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# A Comprehensive Assessment of Diabetic Foot Care Knowledge among Nursing Undergraduates

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**ABSTRACT**

**Background:** Diabetes mellitus constantly results in diabetic bottom, which can beget ulcers, infections, and amputations. In terms of patient education and diabetic bottom forestallment, nursers are pivotal. **Objective:** A Comprehensive Assessment of Diabetic Foot Care Knowledge among Nursing Undergraduates, Assessing the Proficiency of Nursing scholars in Diabetic Foot Care Management **Methodology:** 200 nursing scholars at Green International University Lahore shared in a descriptive cross-sectional study that used a structured questionnaire. Data analysis was done with SPSS interpretation 25. **Results:** Every party was womanish and utmost were between the periods of 15 and 20. Nursing scholars' total mean knowledge score was 0.43±0.496, showing a lack of understanding about diabetic bottom care. **Conclusion:** In summary, nursing scholars showed a lack of understanding about diabetic bottom forestallment and operation.To advance clinical practices and understanding, educational shops and hands- on training are advised.

## Introduction

One of the habitual conditions with the fastest global growth, diabetes mellitus has surfaced as a significant public health concern in both industrialized and developing nations. Elevated blood glucose situations brought on by scarcities in insulin stashing, action, or both characterize this metabolic complaint. Global health data show that changes in life, bad eating habits, rotundity, inactivity, and population aging have all contributed to a sharp rise in the frequence of diabetes over the once many

decades. presently, millions of individualities have diabetes, and in the forthcoming times, this figure is prognosticated to climb dramatically. Diabetes is linked to serious long- term problems that lower quality of life and raise healthcare charges, in addition to its rising frequence. One of the most dangerous and incapacitating ails affecting diabetes people is diabetic bottom (Alaamri & Alhofaian, 2022).

One common consequence of long- term undressed diabetes mellitus is diabetic bottom. supplemental neuropathy, poor blood rotation, and vascular dysfunction are the main causes of its development. habitual hyperglycemia affects blood highways and jitters, performing in dropped blood inflow, delayed crack mending, loss of feeling in the bases, and heightened vulnerability to infections. impassiveness, chinking, soreness, skin abrasion, swelling, ulceration, and pus discharge are among the symptoms that cases with diabetic bottom may encounter. Diabetic bottom issues can develop into serious infections, gangrene, and lower branch amputations if applicable care and treatment are not given at an early stage. Diabetic bottom is one of the most serious and enervating conditions that persecute people with diabetes (Hidalgo- Ruiz et al., 2023).

Diabetic bottom is a typical side effect of long- term unbridled diabetes mellitus. Its development is substantially caused by supplemental neuropathy, poor blood rotation, and vascular dysfunction. Reduced blood inflow, delayed crack mending, loss of feeling in the bases, and increased vulnerability to infections are all consequences of habitual hyperglycemia's goods on blood vessels and neurons. Cases with diabetes bottom may have impassiveness, chinking, discomfort, skin abrasion, edema, ulceration, and pus discharge, among other symptoms. However, diabetic bottom problems can progress to serious infections, gangrene, if proper care and treatment are not handed in at an early stage. Accordingly, it's pivotal to avoid and treat diabetic bottom issues as soon as possible (Hasan et al., 2026).

To help, diagnose, and treat diabetic bottom issues, nurses are essential. They're frontal- line medical professionals who work nearly with cases to give care and education. nursers give diabetic cases with education on blood glucose operation, smoking conclusion, applicable footwear, diurnal bottom examinations, and bottom cleaning. Frequent evaluation by nursers can prop in the early discovery of symptoms similar infections, skin discoloration, ulcers, and loss of feeling. The threat of serious complications and amputations can be vastly dropped with early discovery and prompt intervention. According to exploration, routine bottom assessments, applicable patient education, and substantiation- grounded nursing care ways can help up to 75 of diabetic bottom ulcers. (Björk et al., 2025).

Former exploration has shown that nurses and nursing scholars have substantial knowledge gaps regarding the operation of diabetic bottom. Despite having favorable views on managing diabetic bases, numerous nursing scholars demanded acceptable understanding about diabetic ulcer treatment, according to an Indonesian study. In an analogous tone, studies carried out in Vietnam discovered that nursers demanded specific training in managing diabetic ulcers and injuries. According to a different Saudi Arabian study, nursers showed a moderate position of theoretical understanding about diabetic bottom care, but there was disagreement in patient education and practical evaluation. These results punctuate the need for better nursing education programs and hands- on training in diabetic bottom treatment and forestallment.

Due to its fast-rising frequence and affiliated problems, diabetes mellitus has surfaced as a serious global health concern. The frequence of diabetes among individualities aged 20 to 79 was read to reach 10.5 encyclopedically in 2021, affecting over 536.6 million people. By 2045, this number is anticipated to rise to 783.2 million. Diabetic bottom ulcers are among the most dangerous and precious of the numerous problems associated with diabetes. An estimated 6.3 of people worldwide have diabetic bottom ulcers, compared to 5.5 in Asian nations (Hasan et al., 2026).

The thing of the current study was to determine how important nursing scholars at Green International University Lahore knew about diabetic bottom care and forestallment. The results of this study will demonstrate the value of educational interventions, shops, and hands- on training programs while also aiding in relating knowledge gaps among scholars. Enhancing nursing scholars' understanding and proficiency in diabetic bottom care will help enhance patient education, identify issues beforehand, and give diabetes cases with advanced- quality medical treatment.

**Objectives of the Study**

1. A Comprehensive Assessment of Diabetic Foot Care Knowledge among Nursing Undergraduates
2. Evaluating the Proficiency of Nursing Students in Diabetic Foot Care Management

## Material and Methods

Nursing scholars' understanding of diabetic bottom care and forestallment was estimated using a descriptive cross-sectional study methodology. The study was carried out at Green International University Lahore's academy of Nursing.

Nursing scholars enrolled in the BSN program made up the target population. A straightforward arbitrary slice strategy was used to enroll a sample size of 200 nursing undergraduates. Slovin's formula was used to determine the sample size.

$N = n/ (1 Ne^{2})$

Where

n is the sample size.

$N = n / (1 + Ne^2)$

n= 400 / (1+ (400) (0.05)2

n= 400 / 2

n= 200

Where:

n is the sample size.

N is the population size, while e is the error margin.

**Inclusion Criteria**

- Included were nursing students in their second and third years of the BSN program.
- We recruited students who were willing to take part in the study.
- Included were students working in clinical settings pertaining to the treatment of diabetes patients.

**Exclusion Criteria**

- Nursing students in their first and fourth years were not included.
- Students who refused to take part were not allowed to participate.
- Male nursing students were excluded from this study.

The rules and regulations set by the exploration ethical commission (REC) of The Green International University were followed while conducting the exploration and the rights of exploration actors were admired. authorization was taken from medical supervisor and star of academy of Nursing. Written informed concurrence was taken from all the actors. All information and data collection was kept nonpublic. Actors were kept anonymous throughout the study. Data for knowledge regarding diabetic bottom care among nursing scholars was collected by tone- administered questionnaire. The questionnaire was distributed to all actors, and they were asked to complete it according to their knowledge and practice. Actors were signed grounded on their amenability with the help of a written informed concurrence. The filled questionnaires were collected and reused for the data analysis.

## Results

The maturity of repliers, or 95 (n = 190) of the entire sample, were between the periods of 15 and 20, according to the study actors' demographic data. There were no actors in the 25 – 30 age group, and only 5 (n = 10) of actors were in the 20 – 25 age group. (n = 200) of the study's replies were womanish. In terms of connubial status, every party — 100 of the repliers was single. 65 (n = 130) of the actors were from pastoral areas, while 35 (n = 70) were from metropolitan areas. These findings suggest that youthful, single womanish scholars from pastoral backgrounds made up the maturity of the study population. The maturity of actors had clinical exposure in medical- surgical installations, according to the data. Overall, the demographics show a homogeneous study sample applicable for assessing nursing-affiliated practices and knowledge.

Overall, the demographics show a homogeneous study sample appropriate for evaluating nursing-related practices and knowledge.

**Demographic Characteristics**

**Tables 1: Demographic Characteristics of Participants (n=200).**

| Variables | F | Percentage % |
|---|---|---|
| Age in Years | | |
| 15-20 | 190 | 95.0 |
| 20-25 | 10 | 5.0 |
| 25-30 | 0 | 0 |
| Gender | | |
| Male | 0 | 0 |
| Female | 200 | 100.0 |
| Marital status | | |
| Married | 0 | 0 |
| Un-married | 200 | 100.0 |
| Residence | | |
| Rural area | 130 | 65.0 |
| Urban area | 70 | 35.0 |
| Current clinical placement/ Ward | | |
| Medical-Surgical | 86 | 43.0 |
| ICU | 40 | 20.0 |
| Others | 74 | 37.0 |
| Years of Education | | |
| 1 year | 2 | 1.0 |
| 2 years | 100 | 50.0 |
| 3 years | 98 | 49.0 |

**Table 2: Descriptive Statistics of Knowledge**

According to the descriptive data, the average party only duly answered 43 of the examinations, with a mean knowledge score of 0.43. The sample's knowledge situations are veritably inconsistent, with individual scores ranging from 0 to 1 with a standard divagation of 0.496. This information highlights a significant knowledge gap in diabetic bottom care, emphasizing the pressing need for focused educational outreach.

| Sr no. | Mean | St. deviation | Maximum | Minimum |
|---|---|---|---|---|
| Knowledge | 0.43 | 0.496 | 1 | 0 |

**Table 3: Chi square test**

The chi-square test produced a non-significant result with a value of 0.0 with 1 degree of freedom. Since the null thesis could n't be rejected, this suggests that there's no statistically significant association between the variables under disquisition. Because p-values must technically fall between 0 and 1, the table's p- value of 1.888 seems to be a pastoral error.

| Test | Value | Df | P |
|---|---|---|---|
| Chi square | 0.0 | 1 | 1.888 |

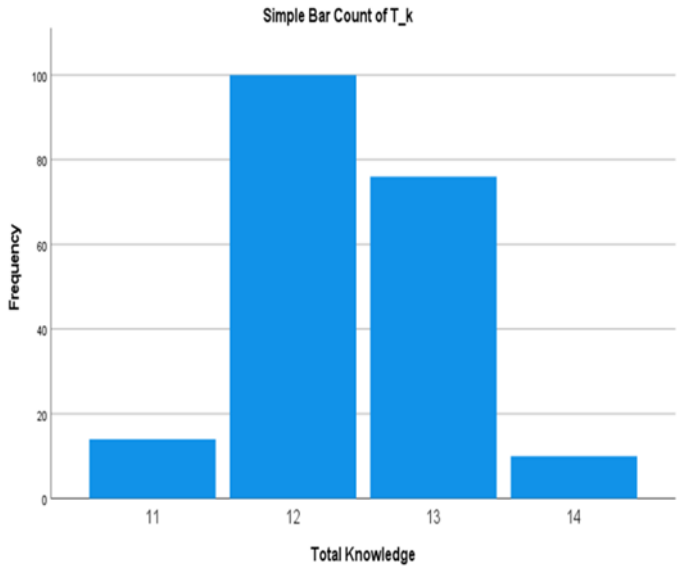
The association between gender and knowledge level was tested using the chi-square test.

The result showed $\chi^2 = 0.0$, $p = 1.0$.

**Graphical Presentation**

The "Simple Bar Count of Total Knowledge," a bar graph, shows how the 200 nursing students who participated in the survey distributed their knowledge scores. A concentrated level of moderate knowledge among the sample was indicated by the majority of individuals receiving a score of 12, closely followed by a score of 13.

**Figure 1: Distribution of Knowledge Scores**




Conversely, much fewer students achieved the highest score of 14 or the lowest score of 11. These findings show that students' knowledge of diabetic foot care is comparatively uniform.

## Discussion

The current study evaluated nursing students' understanding of diabetic foot prevention and management at Green International University in Lahore. Students' understanding of diabetic foot care was found to be modest to low. These findings contrast with those of Hassan K. Abdulwassi's study, in which medical students showed greater levels of diabetic foot treatment expertise. Most students accurately identified diabetic foot risk factors and preventative methods, according to the Saudi study. Some students in the current study had insufficient knowledge about foot care procedures and symptoms. The significance of clinical exposure and educational instruction was emphasised in both trials. Students' knowledge and abilities are enhanced via hands-on experience and patient engagement. To increase nursing students' understanding of diabetic foot care, educational workshops and clinical training programs should be reinforced (Abdulwassi et al., 2020)

To improve preventative care standards, concentrate on evaluating nursing undergraduates' understanding of diabetic foot care (DFC). This academic goal is in line with the empirical results, which showed that although 63% of patients have a solid understanding of DFC, only 49% of them really use it effectively. The prevalence of diabetic foot ulcers (DFUs) is 8.7%, indicating a negative association between patient knowledge and actual practice. It also emphasises how important risk variables, such male gender, type 1 diabetes, comorbidity, and a longer duration of diabetes, can speed up the development of ulcers. The importance of the students' idea is highlighted by this clinical gap. In the end, the Ghanaian cross-sectional study demonstrates the urgent need for planned educational interventions run by qualified nursing experts to close the gap between patient awareness and lifetime self-care compliance. (Tuglo et al., 2022)

It's insolvable to overrate the practical ramifications of similar pervasive knowledge gaps among nursing scholars. One of the most crippling goods of diabetes is diabetic bottom issues, which constantly lead to extended sanitarium stays and a heavy fiscal cargo on the healthcare system. The nanny 's function as a frontline preceptor and clinical assessor becomes indeed more pivotal in Pakistan, where coffers are constantly scarce. The chance for early intervention is missed if primary caregivers are unfit to honor early pointers of neuropathy or vascular impairment. This constantly results in a course of treatment that requires surgery and causes long- term impairment. This is corroborated by the literature analysis, which notes that nursers who admit specialized training in diabetic operation and crack care parade noticeably better case issues than those who only admit standard nursing education.

The study also clarifies the social and cerebral angles of diabetic bottom care. It's possible that numerous cases in the community are ignorant about the troubles of walking barefoot or the significance of routine bottom examinations. The nanny 's job is to convert complicated medical knowledge into practical guidance for the case. still, the quality of patient education will inescapably decline if the nanny 's own knowledge mean is 0.43. There's a" knowledge- practice gap" that needs to be filled during the council times between understanding the troubles of diabetes and knowing precisely how to check a bottom for subclinical infections. According to Green International University's results, the current pedagogical approach may be exorbitantly preoccupied with theoretical sundries rather than the clinical capacities demanded to manage habitual conditions.

To improve clinical education standards, the undergraduate nursing research proposal assesses students' knowledge of diabetic foot care (DFC). The empirical findings of Alsaleh et al., a cross-sectional study among diabetic patients in Kuwait, strongly support this premise. It reveals a significant clinical gap: while 79.3% of surveyed diabetic patients possess good DFC knowledge, only 30.8% translate this into good daily practice; crucially, 76.5% reported. These striking figures show how important professional educational interventions are to a patient's success with self-care. Therefore, by guaranteeing that undergraduate nurses are fully informed, they can effectively bridge this gap in clinical settings, improving patient motivation, instruction, and overall preventative self-care practice to ultimately lower the global risk of diabetic foot complications. This is why the nursing students' proposal addresses a critical healthcare need. (Alsaleh et al., 2021)

In the end, this study provides a pivotal starting point for nursing program pedagogical reform. The study demonstrates that the being educational position is shy for all scholars by chancing that neither age, occupancy, nor clinical placement mainly changed the knowledge results. unborn cohorts should aim to raise the mean knowledge score from 0.43 to 0.90 or over. This can only be fulfilled by academic faculty and clinical instructors working together to make sure that precluding diabetic bottom ulcers is regarded as a professional standard that cannot be compromised. By doing this, the nursing profession may fulfil its obligation to lessen the burden of diabetes- related amputations both locally and encyclopedically and to enhance the general quality of life for the millions of people who suffer from this habitual illness.

## Conclusion

There's a significant dissociate between academic medication and the practical conditions of managing habitual conditions, according to an evaluation of nursing scholars' knowledge of diabetic bottom care at Green International University. Given that 783 million people worldwide are anticipated to have diabetes by 2045, nursers have a critical part in precluding complications similar diabetic bottom ulcers (DFUs). The study's mean knowledge score of 0.43, still, shows that scholars frequently rightly identify lower than half of the crucial ideas pertaining to bottom evaluation and care. Given that over to 75 of DFUs can be avoided with early discovery and routine examination — chops that these aspiring nursers now warrant — this poor faculty is especially worrisome.

Anyhow of their background or present clinical ward placement, the knowledge deficiency is harmonious throughout a fairly homogeneous sample of youthful, womanish, and substantially single scholars, according to the demographic data. This systemic educational problem is supported by the statistical analysis; the Chi-square test yielded a value of 0.0 with 1 degree of freedom, indicating no significant relationship between knowledge situations and demographic characteristics. Although a reported p- value of 1.888 suggests a specialized data- entry error (because p- values must be between 0 and 1), the beginning result demonstrates that the ignorance is pervasive and not limited to any particular pupil group. likewise, the standard divagation of 0.496 reflects significant inconsistency in individual responses, suggesting that indeed within the same cohort, understanding of critical signs like pus discharge, abrasion, and loss of sensation is fractured.

To add up, this study provides a starting point for the academy of Nursing's critical class modification. In order to close the" knowledge- practice gap," faculty- grounded training which includes interactive shops and simulation- grounded assessments — must replace simply theoretical instruction. During medical- surgical reels, clinical administrators must also priorities bottom care as a diurnal professional norm. The nursing profession can play its responsibility in lowering the burden of diabetes-related amputations and enhancing the long- term quality of life for millions of cases by addressing the 0.43 mean knowledge

score and replacing it with high- intensity specialized training. The perfection and alertness of the nanny at the case's bedside ultimately determine the integrity of their health.

## Recommendations

1. Add specialized assignments on the pathophysiology of diabetic bases and vascular problems to the nursing class.
2. Make faculty- grounded tests obligatory, taking scholars to demonstrate their capability to examine their bases physically.
3. Hold engaging, hands- on forums on a regular base with experts to enhance practical skill sets.
4. During reels, bear clinical instructors to confirm that all diabetes cases admit diurnal bottom examinations led by scholars.
5. Give scholars exercise in patient comforting and early warning sign identification through simulation- grounded instruction.
6. To guarantee invariant individual procedures in all clinical settings, apply standardized assessment procedures.
7. Conduct follow- up studies and knowledge checkups on a regular base to make sure pupils meet professional norms.

## Limitations

1. The results are not astronomically applicable to other nursing institutions due to the study's single-setting focus at Green International University.
2. The small sample size of actors might not offer a complete picture of the entire population of nursing scholars in the area.
3. The disquisition of knowledge differences between genders or connubial statuses is hindered by a fairly homogeneous sample that consists solely of youthful, single womanish scholars.
4. Reliance on tone- reported questionnaires raises the possibility of response bias since scholars may give socially respectable responses rather of bones that really reflect their knowledge.
5. Because the cross-sectional design only records knowledge at one particular moment in time, it's unfit to cover how humane changes over the course of the four- time degree.

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