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HEALTH EDUCATION TO PREVENT FOOT ULCERS IN DIABETIC PATIENTS

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Abstract

Background: Diabetes mellitus increase the risk of ulcer formation in the foot due to peripheral neuropathy, ischemia, and deep infections. Self-care is fundamental in diabetes management and prevention, with existing guidelines emphasizing the need for patient education to prevent ulcer formation. Education, combined with other preventive measures such as regular foot inspections by health care professionals, regular podiatry visits, and the use of adjusted shoes and insoles, is recommended. **Materials and Methods:** Research Approach is this study research approach quantitative approach to evaluate knowledge and practice. Research Design is this study research design is One group Pretest and post test quasi experimental design. Research Setting is the study was conducted in S.R.M medical college, Trichy. Target Population is the population of the present study comprises the patient who diagnosed with Diabetes mellitus and do not have Diabetic foot. Sampling Technique is Non-Probability Purposive sampling technique was used for selecting samples for study. Sample and Sample Size is 50 patients were selected from S.R.M medical college, who met the designated set of Criteria. **Result:** Though health education is useful in prevention of foot ulcers in Diabetic patients. Demographic data such as age, gender, occupation, education status, monthly income has association with effectiveness of health education among diabetic patients. **Conclusion:** Health education increases knowledge and self-care of foot with the diabetic patients. Health education plays a significant role in the prevention of ulcer formation in diabetic patients.

INTRODUCTION

Diabetes causes both macro- and micro-vascular problems, which has serious negative impact on the vascular system. One of the macro-vascular consequences of type 2 diabetes mellitus is peripheral artery disease, which is more common among diabetics and tends to affect the lower limbs. Diabetes mellitus increases the risk of atherosclerotic disease, cardiovascular mortality, and morbidity. All main arterial beds, including the coronary arteries, carotid vessels, and lower extremity arteries, are prone to complications as a result of chronic diabetes mellitus Diabetic foot ulcer (DFU) represents a chronic complication in patients with diabetes; they are often associated with neuropathy and/or peripheral artery disease (PAD) of the lower limb in diabetic patients that can result in gangrene and amputation. Among hospitalized patients, the prevalence of diabetic foot ulcers varies from 4 to 10%. According to estimates from the Global.[1-5]

Lower Extremity Amputation Study Group, 14–24% of patients with DFU might require an amputation. Lower limb complications have a major impact on the mortality and morbidity rates of individuals with diabetes mellitus (DM). These complications may result in leg ulcers and amputations, which are characterized by disability, decreased productivity, and psychological disorders.[6-10]

The health education is therefore necessary in all diabetic patients, particularly in those who have diabetic foot. This will help to minimize the morbidity, mortality, and social costs linked to the illness by developing efficient management protocols. Hence this study was conducted to study health education to prevent diabetic ulcers.[11-13]

Objectives
1. To study the effect of health education on prevention of foot ulcer.
2. To determine the effect of health education on knowledge and practice of self-care of foot among diabetic patient.

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International Journal of Academic Medicine and Pharmacy (www.academicmed.org)
ISSN (O): 2687-5365; ISSN (P): 2753-6556

MATERIALS AND METHODS

A Quasi experimental study to assess the effect of health education with self-instructed module on knowledge and practice regarding foot care among diabetic patients in S.R.M medical college, Trichy conducted by A.K. Vignesh Karthick in at S.R.M medical college, Trichy.

The research design used was one group Pre-test and post-test quasi experimental design. The Non-Probability Purposive sampling technique was used for selecting 50 diabetic patients in Trichy S.R.M medical college.

Data collection tool included structured questionnaire observational checklist and self-instructed module regarding health education. 20 experts determined the content validity of tool and Self- instructed module regarding health education. The reliability of tool was established by the method of split half test and was found 0.82. The pilot study was conducted on 10 samples to check the feasibility and practicability of the questionnaire.

Variables under the Study

Demographic Variables: In this study demographic variable includes age, Gender, Educational status, occupation, Monthly family income, years of suffering from diabetes mellitus.

Research Variables: Independent Variable- Effect of health education

Dependent Variable- Knowledge regarding Diabetic foot care

Description of the Final tool: The researcher prepared a self-administered structured questionnaire and observational checklist. The tool consisted of 3 sections-

Section I: This section included items seeking information on Demographic data

Section II: Self-administered structured questionnaire

Section III: Observation checklist. In check list 10 items included to observe the practice of the patient, regarding foot care.

Validity of tools: The validity was established by experts from different specialties i.e., Department of medicine & surgery.

Reliability: The reliability (r) was calculated and the value is equal to 0.82. If value of (r) is greater than 0.70 then the test is reliable. As the value of (r) in this test is 0.82 the test is reliable. Thus, the tool was found reliable.

Plan for data analysis: - Data was analyzed by applying descriptive and inferential statistics.

RESULTS

The findings were presented under the following sections

This [Table 2] shows that majority of 46% of diabetic patients in pre -test were having poor knowledge score (0-7), 42% of diabetic patients in pre-test of study Group were having average knowledge score

(8-13) and 12% of the study Group were having good knowledge score (14-20), whereas in post-test majority 68% of the diabetic patients had good knowledge score (14-20) and 32% of them in post-test of study Group were having average knowledge score (8-13). The knowledge scores of the samples shows a marked increase as seen in the post-test score of the study Group, which indicates that the health education is effective in increasing the knowledge of the samples regarding foot care among diabetic patients.

The [Table 3] above shows that majority of 70% of diabetic patients in pre -test were having poor practice score (0-4), 30% of diabetic patients in pre-test of study Group were having average practice score (5-7)and not a single patient of the study Group was having good practice score (8-10), whereas in post-test majority 70% of the diabetic patients had average practice score (5-7), 26% of them had good practice score (8-10) and only 4% of them in post-test of study Group were having poor practice score(0-4).The practice scores of the samples shows a marked increase as seen in the post-test score of the study Group, which indicates that the health education is effective in improving the practice of the samples regarding foot care among diabetic patients.

Researcher applied paired t test to compare difference between average scoring of before and after health education. Since P value is less than 0.05 (P value = 0.000) difference in average scores is statistically significant. Researcher concluded at 5% level of significance and 49 degrees of freedom that the above data gives sufficient evidence to conclude that diabetic patients who have received health education regarding foot care among diabetic patients had higher mean knowledge scores in post-test than in pre-test. Hence, we reject null hypothesis and accept research hypothesis. It can be concluded that, the health education regarding foot care among diabetic patients is proved to be effective in delivering the knowledge and awareness.

Researcher applied paired t test to compare difference between average practice scores of before and after health education with self-instructional module. Since P value is less than 0.05 (P value = 0.000) difference in average scores is statistically significant. Researcher concluded at 5% level of significance and 49 degrees of freedom that the above data gives sufficient evidence to conclude that diabetic patients who have received health education regarding foot care among diabetic patients had higher mean practice scores in post-test than in pre-test. Hence, we reject null hypothesis and accept research hypothesis. It can be concluded that, the health education regarding foot care among diabetic patients is proved to be effective in improving the practices and awareness.

The association between knowledge score and demographic variables was assessed by using ANOVA. This table gives the summary of ANOVA results. Educational status was found to have significant association with knowledge score.

The table shows association between practice score and demographic data. Demographic variables 'Suffering from diabetes mellitus' was the only demographic variable found to have significant association with practice score.

Table 1: Description of samples characteristics.

S. No	Demographic Variable	Category	Frequency	Percentage
1	Age	20 -30 years	7	14%
		30-40 years	9	18%
		40-50 years	15	30%
		50-60 years	19	38%
2	Gender	Male	29	58%
		Female	21	42%
3	Educational Status	Primary	8	16%
		Secondary	16	32%
		Graduate	17	34%
		Post Graduate	9	18%
4	Occupation	Labor	0	0%
		Service	15	30%
		Business	18	36%
		Others	17	34%
5	Monthly Family Income	Below Rs.5000/-	28	56%
		Rs.5001-Rs.10000/-	15	30%
		Rs.10001-Rs.15000/-	1	2%
		Above Rs.15000	6	12%
6	Duration Of Suffering From Disease	0-2 years	32	64%
		2-4years	11	22%
		4-6years	2	4%
		6-8years	5	10%

Table 2: Analysis of data related to knowledge and practice of self-care of foot among diabetic patient before and after health education with self-instructed module.

S. No		Pre-test		Post-test	
	Knowledge grade	Frequency	Percentage	Frequency	Percentage
1	Good (14-20)	6	12%	34	68%
2	Average 8-13)	21	42%	16	32%
3	Poor (0-7)	23	46%	-	-
	Total	50	100%	50	100%

Table 3

S. No		Pre-test		Post-test	
	Knowledge grade	Frequency	Percentage	Frequency	Percentage
1	Practice grade	Frequency	Percentage	Frequency	Percentage
2	Poor practice (0-4)	15	30%	2	4%
3	Satisfactory (5-7)	35	70%	35	70%
	Good practice (8-10)	-	0%	13	26%
	Total	50	100%	50	100%

Table 4: Analysis of data related to the effect of health education on the knowledge and practice score.

S.NO	TEST	MEAN	SD	T	df	P
1	Pre-test	8.34	2.95	18.36	49	0.0000
2	Post-test	14.44	2.25			

Table 5

S.NO	Test	Mean	SD	T	df	p
1	Pre-test	4.94	1.06	13.12	49	0.0000
2	Pre-test	6.6	1.25			

Table 6: An analysis of data to find relationship between knowledge and selected demographic variables.

S.NO	DEMOGRAPHIC VARIABLE	F	P
1	Age	0.23	0.872
2	Gender	0.62	0.435
3	Educational status	2.5	0.071
4	Occupation	0.18	0.839
5	Monthly family Income	0.14	0.934
6	Suffering from diabetes mellitus	0.47	0.704

Table 7

S.NO	Demographic Variable	F	P
1	Age	0.13	0.94

2	Gender	1.34	0.253
3	Educational Status	1.37	0.263
4	Occupation	1.56	0.222
5	Monthly Family Income	2.17	0.104
6	Suffering From Diabetes Mellitus	2.34	0.086

DISCUSSION

The major findings of the study were based on the objective of the study. Majority of 46% of diabetic patients in pre -test were having poor knowledge score (0-7), whereas in post-test majority 68% of the diabetic patients had good knowledge score (14-20) and majority of 70% of diabetic patients in pre -test were having poor practice score (0-4), and not a single patient of the study Group was having good practice score (8-10), whereas in post-test majority 70% of the diabetic patients had average practice score (5-7), 26% of them had good practice score (8-10).[14,15]

In pre-test Mean of total knowledge is 8.34 and standard deviation is 2.95 where as in post-test Mean is 14.44 and standard deviation is 2.25. Paired t test was used to compare difference between average scoring of before and after self-instructional module. Since P value is less than 0.05 (P value = 0.000) difference in average scores is statistically significant. Pre and Post-test correct practices were, Mean is 4.94 and standard deviation is 1.06 where as in post-test Mean is 6.6 and standard deviation is 1.25. Since P value is less than 0.05 (P value = 0.000). It can be concluded that, the self-instructional module regarding foot care among diabetic patients is proved to be effective in improving the Knowledge and practices. In demographic variables Education status was the only demographic variable found to have significant association with knowledge score.

CONCLUSION

Health education plays a significant role in prevention of diabetic foot ulcers in diabetic patients. Health education improves selfcare and knowledge among diabetic patients.

Limitations:

The larger sample size might be considered for generalizing results.

Single centred study

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International Journal of Academic Medicine and Pharmacy (www.academicmed.org)
ISSN (O): 2687-5365; ISSN (P): 2753-6556