

A Study to Assess the Effectiveness of Structure Teaching Programme On Knowledge Regarding Diabetes and Its Management Among Nursing Students at Selected School Of Nursing, Ghaziabad, U.P.

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Abstract

According to American Diabetes Association, “Diabetes Mellitus is a group of metabolic disease characterized by increased levels of glucose in the blood (hyperglycemia) which results from defects in insulin secretion, insulin action, or both.¹ This quasi-experimental study was conducted to evaluate the effectiveness of structured teaching programme on knowledge regarding diabetes and its management among nursing students in selected school of nursing in Ghaziabad, U.P. A total of 80 nursing students were purposively selected and divided into two groups: experimental (n=40) and control (n=40). Pre- and post-intervention knowledge was assessed using a structured questionnaire containing 30 items.

The intervention group received a structured teaching programme, while the control group did not receive any teaching. Statistical analysis using paired and independent t-tests revealed a significant improvement in post-test knowledge scores in the experimental group (mean pre-test score = 7.35 ± 4.51 ; post-test = 19.50 ± 6.76 ; $p < 0.001$), while no significant change was observed in the control group. Chi-square analysis indicated no significant association between knowledge levels and demographic variables.

This study concludes that structured teaching programmes are effective in improving knowledge of diabetes and its management among nursing students. Incorporating such educational strategies into the nursing curriculum can help reduce Diabetes and improve patient safety and education as well.”

Keywords: Diabetes, Structured teaching programme, Knowledge

1. Introduction

The World Diabetes Day which falls on 14th November, 2025 embodies the theme “Breaking Barriers, Bridging Gaps” which will prevade all through the campaign. In India, there are estimated 77 million population above the age of 18 years are suffering from diabetes (type 2) and nearly 25 million population are prediabetics (at a higher risk of developing diabetes in near future). More than 50% of people are not aware of their diabetic status which leads to further health complications.²

India is the capital of diabetes of the world. 41 million Indians are diagnosed with diabetes. Every fifth diabetic patient in the world is an Indian. There were more than one million deaths due to Diabetes mellitus in 2015. As per Gopinath & Rajan, 2017, more than 80% of diabetic death occurs in low and middle income countries. Diabetic foot ulcer is a result of micro and macro vascular complications of diabetes mellitus. Diabetic foot problems are the leading cause of diabetes-related admissions in hospital and are responsible for approximately 50% of all lower limb amputation worldwide. Majority of patients are unaware about the importance of foot care and its consequences. Self management education programs for people with diabetes about healthy foot care and other complication measures decrease the occurrence of diabetic foot complications like foot ulcers.³

The Indian Council of Medical Research India Diabetes Study (ICMR-INDIAB study) showed that India had

62.4 million people with diabetes in 2011 and these numbers are assumed to increase to 101.2 million by the year 2030.⁴

Nursing students, play a vital role in implementing teaching practice on diabetes and its management. Their knowledge on diabetes and its management directly impact patient safety and clinical outcomes. Therefore, targeted educational interventions, such as structured teaching programmes (STPs), are necessary to enhance their understanding, motivation, and compliance with diabetes and its management’s protocols.

This study evaluates “the effectiveness of a structured teaching programme on knowledge regarding diabetes and its management among nursing students in selected schools of nursing in Ghaziabad, Uttar Pradesh.”

2. Methodology

Research Approach: “A quantitative research approach”.

Research Design: The study utilized “a quasi-experimental control group pre-test post-test design”.

Study Setting and Participants: The study was carried out in two school of nursing in Uttar Pradesh: Santosh College of Nursing, Ghaziabad (experimental) and JMC School of Nursing(control), involving first-year Gnm Nursing students due to their early clinical exposure.

Sampling: A total of 80 nursing students were selected using “non-probability purposive sampling”, with 40 allotted to the experimental group and 40 to the control group.

Data Collection: A structured knowledge questionnaire consisting of 30 multiple-choice items was used for both pre- and post-tests. The structured teaching programme (STP) was delivered to the experimental group through lectures, demonstrations, and audio-visual aids. Post-tests were conducted on the 7th day following the intervention.

Data Analysis: The data analysis included “descriptive statistics such as frequency, percentage, mean, and standard deviation” to summarize variables. Inferential methods applied were “paired and independent t-tests”, along with “chi-square test”. A p-value less than 0.05 was interpreted as statistically significant.

3. Results

Table 1: Frequency and Percentage Distribution of Demographic Variables among Experimental and Control Groups

S. No.	Variable	Category	Experimental Group (n = 40)		Control Group (n = 40)	
			Frequency (f)	%	Frequency (f)	%
1	Age (in years)	17–20	24	60	21	52
		21–23	13	32	14	35
		24–27	2	5	4	10
		28-30	1	3	1	3
2	Gender	Female	25	63	27	68
		Male	15	37	13	32
3	Previous Knowledge	Yes	10	25	14	35
		No	30	75	26	65
4	Source of Knowledge	Books	2	5	4	10
		Journals	3	8	7	17
		Social media	2	5	4	10
		Internet	10	25	3	8

The above table shows that most participants were aged 17–20 years, indicating they were early in their nursing education. Both groups were predominantly female (63% experimental, 68% control), reflecting typical nursing demographics. A high percentage had no prior knowledge of diabetes and its management (75% experimental, 65 % control), mainly sourced from books, followed by social media, internet and journals.

Table 2: Pre-Test Knowledge Score Distribution among Experimental and Control Groups

Knowledge Level	Experimental Group (n = 40)		Control Group (n = 40)	
	Frequency (f)	%	Frequency (f)	%
Good Knowledge	4	10	13	32
Average Knowledge	3	7	7	17
Poor	33	83	20	20

The above table shows that most students in both groups had poor knowledge of diabetes and its management, with over 40% falling into the average or good categories. Only a small percentage showed good knowledge.

Table 3: Post-Test Knowledge Score Distribution among Experimental and Control Groups

Knowledge Level	Experimental Group (n = 40)		Control Group (n = 40)	
	Frequency (f)	%	Frequency (f)	%
Good Knowledge	19	48	15	38
Average Knowledge	16	40	9	22
Poor	5	12	16	40

The above table shows that post-test knowledge levels were higher in the experimental group, with 12% scoring poorly, while 40% achieved average and 48% achieved good knowledge. In contrast, the control group performed with 40% falling into the good or average categories and 40% showing poor knowledge.

Table 4: Paired t-Test Comparison of Pre- and Post-Test Knowledge Scores in Experimental and Control Groups

Group	Test	Mean	S.D.	t-value	p-value	Significance
Experimental (n = 40)	Pre-test	7.35	4.51	7.657	0.001	Significant
	Post-test	19.50	6.76			
Control (n = 40)	Pre-test	15.87	6.05	1.022	0.315	Not Significant
	Post-test	16.77	6.01			

The experimental group’s mean score significantly improved from 7.35 ± 4.51 to 19.50 ± 6.76 ($p = 0.001$), indicating the effectuality of the STP. In contrast, the control group showed a minimal, non-significant increase from 15.87 ± 6.05 to 16.77 ± 6.01 ($p = 0.315$).

Table 5: Association of Post-Test Knowledge Scores with Demographic Variables Using Chi-Square Test in Experimental group

(n = 40)

S. No.	Demographic Variable	Chi-square (χ^2) Value	Df	p-value	Significance
1	Age	12.59	6	0.032	Significant
2	Gender	5.991	2	0.087	Not Significant
3	Batch	12.59	6	0.643	Not Significant
4	Source of Knowledge	12.59	2	0.016	Significant
5	Previous Knowledge	5.99	2	0.049	Significant

The table shows that there were significant association between post-test knowledge score with age, source of information and previous knowledge demographic variables in experimental group as all p-values were below 0.05. Hence H2 is accepted.

Table 6: Association Between Post-Test Knowledge Scores and Demographic Variables in Control Group (N = 40)

S. No.	Demographic Variable	Chi-square (χ^2) Value	Df	p-value	Significance
1	Age	12.59	6	0.254	Not Significant
2	Gender	5.991	2	0.99	Not Significant
3	Batch	12.59	6	0.318	Not Significant
3	Source of Knowledge	12.59	6	0.818	Significant
4	Previous Knowledge	5.99	2	0.004	Not Significant

The above table reveal that there was “no statistically significant association” amid knowledge scores and age (χ^2

= 12.59, $p = 0.254$), gender ($\chi^2 = 5.991$, $p = 0.99$), or source of knowledge ($\chi^2 = 12.59$, $p = 0.818$), as all p-values were greater than the 0.05 level of significance.

4. Discussion

The present study demonstrated that a STP significantly improved the knowledge of nursing students on knowledge regarding diabetes and its management. The experimental group showed a notable increase in mean scores from 7.35 ± 4.51 to 19.50 ± 6.76 , while the control group showed no significant change. This highlights the effectiveness of targeted education in enhancing diabetes awareness.

These findings are supported by Gayathri S(2020), who observed significant knowledge gains among students after implementing an STP on diabetes and its management⁵.

Further evidence from Kumar santosh (2020) confirms that structured education boosts theoretical knowledge among nursing students⁶. These studies, consistent with our results, affirm that regular, structured interventions bridge the gap between knowledge and practice in diverse educational settings.

A major strength of the study is its quasi-experimental design and use of a validated tool, enhancing reliability. Limitations include non-random sampling, small sample size, and brief follow-up. Slight score improvement in the control group may reflect external or peer learning, indicating the need to control such factors in future studies.

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