effects of a longitudinal peer to peer support group foot care intervention program in a prospective cohort of patients with diabetes mellitus. *Endocrine and Metabolic Science*, *4*, 100–104. https://doi.org/10.1016/J.ENDMTS.2021.100104

Sipilä, J., Mäkelä, A. M., Hyytiä, S., & Stolt, M. (2023). How to measure foot self-care? A methodological review of instruments. *Journal of Personalized Medicine, 13*(3), 434. https://doi.org/10.3390/jpm13030434

Tazangi, R. M., Bijani, M., Karimi, S., Naghizadeh, M. M., Jeihooni, A. K., & Rahimzahedi, M. (2022). The effect of peer group-based training using health belief model on quality of life and foot ulcer self-care behavior in patients with type 2 diabetes: A randomized controlled clinical trial. *Clinical Diabetology*, *11*(4), 251–261. https://doi.org/10.5603/DK.a2022.0031

Thompson, D. M., Booth, L., Moore, D., & Mathers, J. (2022). Peer support for people with chronic conditions: A systematic review of reviews. *BMC Health Services Research*, *22*(1), 427. https://doi.org/10.1186/S12913-022-07816-7/TABLES/5

Tuha, A., Faris, A. G., Andualem, A., & Mohammed, S. A. (2021). Knowledge and practice on diabetic foot self-care and associated factors among diabetic patients at Dessie Referral Hospital, Northeast Ethiopia: Mixed Method. *Diabetes, Metabolic Syndrome and Obesity: Targets and Therapy*, *14*, 1203–1214. https://doi.org/10.2147/DMSO.S300275

Wang, Y., Pei, L., Wang, M., Sun, S., Wang, S., & Zhang, Q. (2022). Effect of peer support on adults with diabetes-related peripheral neuropathy. *Patient Education and Counseling*, *105*(4), 828–834. https://doi.org/10.1016/J.PEC.2021.07.047

Wukich, D. K., Ahn, J., Raspovic, K. M., Gottschalk, F. A., La Fontaine, J., & Lavery, L. A. (2017). Comparison of transtibial amputations in diabetic patients with and without end-stage renal disease. *Foot & Ankle International*, *38*(4), 388–396. https://doi.org/10.1177/1071100716688073

Yin, J., Wong, R., Au, S., Chung, H., Lau, M., Lin, L., Tsang, C., Lau, K., Ozaki, R., So, W., Ko, G., Luk, A., Yeung, R., & Chan, J. C. (2015). Effects of providing peer support on diabetes management in people with type 2 diabetes. *Annals of Family Medicine*, *13*(Suppl 1), S42-S49. https://doi.org/10.1370/AFM.1853

Zhang, P., Lu, J., Jing, Y., Tang, S., Zhu, D., & Bi, Y. (2017). Global epidemiology of diabetic foot ulceration: A systematic review and meta-analysis. *Annals of Medicine, 49*(2), 106–116. https://doi.org/10.1080/07853890.2016.1231932