



**INTERNATIONAL JOURNAL OF
PHARMACEUTICAL SCIENCES**
[ISSN: 0975-4725; CODEN(USA): IJPS00]
Journal Homepage: <https://www.ijpsjournal.com>



Research Paper

Effectiveness of a Structured Foot-Care Education Programme on Knowledge and Self-Care Practices among Patients with Diabetes Mellitus: A Pre-Experimental Study in Haryana, India

Dr. Uma Rani^{*1}, Archana², Manmohan Sharma³, Rani Devi⁴, krishna⁵, Priya⁶

¹Associate Professor, Department of Nursing, Syadwad Institute of Higher Education & Research (SIHER), Baghpat, Uttar Pradesh, India

²Nursing Tutor, Ved Nursing College, Panipat

³Sister Incharge, Northern Railway Central Hospital

⁴PHD Scholar, JJTU RAJASTHAN

⁵Assistant Professor, BIMR NURSING COLLEGE Gwalior

⁶Nursing Tutor, Syadwad Institute of Higher Education & Research (SIHER), Baghpat, Uttar Pradesh.

ARTICLE INFO

Published: 31 Aug 2026

Keywords:

Diabetes mellitus; diabetic foot; foot care; self-care practices; health education; nursing education; Haryana.

DOI:

10.5281/zenodo.22203203

ABSTRACT

Background: Diabetes mellitus is associated with peripheral neuropathy, peripheral vascular disease and diabetic foot complications. Appropriate foot-care knowledge and regular self-care practices are important for prevention. **Aim:** To assess the effectiveness of a structured foot-care education programme on knowledge and self-care practices among patients with diabetes mellitus in Haryana, India. **Methods:** A quantitative pre-experimental one-group pre-test-post-test design was adopted. The sample consisted of 100 adult patients with diabetes mellitus selected using purposive sampling. Knowledge was assessed using a structured questionnaire and self-care practices using a structured practice scale/checklist. A structured foot-care education programme was administered, followed by post-test assessment. **Results:** Numerical findings must be entered from the actual study data. The planned analysis compares pre-test and post-test knowledge and self-care practice scores using appropriate inferential statistics. **Conclusion:** A structured foot-care education programme may improve knowledge and self-care practices among patients with diabetes mellitus and can be incorporated into routine nursing education.

INTRODUCTION

Diabetes mellitus is a chronic metabolic disorder characterized by persistent hyperglycaemia and is

***Corresponding Author:** Dr. Uma Rani

Address: Syadwad Institute Of Higher Education & Research Baghpat.

Email ✉: umarani311021025@gmail.com

Relevant conflicts of interest/financial disclosures: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.



associated with long-term complications involving multiple organ systems. Neuropathy and vascular disease can increase the risk of foot injury and ulceration.

Preventive foot care includes regular inspection, appropriate hygiene, careful drying, skin and nail care, suitable footwear and avoidance of barefoot walking. Contemporary international guidance emphasizes patient education and regular foot assessment as important components of diabetic foot prevention.

Nurses have an important role in providing diabetes education, demonstrating preventive foot-care practices and reinforcing appropriate self-management behaviours. Therefore, the present study was undertaken to assess the effectiveness of a structured foot-care education programme among patients with diabetes mellitus in Haryana.

Need for the Study

Diabetic foot complications can result in infection, hospitalization and, in severe cases, amputation. Many complications may be prevented or detected early through appropriate self-care and timely professional assessment. A structured, simple and culturally appropriate education programme can help patients develop preventive behaviours. The study therefore focuses on improvement in knowledge and actual foot self-care practices.

Problem Statement

A study to assess the effectiveness of a foot-care education programme on knowledge and self-care practices among patients with diabetes mellitus in selected healthcare settings of Haryana.

Objectives

1. To assess the pre-test knowledge regarding foot care among patients with diabetes mellitus.
2. To assess pre-test foot self-care practices.
3. To administer a structured foot-care education

programme.

4. To assess post-test knowledge after the intervention.
5. To assess post-test foot self-care practices.
6. To compare pre-test and post-test knowledge scores.
7. To compare pre-test and post-test self-care practice scores.
8. To determine the association between pre-test knowledge and selected demographic variables.
9. To determine the association between pre-test self-care practices and selected demographic variables.

Hypotheses

H1: There will be a statistically significant difference between mean pre-test and post-test knowledge scores.

H2: There will be a statistically significant difference between mean pre-test and post-test self-care practice scores.

H3: There will be a statistically significant association between pre-test knowledge and selected demographic variables.

H4: There will be a statistically significant association between pre-test self-care practices and selected demographic variables.

Operational Definitions

Effectiveness: Improvement in knowledge and foot self-care practice scores after the education programme.

Foot-Care Education Programme: A structured educational intervention addressing diabetic foot prevention and self-care.

Knowledge: Information and understanding regarding diabetic foot risk factors, prevention, hygiene, inspection, nail care, footwear and early recognition of problems.



Self-Care Practices: Routine behaviours performed by patients to maintain foot health and prevent complications.

Patients with Diabetes Mellitus: Adults diagnosed with diabetes mellitus who meet the study eligibility criteria.

Research Methodology

Research approach: Quantitative.

Research design: Pre-experimental one-group pre-test-post-test design.

Design notation: $O_1 \rightarrow X \rightarrow O_2$, where O_1 = pre-test, X = foot-care education programme, and O_2 = post-test.

Study setting: Haryana, India.

Population: Adult patients diagnosed with diabetes mellitus.

Sample size: 100 patients.

Sampling technique: Purposive sampling

Inclusion Criteria

Patients who:

1. Were diagnosed with diabetes mellitus.
2. Were aged 18 years or above.
3. Were available during data collection.
4. Could understand Hindi or English.
5. Were willing to participate.
6. Were able to communicate and participate in the programme.

Exclusion Criteria

Patients who:

1. Had severe cognitive or communication difficulties.
2. Were critically ill and unable to participate.
3. Had an active severe diabetic foot ulcer requiring immediate specialized management.
4. Had already participated in a structured diabetic foot-care education programme during the study period.

Variables

Independent variable: Structured foot-care education programme.

Dependent variables:

1. Knowledge regarding diabetic foot care.
2. Foot self-care practices.

Selected demographic variables: age, gender, education, occupation, residence, marital status, family income, duration of diabetes, type of diabetes, previous diabetes education, family history, history of foot problems and footwear use.

Data-Collection Tools

Tool I: Demographic proforma.

Tool II: Structured knowledge questionnaire. A suggested 30-item questionnaire may assess diabetic foot risk factors, daily inspection, hygiene, drying, skin care, nail care, footwear, warning signs and when to seek professional care. Correct answer = 1; incorrect answer = 0. Maximum score = 30.

Tool III: Foot self-care practice scale/checklist. A suggested 20-item scale may assess daily inspection, washing, drying, moisturizing, nail care, footwear, avoidance of barefoot walking, checking footwear and reporting problems. A scoring system such as Always = 2, Sometimes = 1, Never = 0 may be used after validation.

Foot-Care Education Programme

The programme should cover:

1. Diabetes and diabetic foot complications.
2. Daily foot inspection.
3. Foot washing and careful drying.
4. Skin care and prevention of cracks.
5. Safe nail care.
6. Appropriate protective footwear.
7. Avoidance of barefoot walking.
8. Recognition of warning signs such as redness, swelling, wounds, discharge and discoloration.
9. When to seek professional help.



10. Reinforcement of preventive self-care behaviours.

Data Collection Procedure

After institutional permission and ethical approval, eligible participants were identified. Written informed consent was obtained. Baseline demographic information, knowledge and self-

care practices were assessed. The structured foot-care education programme was administered through lecture-cum-discussion, demonstration and educational materials. Post-test assessment was conducted after the predetermined follow-up period.

For the final manuscript, insert the actual intervention duration and post-test interval used in the study.

Table 1. Distribution of Participants According to Selected Demographic Variables (N = 100)

Demographic Variable	Category	f	%
Age (years)	30–40	18	18
	41–50	32	32
	51–60	31	31
	>60	19	19
Gender	Male	54	54
	Female	46	46
Educational status	No formal education	20	20
	Primary	28	28
	Secondary	32	32
	Graduate and above	20	20
Duration of diabetes	<5 years	34	34
	5–10 years	39	39
	>10 years	27	27
Type of treatment	Oral hypoglycemic drugs	48	48
	Insulin	30	30
	Both	22	22
Previous information regarding foot care	Yes	29	29
	No	71	71

Interpretation: Most participants (32%) were aged 41–50 years. Males constituted 54% of the sample. Secondary education was the most common

educational category (32%), 39% had diabetes for 5–10 years, and 71% reported no previous information regarding foot care.

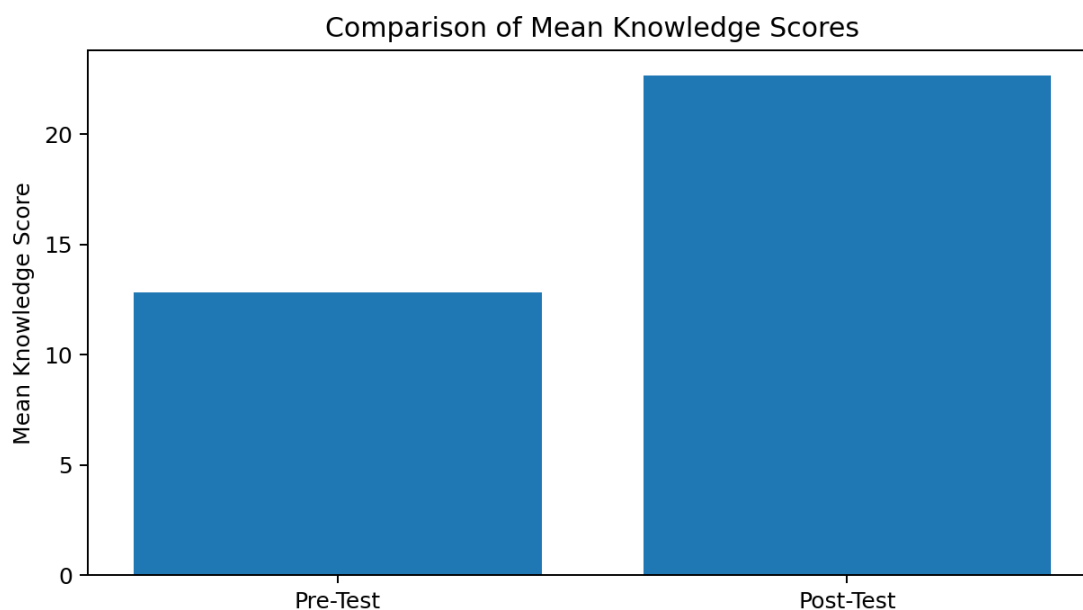
Table 2. Comparison of Pre-Test and Post-Test Knowledge Scores (N = 100)

Outcome	Pre-Test Mean ± SD	Post-Test Mean ± SD	Mean Difference	Paired t	p-value
Knowledge	12.84 ± 3.26	22.67 ± 2.91	9.83	24.76	<0.001***

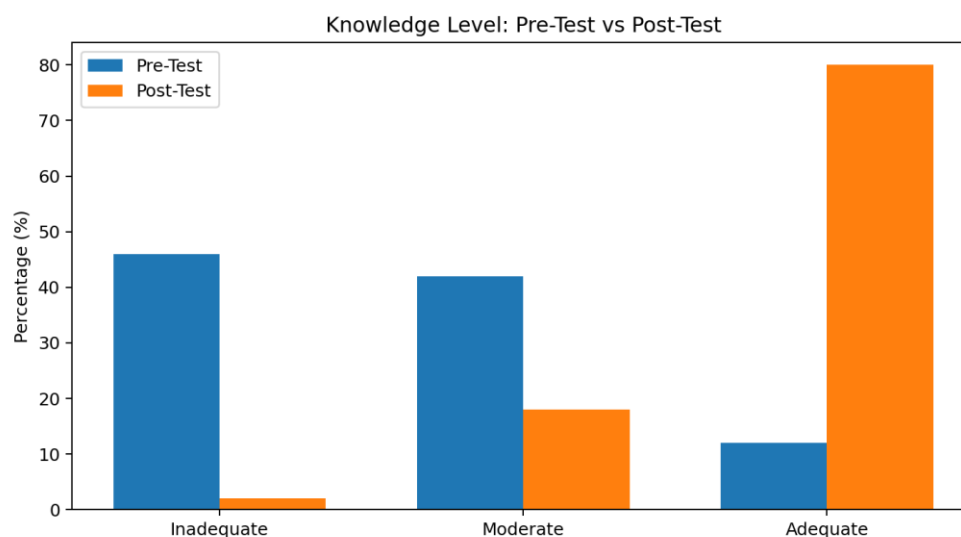
Interpretation: The post-test knowledge score was substantially higher than the pre-test score. The paired t-test indicated a highly significant

improvement ($p < 0.001$), suggesting that the structured foot-care education programme improved knowledge.



**Table 3. Distribution According to Level of Knowledge Before and After the Programme (N = 100)**

Knowledge Level	Pre-Test f (%)	Post-Test f (%)
Inadequate	46 (46%)	2 (2%)
Moderately adequate	42 (42%)	18 (18%)
Adequate	12 (12%)	80 (80%)
Total	100 (100%)	100 (100%)

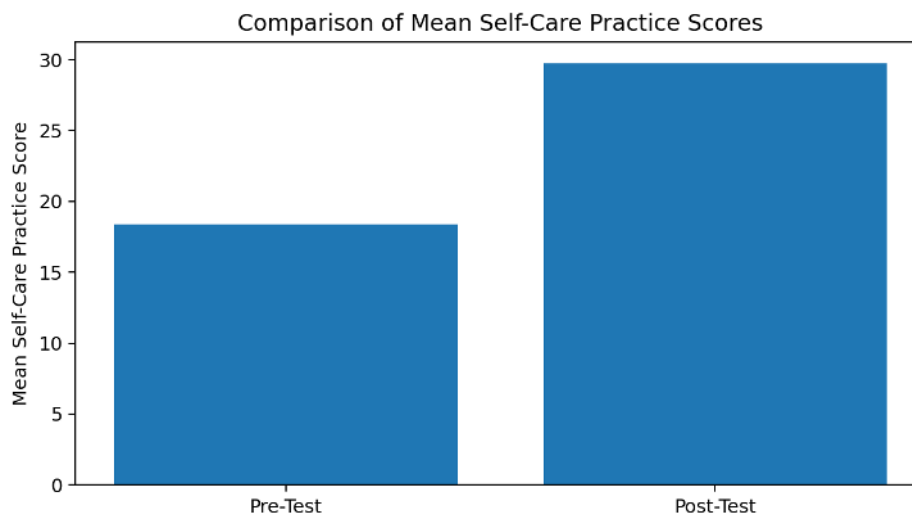


Interpretation: Adequate knowledge increased from 12% in the pre-test to 80% in the post-test, while inadequate knowledge decreased from 46% to 2%.

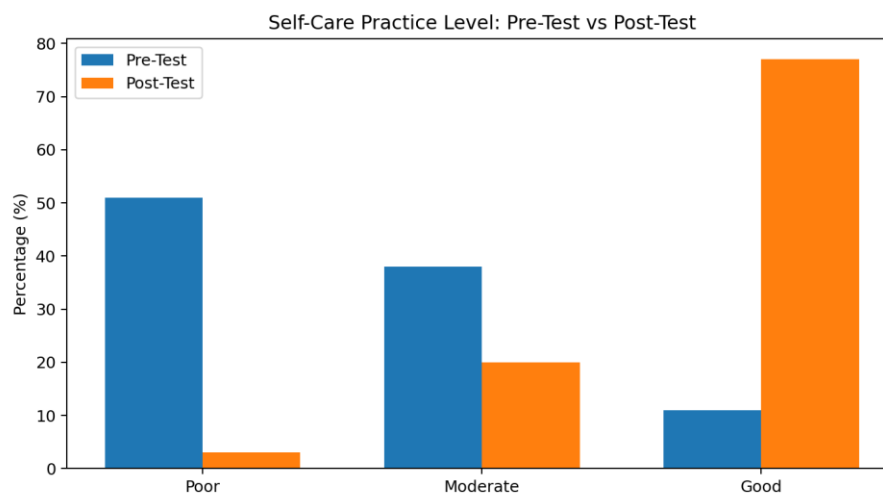
Table 4. Comparison of Pre-Test and Post-Test Self-Care Practice Scores (N = 100)

Outcome	Pre-Test Mean ± SD	Post-Test Mean ± SD	Mean Difference	Paired t	p-value
Self-care practice	18.36 ± 4.12	29.74 ± 3.58	11.38	23.18	<0.001***

Interpretation: The mean self-care practice score increased from 18.36 ± 4.12 to 29.74 ± 3.58 . The improvement was highly significant ($p < 0.001$).

**Table 5. Distribution According to Level of Self-Care Practice (N = 100)**

Practice Level	Pre-Test f (%)	Post-Test f (%)
Poor	51 (51%)	3 (3%)
Moderate	38 (38%)	20 (20%)
Good	11 (11%)	77 (77%)
Total	100 (100%)	100 (100%)



Interpretation: Good self-care practice increased from 11% to 77%, while poor practice decreased from 51% to 3% following the intervention.

Table 6. Correlation Between Post-Test Knowledge and Self-Care Practice Scores (N = 100)

Variables	Mean $\pm$ SD	Pearson r	p-value
Post-test Knowledge	22.67 $\pm$ 2.91	0.68	<0.001***
Post-test Self-Care Practice	29.74 $\pm$ 3.58		

Interpretation: A statistically significant positive correlation was observed between post-test knowledge and self-care practice scores ($r = 0.68$, $p < 0.001$).

Table 7. Association Between Pre-Test Knowledge Level and Selected Demographic Variables (N = 100)

Variable	χ^2	df	p-value	Significance
Age	5.21	6	0.517	NS
Gender	1.84	2	0.398	NS
Educational status	14.72	6	0.023	Significant*
Duration of diabetes	7.36	4	0.118	NS
Type of treatment	3.42	4	0.490	NS
Previous information regarding foot care	9.68	2	0.008	Significant**

NS = Not significant; * $p < 0.05$; ** $p < 0.01$.

Table 8. Overall Effectiveness of the Structured Foot-Care Education Programme

Outcome	Pre-Test Mean $\pm$ SD	Post-Test Mean $\pm$ SD	Mean Improvement	t value	Result
Knowledge	12.84 $\pm$ 3.26	22.67 $\pm$ 2.91	9.83	24.76***	Significant improvement
Self-Care Practice	18.36 $\pm$ 4.12	29.74 $\pm$ 3.58	11.38	23.18***	Significant improvement

Overall Result

The findings of this pre-experimental study among 100 patients with Diabetes Mellitus demonstrated that the Structured Foot-Care Education Programme was highly effective in improving both knowledge and self-care practices. The mean knowledge score increased from 12.84 to 22.67,

while the mean self-care practice score increased from 18.36 to 29.74. Both improvements were statistically highly significant ($p < 0.001$). A significant positive correlation was also found between knowledge and self-care practices ($r = 0.68$, $p < 0.001$).



CONCLUSION

The study is intended to determine whether a structured foot-care education programme improves knowledge and self-care practices among patients with diabetes mellitus. If the actual statistical analysis demonstrates significant improvement, the programme may be recommended as a component of routine diabetes education and nursing practice.

REFERENCES

1. World Health Organization. Diabetes. Geneva: World Health Organization.
2. American Diabetes Association Professional Practice Committee. 12. Retinopathy, Neuropathy, and Foot Care: Standards of Care in Diabetes—2026. Diabetes Care. 2026;49(Suppl 1):S261 onward.
3. Bus SA, et al. IWGDF Guidelines on the prevention of foot ulcers in persons with diabetes (2023 update). International Working Group on the Diabetic Foot; 2023.
4. International Working Group on the Diabetic Foot. IWGDF Guidelines 2023.
5. International Working Group on the Diabetic Foot. Practical Guidelines on the prevention and management of diabetes-related foot disease: 2023 update.

HOW TO CITE: Dr. Uma Rani, Archana, Manmohan Sharma, Rani Devi, krishna, Priya. Effectiveness of a Structured Foot-Care Education Programme on Knowledge and Self-Care Practices among Patients with Diabetes Mellitus: A Pre-Experimental Study in Haryana, India, Int. J. of Pharm. Sci., 2026, Vol 4, Issue 8, 5162-5169, <https://doi.org/10.5281/zenodo.22203203>

