

A Pre-Experimental Study on Knowledge Regarding Prevention of Diabetic Foot Ulcer

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Abstract

A pre-experimental study with one group, pre-test and post-test design was chosen to assess the effectiveness of structured teaching program in improving knowledge in prevention of diabetic foot ulcer among diabetes mellitus patients. 50 patients with diabetes mellitus in the age group of 45 years to 75 years were selected using non-probability purposive sampling technique. After explaining about study pre test was done by using structured multiple choice questionnaires and structured teaching program on prevention of diabetic foot was administered for 30 min and the post test was done after 7 days. The data collected was interpreted using inferential statistics. In this study pre test the mean was 10.48 and SD was 5.31 and in post test mean was 23.00 and SD was 1.79.

Keywords: Diabetic Foot Ulcer; Diabetes Mellitus; Structured Teaching Program.

Background of the Study

"I marvel that society would pay a surgeon a fortune to remove a person's leg – but nothing to save it!" George Bernard Shaw Health is the level of functional or metabolic efficiency of a living being. In humans, it is the general condition of a person's mind, body and spirit, usually meaning to be free from illness, injury or pain. Healthcare continues to pose a major challenge for developing countries. The successes of individual health programs remain overshadowed by the problems these nations face in the 21st century.

Diabetes is a chronic health problem with devastating, yet preventable consequences. It is characterized by high blood glucose levels resulting from defects in insulin production, insulin action, or both. Taking control of diabetes to improve quality of life has put the spotlight on the need for additional support and education for patients with diabetes. Diabetes is a chronic disease for which control of the condition demands patient self-management. 8-10 Self-management behaviors include monitoring

blood glucose levels, taking medication, maintaining a healthy diet and regularly exercising. For most patients, it is important to conduct daily foot exams. However, despite the technological and scientific advances made toward the treatment of diabetes, the American Association of Clinical Endocrinologists reports that only 1 in 3 patients with diabetes is well controlled.

Self-management of diabetes requires time and activities (i.e. monitoring blood-glucose levels) that can attract the attention of others. Daily decision making in diabetes can have direct implications for health, however many daily self-care activities are aimed at achieving maintenance of acceptable standards that are necessary to prevent long term complications. Diabetic foot ulcer (DFU) is one of the common but often neglected complications of diabetes. There is no doubt that people with DFU have considerable mortality and morbidity. The risk of death for those with foot ulcers is 12.1 per 100 person-years of follow-up compared with 5.1 in those without foot ulcers. Similarly the risk for amputation in patients with diabetes is 15 times greater than for the non-diabetic population and the majority of amputations are preceded by DFU. In addition to increased morbidity and mortality, subjects with DFU have a poorer quality of life in comparison to those without ulcers. The annual incidence of DFU is 2.5% and it is estimated that 15% of all diabetics are affected by diabetic foot ulcers during their lifetime causing a considerable financial burden on health care providers.

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India leads the world with largest number of diabetic subjects earning the dubious distinction of being termed the "diabetes capital of the world". According to the Diabetes Atlas 2006 published by the International Diabetes Federation, the number of people with diabetes in India currently around 40.9 million is expected to rise 69.9 million by 2025 unless urgent preventive steps are taken. Even though the prevalence of micro vascular complications of diabetes like retinopathy and nephropathy are comparatively lower in Indians, the prevalence of premature coronary artery disease is much higher in Indians compared to other ethnic groups.

DFU is a preventable condition if high risk individuals are identified by appropriate screening program and are given appropriate foot care education. Similarly, if various chronic complications of diabetes such as neuropathy, peripheral vascular disease and foot deformities are prevented, it may be possible to prevent the development of DFU and its consequences.

Hence, it is very important to impart knowledge regarding prevention of complications among diabetic patients.

Statement of the Problem

A study to assess the effectiveness of structured teaching program on knowledge regarding prevention of diabetic foot ulcer among diabetic patients at selected hospital, Bhadrachalam, AP.

Objectives

1. To assess the level of knowledge on prevention of diabetic foot ulcer among diabetic patients.
2. To assess the effectiveness of structured teaching program in knowledge on prevention of diabetic foot ulcer among diabetic patients.
3. To associate the selected demographic variables with the level of knowledge on prevention of diabetic foot among diabetic patient.

Methodology

Pre-experimental with 1 group, pre-test and post-test design was chosen to assess the effectiveness of structured teaching program in improving knowledge

in prevention of diabetic foot ulcer among diabetes mellitus patient at selected hospital at Bhadrachalam, Khammam district, AP. The settings of the study chosen to Dr. Mohan Rao Hospital at Bhadrachalam, Khammam district, AP. The target population for the study is all the patients with diabetes mellitus in the age group of 45 years to 75 years in selected hospital. The diabetic patients in the age group of 45 to 75years will be selected as sample for the study. Sample size consists of 50 Diabetes Mellitus patients at selected hospital. Non probability purposive sampling technique is used in selecting 50 diabetic patients.

Description of the Instruments

Section I : Demographic variables

Section II :Structured multiple choice questions to assess the knowledge regarding prevention of diabetic foot ulcer among DM patients. (Score interpretation)

Data Collection Procedure

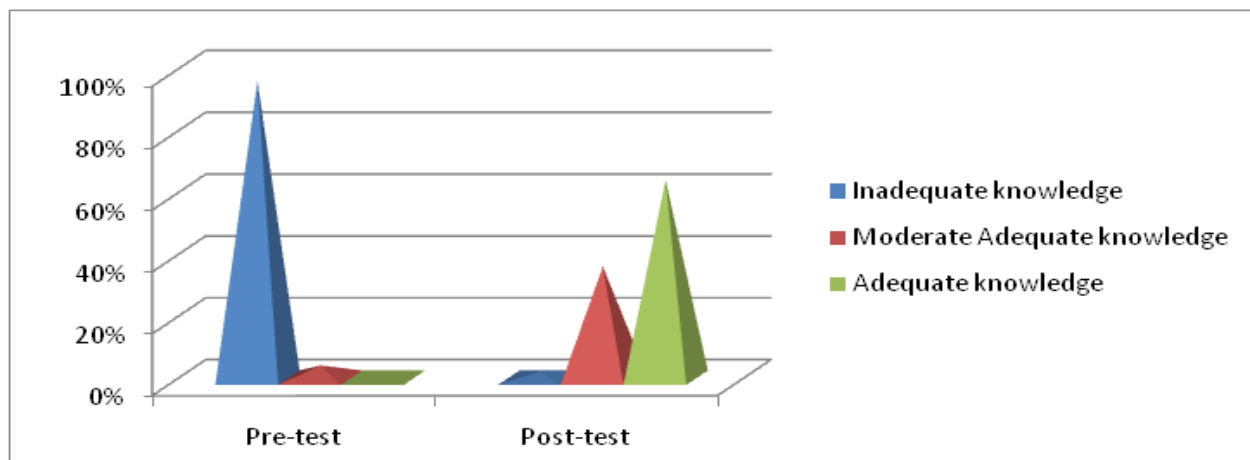
Data collection for the main study was conducted at Dr. Mohan Rao Hospital, Bhadrachalam, AP, from March 4th 2013 to March 31st 2013. The permission was obtained from Institutional Review Board and Principal, Maruthi College of Nursing; the necessary permission was obtained from Hospital Administrative Officer. A total of 50 samples were selected. After explaining about the study, informed consent was obtained; after that pre-test was done by using structured multiple choice questionnaires. After the pre test structured teaching program on prevention of Diabetic foot among Diabetes Mellitus patient, was administered for 30 minutes, then 10 minutes was given them to clarify their doubts. Same procedure was adopted for subsequent days for all the sample. The pos-test was done on seventh day or during next visit by using same questionnaire.

Table 1 shows the frequency and percentage distribution of selected demographic variables of Diabetic Patients. Regarding to age out of 50 diabetic patient, 18(36.0%) belong to age group of 36-45 years and 13(26.0%) belong to age group of 46-55 years and 11(22.0%) belong to 56-65 years of age group and 8(16.0%) belong to 65-75years of age group. Out

Table 1: Frequency and Percentage Distribution of Demographic Variables Among Patients With Diabetes Mellitus.(N=50)

Sl No	Selected Demographic Variables	Frequency n	Percentage %
1	Age		
	a)36-45	18	36.0
	b)46-55	13	26.0
	c)56-65	11	22.0
	d)65-75	8	16.0
2	Sex		
	a)Male	27	54.0
	b)Female	23	46.0
3	Education		
	a)PG	3	6.0
	b)UG	12	24.0
	c)Intermediate	18	36.0
	d)School	17	34.0
4	Occupation		
	a)Employee	18	36.0
	b)Business	9	18.0
	c)Farmer	8	16.0
	d)Unemployed	15	30.0
5	Income		
	a)<5000	17	34.0
	b)5000-10000	17	34.0
	c)10000-15000	10	20.0
	d)>15000	6	12.0
6	Family		
	a)Joint Family	15	30.0
	b)Nuclear Family	35	70.0
7	Diet		
	a)Vegetarian	8	16.0
	b)Non-vegetarian	3	6.0
	c)Mixed	39	78.0
8	Area		
	a)Rural	16	32.0
	b)Urban	34	68.0
9	Habits		
	a)Alcoholic	8	16.0
	b)Smoker	5	10.0
	c) a & b	7	14.0
	d)None	50	60.0
10	Family history		
	a)Yes	19	38.0
	b)No	31	62.0

Frequency and Percentage Distribution of Level of Pre and Post Test Knowledge Regarding Prevention of Diabetic Foot Ulcer among Diabetic Patients.



of 50 samples, 27(54%) belong to Male and 23(46%) belong to Female. Regards to education 3(6%) were educated up to PG, 12(24%) were educated up to UG, 18(36%) were educated till intermediate and

17(34%) had school education In Pre-test out of 50 sample, 48(96%) of them had inadequate knowledge, 2(4%) of them had moderated adequate knowledge and none of them had adequate knowledge.

Table 2: Mean and Standard Deviation of Pre and Post Test Level of Knowledge Among Diabetic Patient Regarding Prevention of Diabetic Foot. (N=50)

Sl. No.	Measurements	Pre Test	Post Test
1	Mean	10.48	23.00
2	S.D	5.31	1.79
3	Paired 't' test value	t=15.688,df=49 P=0.000***	

Note: ***-P<0.001 Level of significance

Table 3: Association Between Selected Demographic Variable With Pre Test Level of Knowledge on Prevention of Diabetic Foot Among Diabetic Foot. (N=50)

Sl.No.	Selected Demographic Variables	Inadequate		Moderately adequate		Adequate		Chi-square
		n	%	n	%	n	%	
1	Age							X ² =4.512 D.F=6 P=0.608 NS
	a)36-45	10	20.0	8	16.0	1	0.0	
	b)46-55	9	18.0	3	6.0	1	2.0	
	c)56-65	8	16.0	2	4.0	0	2.0	
	d)65-75	5	10.0	3	6.0	2	0.0	
2	Sex							X ² =2.823 D.F=2 P=0.244NS
	a)Male	15	30.0	10	20.0	2	4.0	
	b)Female	17	34.0	6	12.0	2	0.0	
3	Education							X ² =3.304 D.F=6 P=0.770 NS
	a)PG	1	2.0	2	4.0	0	0.0	
	b)UG	8	16.0	4	8.0	0	2.0	
	c)Intermediate	13	26.0	4	8.0	1	2.0	
	d)School	10	20.0	6	12.0	2	4.0	
4	Occupation							X ² =6.827 D.F=6 P=0.337 NS
	a)Employee	12	24.0	6	12.0	0	0.0	
	b)Business	7	14.0	1	2.0	1	2.0	
	c)Farmer	5	10.0	2	4.0	1	2.0	
	d)Unemployed	8	16.0	7	14.0	0	0.0	
5	Income							X ² =3.042 D.F=6 P=0.804 NS
	<5000	10	20.0	7	14.0	0	0.0	
	5000-10000	11	22.0	5	10.0	1	2.0	
	10000-15000	7	14.0	2	4.0	1	2.0	
	>15000	4	8.0	2	4.0	0	0.0	
6	Family							X ² =3.580 D.F=4 P=0.466NS
	Joint Family	7	14.0	7	14.0	1	2.0	
	Nuclear Family	23	46.0	9	18.0	1	2.0	
7	Diet							X ² =2.429 D.F=4 P=0.657 NS
	Vegetarian	5	10.0	3	6.0	0	0.0	
	Non-vegetarian	1	2.0	2	4.0	0	0.0	
	Mixed	26	52.0	11	22.0	2	4.0	
8	Area							X ² =0.870 D.F=4 P=0.929NS
	a)Rural	10	20.0	5	10.0	1	2.0	
	b)Urban	21	42.0	11	22.0	1	2.0	
9	Habits							X ² =19.983 D.F=6 P=0.003 NS
	a)Alcoholic	5	10.0	3	6.0	0	0.0	
	b)Smoker	3	6.0	0	0.0	2	4.0	
	c) a & b	5	10.0	2	4.0	0	0.0	
	d)None	19	38.0	11	22.0	0	0.0	
10	Family history							X ² =2.382 D.F=2 P=0.304NS
	a)Yes	11	22.0	8	16.0	0	0.0	
	b)No	21	42.0	8	16.0	2	4.0	

Table 4: Association between selected demographic variable with post test level of knowledge on prevention of diabetic foot among Diabetic foot. (n=50)

Sl.No.	Selected Demographic Variables	Inadequate		Moderately adequate		Adequate		Chi-square
		N	%	n	%	n	%	
1	Age							
	a)36-45	0	0.0	2	4.0	16	32.0	X ² =3.704
	b)46-55	0	0.0	0	0.0	13	26.0	D.F=3
	c)56-65	0	0.0	0	0.0	11	22.0	P=0.295 NS
	d)65-75	0	0.0	0	0.0	8	16.0	
2	Sex							X ² =0.013
	a)Male	0	0.0	1	2.0	26	52.0	D.F=1
	b)Female	0	0.0	1	2.0	22	44.0	P=0.908NS
3	Education							
	a)PG	0	0.0	0	0.0	3	6.0	X ² =3.704
	b)UG	0	0.0	0	0.0	12	24.0	D.F=3
	c)Intermediate	0	0.0	2	4.0	16	32.0	P=0.295 NS
	d)School	0	0.0	0	0.0	17	34.0	
4	Occupation							
	a)Employee	0	0.0	1	2.0	17	34.0	X ² =1.100
	b)Business	0	0.0	0	0.0	9	18.0	D.F=3
	c)Farmer	0	0.0	1	0.0	8	16.0	P=0.777
	d)Unemployed	0	0.0	2	2.0	14	28.0	NS
5	Income							
	<5000	0	0.0	0	0.0	17	34.0	X ² =4.044
	5000-10000	0	0.0	2	4.0	15	30.0	D.F=3
	10000-15000	0	0.0	0	0.0	10	20.0	P=0.257
	>15000	0	0.0	2	4.0	6	12.0	NS
6	Family							
	Joint Family	0	0.0	1	2.0	14	28.0	X ² =0.442
	Nuclear Family	0	0.0	1	2.0	34	68.0	D.F=2
								P=0.802NS
7	Diet							
	Vegetarian	0	0.0	1	2.0	7	14.0	X ² =1.840
	Non-vegetarian	0	0.0	0	0.0	3	6.0	D.F=2
	Mixed	0	0.0	1	2.0	38	76.0	P=0.399
								NS
8	Area							
	a)Rural	0	0.0	1	0.2	15	30.0	X ² =0.333
	b)Urban	0	0.0	1	0.2	32	64.0	D.F=2
								P=0.846NS
9	Habits							
	a)Alcoholic	0	0.0	1	2.0	7	14.0	X ² =2.040
	b)Smoker	0	0.0	0	0.0	5	10.0	D.F=3
	c) a & b	0	0.0	0	0.0	7	14.0	P=0.564 NS
	d)None	0	0.0	1	2.0	29	58.0	
10	Family history							
	a)Yes	0	0.0	0	0.0	19	38.0	X ² =1.277
	b)No	0	0.0	2	4.0	29	58.0	D.F=1
								P=0.258NS

Note: NS- Not Significant

In Post- test out of 50 sample, 32(64%) of them had adequate Knowledge and 16(32.0%) of them had moderately adequate Knowledge and 2 (4%) had Inadequate knowledge.

Table 5 reveals the association of selected demographic variable with post test knowledge on prevention of diabetic foot among diabetic patients. The Chi-square reveal that, there was no significant association with age, sex, education, occupation, marital status, residence, smoking habit, family history and hobbies since it was not statistically significant at the level of P<0.001.

Discussion

1. To assess the level of knowledge on prevention of diabetic foot ulcer among diabetic patients.

The study revealed that the knowledge among diabetic patients regarding prevention of diabetic foot ulcer was effectively assessed in pre-test and post-test. In Pre- test out of 50 sample, 48(96%) of them had inadequate knowledge, 2(4%) of them had moderated adequate knowledge and none of them had adequate knowledge.

2. To assess the effectiveness of structured teaching program in knowledge on prevention of diabetic foot ulcer among diabetic patients.

In Post- test out of 50 sample, 32(64%) of them had adequate knowledge and 16(32.0%) of them had moderately adequate knowledge and 2 (4%) had inadequate knowledge.

3. To associate the selected demographic variables with the level of knowledge on prevention of diabetic foot among diabetic patient.

The association of selected demographic variable with post- test knowledge on prevention of diabetic foot among diabetic patients. The Chi-square reveal that, there was no significant association with age, sex, education, occupation, marital status, residence, smoking habit, family history and hobbies since it was not statistically significant at the level of $P < 0.001$.

Conclusion

This study reveals that educating the client about preventive practices to save them from foot ulcer is very essential. Nursing professionals together with their counterparts must organize health teaching for diabetic subjects and safeguard them from complications of disease.

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