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EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME ON KNOWLEDGE REGARDING PREVENTION OF DIABETIC FOOT ULCER AMONG PATIENTS WITH DIABETIC MELLITUS AT DHANVANTRI CRITICAL CARE CENTRE, ERODE.

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ABSTRACT:

Diabetes is one of the most prevalent epidemic metabolic disorders, responsible for a significant amount of physical, psychological and economic loss in human society. Diabetic foot ulcer (DFU) is one of the extreme pathophysiological consequences of diabetes. **Aim:** To assess the effectiveness of Structured teaching programme on knowledge regarding prevention of diabetic foot ulcer among patients with diabetic mellitus. **Methods:** Pre- experimental design where one group pre and post-test design was adopted in this study, 30 patients with diabetic mellitus selected by convenient sampling technique and who fulfilled the inclusion criteria like age 18 to > 55 years, both the gender were enrolled in the study at Dhanvantri Critical Care Centre Erode, Day one intervention was given, after the 6^{th} day the post test was conducted by investigator, the total duration of data collection period was one month. Level of knowledge was measured by structured knowledge Questionnaire before and after structured teaching programme. **Results:** In pre-test the mean score was 5.30 ± 0.79 which was 27 mean percentages. In post-test the mean score was 7.83±1.18

which was 39 mean percentages. Significant association was obtained between post-test knowledge scores in socio economic status and previous history of diabetic foot ulcer (χ^2=4.45 and χ^2= 0.09; Significant). Whereas no significant association was observed a between post-test knowledge regarding prevention of diabetic foot ulcer scores for Age, Gender, Education, type of DM. Duration of illness. **Conclusions:** There was statistically highly significant effectiveness of structured teaching programme on knowledge regarding prevention of diabetic foot ulcer among patients with diabetic mellitus.

Key words: Structured teaching programme, prevention of Diabetic foot ulcer, patients with diabetic mellitus.

INTRODUCTION:

Diabetes is one of the most prevalent epidemic metabolic disorders, responsible for a significant amount of physical, psychological and economic loss in human society. Diabetic foot ulcer (DFU) is one of the extreme pathophysiological consequences of diabetes. Bacterial infection is the most important cause of chronic DFU. Bacterial species or their biofilms show multidrug resistance, which complicates DFU and consequently leads to amputation of the infected part. Since the Indian population comprises diverse ethnic and cultural groups, this could influence the aetiology of diabetic foot infections and bacterial diversity (**Dipak S kale 2023 March.)**

The incidence of diabetic foot ulcers has increased due to the worldwide prevalence of DM and the prolonged life expectancy of patients with diabetes, poor knowledge and practice of diabetic foot self-care. The worldwide prevalence of diabetic foot ulceration is 6.3%. The lifetime risk of a person with diabetes developing a foot ulcer could be as high as 25%. Rates of foot ulceration in Africa vary between regions and have been estimated to be between 4% and 19%.In Ethiopia, the incidence and prevalence of diabetic foot ulcers are still unknown in the general population. The study conducted in North-West Ethiopia and South Ethiopia

showed that the prevalence of diabetic foot ulcers among patients with diabetes was 13.6% and 14.8%, respectively. **Tuga A Jan 2021.**

Global prevalence of diabetic foot is 6.3% (95% CI: 5.4- 7.3%), and it is estimated that about 5% of all patients with diabetes present with a history of foot ulceration, while the lifetime risk of diabetic patients developing this complication is 15% . **(Jhang P 2022).** and it is a major health issue that necessitates a multidisciplinary approach and has a negative impact on the lives of individuals. The principles of diabetic foot ulcer prevention and treatment include determining the foot at risk, routine foot supervision, patient, family, and healthcare professional education, adequate shoe selection, and treatment of early signs of foot ulcers. **Behre Dari Mosa 2022.**

STATEMENT OF THE PROBLEM

A study to assess the effectiveness of Structured teaching programme on knowledge regarding prevention of diabetic foot ulcer among patients with diabetic mellitus at Dhanvantri Critical Care Centre, Erode.

OBJECTIVES:

1. To assess the level of knowledge regarding prevention of diabetic foot ulcer among patients with diabetic mellitus before and after Structured teaching programme
2. To evaluate the effectiveness of Structured teaching programme on knowledge regarding prevention of diabetic foot ulcer among patients with diabetic mellitus.
3. To find out association between post-test score of knowledge regarding prevention of diabetic foot ulcer among patients with diabetic mellitus with their selected demographic variables.

Materials and Methods.

Pre- experimental design where one group pre and post-test design with experimental approach was used for this present study. The present study was conducted at Dhanvantri Critical Care Centre, Erode, this is 15 km distance from Dhanvantri College of nursing. The population for this present study was patients with diabetic mellitus, who were willing to participate and who knows Tamil and who were present during the period of data collection. After obtaining informed constant the sample were selected for this study, the total sample size for the present study was 30 patients with diabetic mellitus, convenient sampling techniquewere used. Patients with diabetic mellitus in Age group of 18 to > 55 years, both the gender, researcher excluded Loss of visual & hearing acuity, had previous knowledge regarding prevention diabetic foot ulcer. Statistical methods were used for this study frequency and percentage distribution, mean, median, mode and paired t test values. Chi-squire test to estimate the association between post test score of knowledge regarding prevention of diabetic foot ulcer among patients with diabetic mellitus with their selected demographic variables.

Tools used for the study

There are 2 sections of tools were used. They are

1. **Section A:**

It consists of Demographic Variables:

- Age, Gender, Education, Socio economic status, type of DM, Duration of illness and previous history of diabetic foot ulcer.

2. **Section B:** Structured knowledge Questionnaire. It consists of 20 questions, each question caring on one mark totally 20 marks.

SCORING PROCEDURE

Table 1. Scoring procedure for level of knowledge.

Level of knowledge	Actual scores	Percentage
Highly adequate	16-20	76 - 100
Adequate	11-15	51 – 75 %
Inadequate	6-10	26 – 50%
Poor	0-5	25 %

Ethical Consideration

1. Written permission was obtained from Director and Principal of Dhanvantri College of Nursing at Namakkal District.
2. Written permission was obtained from medical superintend at Dhanvantri Critical Centre, Erode.
3. Prior informed consent was obtained from patients with diabetic mellitus.

Validity and Reliability.

The content validity of the demographic variables and knowledge questionnaire were validated in consultation with guide and field of experts. The experts are diabetalogist, statistician and Nursing specialist. The tool was modified according to suggestions and recommendations of the experts.

Period of Data Collection

The data was collected from (1.5.2023 to31.05.2023). The investigator collected the data from the patients with diabetic mellitus at Dhanvantri Critical Care Center, Erode.

Pre Test.

Pre-test conducted by using Knowledge Questionnaire regarding prevention of diabetic foot ulcer among patients with diabetic mellitus.

Implementation of Structured teaching programme

Immediately after pre-test, the Structured teaching programme (regarding prevention of diabetic foot ulcer) were given to patients with diabetic mellitus for 6 days, per day five samples were selected, totally 30 samples for the duration of one month.

Post Test

After the 6th day of Structured teaching programme the post-test were conducted by using knowledge Questionnaire regarding prevention of diabetic foot ulcer among patients with diabetic mellitus.

DEVELOPMENT OF THE TOOL:

Section A: description of sample characteristics.

Section B: To assess the level of knowledge regarding prevention of diabetic foot ulcer among patients with

diabetic mellitus in pre-test & post- test.

- Assess the level of knowledge regarding prevention of diabetic foot ulcer among patients with diabetic mellitus in pre-test and post-test was analysed by frequency and percentage.

Section C: To evaluate the effectiveness of Structured teaching programme on knowledge regarding prevention of diabetic foot ulcer among patients with diabetic mellitus.

- Comparison of mean, standard deviation and mean percentage of level of knowledge among patients with diabetic mellitus.
- Paired't' test score was analysed for assess the effectiveness Structured teaching programme.

Section D: To find out association between post-tests score of knowledge regarding prevention of diabetic foot ulcer among patients with diabetic mellitus with their selected demographic variables.

- Chi-square value of association between the post test score of knowledge regarding prevention of diabetic foot ulcer among patients with diabetic mellitus with their selected demographic variables

RESULTS

SECTION A

Description of sample characteristics

Section A: Description of sample characteristics according to their demographic variables.

Table: 2 Frequency and percentage distribution among patients with diabetic mellitus according to their demographic variables. **N = 30**

S.no	Demographic variables	Adults	
		Frequency (N)	**Percentage (%)**
1.	**Age in years**		
	18-35 years	10	33%
	36-55 years	12	40%
	above 55 years	8	27%
2.	**Gender**		
	a. Male	17	57%
	b. Female	13	43%
3.	**Education**		
	None / primary	20	67%
	Secondary / tertiary	10	33%
4.	**Type of DM**	8	27%
	Type 1		
	Type 2	22	73%

5.	**Socio Economic status** Upper Middle Lower	 8 12 10	 27% 40% 33%
6.	**Duration of illness** **Less than five years** **More than five years**	 16 14	 53% 47%
7.	**Previous history of diabetic foot ulcer** Yes No	 10 20	 67% 33.3%

SECTION B:

Table: 3 Percentage distributions of post test score of knowledge regarding prevention of diabetic foot ulcer among patients with diabetic mellitus N=30

Level of Knowledge on prevention of Diabetic foot ulcer	**Pre-test**		**Post test**	
	Frequency	**Percentage**	**Frequency**	**Percentage**
Highly adequate	-	-	8	20
Adequate	-	-	10	70
Inadequate	17	85	1	5
Poor	3	15	1	5

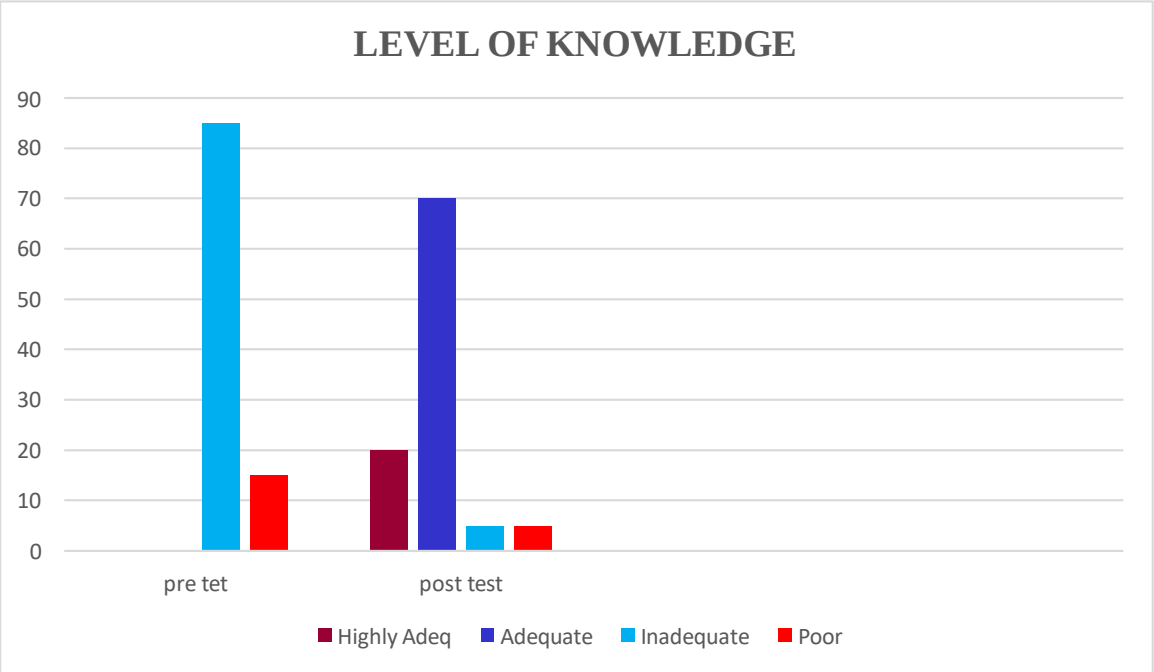

Table 4: Level of knowledge regarding prevention of diabetic foot ulcer among patients with diabetic mellitus before and after structured teaching programme. N= 30

Patients with diabetic mellitus	aximum score	Mean		SD		Mean %	
		Pre test	Post test	Pre test	Post test	Pre test	Post test
Level of knowledge	20	5.30	7.83	0.79	1.18	27 %	39 %

Table 5: Paired t test value of pre and post-test knowledge score regarding prevention diabetic foot ulcer management among patients with diabetic mellitus.

S.No	Knowledge score	Paired t test value	Level of significant
1.	Pre-test and post test	14.80	P <0.0001 Significant

SECTION C

Table 6: Find out the association between post test score of knowledge regarding prevention of diabetic foot ulcer among patients with diabetic mellitus with their selected demographic variables: N: 30

Areas	DF	Chi-square	Level of significance
Age in years			
18-35 years		0.09	P> 0.05 , Not Significant
36-55 years	2	0.09	P> 0.05 , Not Significant
above 55 years		0.81	P> 0.05 , Not Significant
Gender			
Male		3.27	P> 0.05 , Not Significant
Female	1	0.36	P> 0.05 , Not Significant
Education			
None / primary	3	0	P> 0.05 , Not Significant
Secondary / tertiary		5.81	P> 0.05 , Not Significant
Type of DM			
Type 1	2	1.45	P> 0.05 , Not Significant
Type 2		3.27	P> 0.05 , Not Significant

Socio Economic status Upper Middle Lower	**1**	**4.45** 0.09	**P<0.05 , Significant** P> 0.05 , Not Significant
Duration of illness Less than five years More than five year	5	**3.95**	P>0.05, Not Significant
revious history of diabetic foot ulcer. **a)**Yes b)No	**1**	**0.09** 7.36	**P<0.05 , Significant** P> 0.05 , Not Significant

P< 0.05, Significant **P> 0.05, Not Significant**

DISCUSSIONS.

The study was experimental in nature. It was conducted among patients with diabetic mellitus at Dhanvantri Critical Care Centre Erode. The primary purpose of the study was to find out the knowledge regarding prevention of diabetic foot ulcer among patients with diabetic mellitus.

The tool used for the study consisted of

Section A: Demographic variables

Section B: Structured Knowledge questionnaire.

- Distribution of sample character according to their age group depicts that, Percentage distribution of were in age group 18 – 35 years is 33%, 40 % distribution of were in age group 36 – 55 years, there is 27 % distribution of were in age group > 55 years.
- Distribution of patients with diabetic mellitus according to their Gender depict that, the highest percentage (57%) of adults were Males, whereas lowest (43%) of patients with diabetic mellitus were Females.
- Distribution of patients with diabetic mellitus according to their Educational status depicts that, most (67%) of the patients with diabetic mellitus had none/primary and lowest percentage (33%) of the patients with diabetic mellitus had secondary/ tertiary.
- Distribution of patients with diabetic mellitus according to their previous history of diabetic foot ulcer depicts that, lowest (33.3%) of the percentage had no previous history of diabetic foot ulcer here as highest percentage (67%) of patients with diabetic mellitus had previous history of diabetic foot ulcer.
- Distribution of patients with diabetic mellitus according to their duration of illness depicts that, most 53% of the had more than five years of diabetic mellitus, and 47% of the patients with diabetic mellitus had less than five years of diabetic mellitus.
- Percentage distribution majority (70%) patient's with diabetic mellitus was having adequate knowledge in

post-test, remaining 20% patients with diabetic foot ulcer was having highly adequate knowledge, and there was only 5% of patients with diabetic mellitus having inadequate and poor knowledge regarding prevention diabetic foot ulcer.

- Comparison of mean, SD, mean percentage knowledge of diabetic foot ulcer pre and post test scores reveals that, the pre-test mean & SD score was 5.30 ± 0.79 which was 27 mean percentage, whereas in post-test mean & SD score was 7.83
  ±1.18 Which was 39 mean percentage. It depicts that Structured teaching programme was effective in improving the knowledge on prevention diabetic foot ulcer management among patients with diabetic mellitus.
- The paired t test value of knowledge score of diabetic foot ulcer 14.80, which is P
  <0.0001 Significant, its depicts that Structured teaching programme was highly effective in improving the knowledge on prevention of diabetic foot ulcer among patients with diabetic mellitus.

- Significant association was obtained between post- test knowledge scores in Educational status and previous history of diabetic foot ulcer **(χ^2=4.45 and χ^2= 0.09; Significant**). Whereas no significant association was observed a between post-test knowledge regarding prevention of diabetic foot ulcer scores for Age, Gender, Types of DM, socioeconomic status, Educational status, duration of illness and previous history of diabetic foot ulcer.

CONCLUSION

Based on the findings of the study the following conclusions were drawn. The study findings revealed that providing of structured teaching programme were highly significant to improve Knowledge regarding prevention of diabetic foot ulcer among patients with diabetic mellitus. There was statistically significant evidence on improvement of knowledge regarding prevention of diabetic foot ulcer among patients with diabetic mellitus.

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