International Journal of Advance Research in Medical Surgical Nursing

Sonali Kumawat
Vice Principal and HOD, Department of Medical Surgical Nursing, Shubhdeep College of Nursing, Madhya Pradesh, India

A pre experimental study to assess the effectiveness of structured teaching programme in terms of knowledge regarding foot care among type II diabetic patient attending OPD of selected hospital of Indore

Sonali Kumawat

DOI: https://doi.org/10.33545/surgicalnursing.2019.v1.i2a.148

Abstract
A pre experimental One group pre-test post-test study to evaluate the effectiveness of structured teaching programme in terms of knowledge regarding foot care among type II diabetic patient attending OPD of selected hospital of Indore by using non probable purposive sampling technique method. The tool comprised of by using structured knowledge questionnaire. The pretest was conducted and the self-instructional module was administered. The post test was conducted after 15 days the data obtained were analyzed by using differential and inferential statistics. The mean post-test knowledge score is 22.80 was greater than the mean pre-test knowledge scores 8.53. The enhancement in the knowledge level of respondents is 16.76 indicates gain in knowledge by respondents.

Keywords: One group pre-test post-test pre experimental study, type II diabetic patient, and non-probable purposive sampling

Introduction
Diabetes mellitus appears to have been a death sentence in the ancient era. Hippocrates makes no mention of it, which may indicate that he felt the disease was incurable. Aretaeus did attempt to treat it but could not give a good prognosis; he commented that "life (with diabetes) is short, disgusting and painful." Sushruta (6th century BCE) identified diabetes and classified it as Medhumeha. He further identified it with obesity and sedentary lifestyle, advising exercises to help cure it. (Medvei, Victor Cornelius 1993). The ancient Indians tested for diabetes by observing whether ants were attracted to a person's urine, and called the ailment "sweet urine disease". Avicenna recognized primary and secondary diabetes. He also described diabetic gangrene, and treated diabetes using a mixture of lupine, trigonella (fenugreek), and zedoary seed, which produces a considerable reduction in the excretion of sugar, a treatment which is still prescribed in modern times. (Dwivedi &Girish 2007) [3].

The International Diabetes Federation estimates that the number of diabetic patients in India more than doubled from 19 million in 1995 to 40.9 million in 2007. It is projected to increase to 69.9 million by 2025. Currently, up to 11 per cent of India's urban population and 3 per cent of rural population above the ages of 15 have diabetes. The World Health Organization estimates that mortality from diabetes and heart disease cost India about $210 billion every year and is expected to increase to $335 billion in the next ten years. These estimates are based on lost productivity, resulting primarily from premature death. (Hindustan Times, 2007) [12].

(Indo Asia News Services, 2010) [10] reported that India is becoming the diabetes capital of the world with over 50 million people affected by the lifestyle disease that is all too often discovered only in the advanced stage.

Foot problems constitute a significant part of morbidity in diabetics in India. (Chandalia HB, Das AK. (2008) [1]. There are some striking dissimilarities between foot problems in Western countries and India. (Caputo GM 1994) [2]. The etiology of the foot problems in India is primarily peripheral neuropathy, peripheral vascular disease being rare. It is really regrettable that surgical intervention or amputation is frequently required in our country for a neuropathic foot, which is entirely preventable.

Diabetes foot has been estimated to be 30% under-recorded in general hospital admissions.

Corresponding Author:
Sonali Kumawat
Vice Principal, HOD, Department of Medical Surgical Nursing, shubhdeep College of Nursing Madhya Pradesh, India

Therefore, while the amputation procedure is likely to be accurately coded, diabetes may not be coded consistently in the diagnosis field. (Simmons D; Scott D: 1995) [11].

Diabetic foot syndrome is one of the common and most devastating preventable complications of diabetes mellitus (DM). The various factors contributing to this syndrome are peripheral sensory neuropathy, improper footwear, lack of patient knowledge about foot care and uncontrolled diabetes. In India, footwear practices vary widely. (Viswanathan V, 1997) [15] (Kaur K, 1998) [7]. Apart from significant proportions of patients walking barefoot outdoors, a majority of Indians walk barefoot indoors. The custom of visiting religious shrines barefoot in a tropical country like India where the pavements or asphalt roads become very hot can lead to injury. Furthermore, use of inappropriate footwear like Hawaian chappals having a rubber sole, supported by a strap in the first inter-digital space, but no back strap predisposes to injury. Similar footwear, the Kolhapuri chappal, made of leather also exposes the feet to injury.Combining this with the practice of not wearing socks, particularly in Indian females can result in a hyperkeratotic and fissured heel or a callosity of the first interdigital space or injury to the great toe. 75% of the population in India lives in villages where barefoot walking is a common practice. More than 35 percent of the 1.3 billion populations in India lives below poverty line. Poor people genuinely cannot afford to purchase good footwear and therefore walk barefoot in day-to-day life.

Research Elaborations
Statement of problem
 "A pre experimental study to assess the effectiveness of structured teaching programme in terms of knowledge regarding foot care among type II diabetic patient attending OPD of selected hospital of Indore, "

Objectives
The objectives of the study were:
1. To assess the knowledge of diabetic patients regarding foot care as measured by structured interview schedule.
2. To find out association with pre-test knowledge score & selected demographic variables.
3. To find out the effectiveness of structured teaching programme through pamphlet on foot care of diabetic patients in terms of gain in knowledge.

Hypothesis
RH₁: There is significant association with pre-test knowledge score and & selected demographic variable regarding foot care among type II diabetic patients at the level of $p<0.05$.
RH₂: There is significant difference between pretest & post-test knowledge score regarding foot care among type II diabetic patients at the level of $p<0.05$.

Materials and Methods
Population
Type II diabetic patients

Sample
Type II diabetic patient attending OPD of Choithram Hospital and Research Centre, Indore

Sample Size
60 Type II Diabetic Patients

Sampling Technique
Non probable purposive sampling.

Setting
Choithram Hospital and Research Centre, Indore, Madhya Pradesh, India
The conceptual framework for the present study is based on modeling and role modeling theory.

Research Design
The research design selected for the present study was a one group pre-test post-test research design

Table 1: Pre experimental one group pre and post-test research design

Pre-test	Treatment	Post–test
RO₁	X	RO₂
Knowledge of type II Diabetic patients.	Structured teaching programme through phamplets	Knowledge of type II Diabetic patients.

The interpretations of the symbol are as below:
RO1 = Assessment of knowledge by pre-test.
X = a structured teaching programme through pamphlet regarding diabetic foot care
RO2 = Assessment of knowledge by post-test.

Ethical Consideration
After obtaining permission from research committee of Choithram College of nursing, prior permission was obtained from nursing superintendent and medical superintendent of Choithram Hospital and Research Centre, Indore, India.Consent was taken from each participant who had participated in the study.

Description of the Tool
Structured interview consists of two sections: section I& II

Section I
Consist of demographic background of type II diabetic patients which include 8 items, they are age, sex, marital status, education, occupation, income/month, family history and duration of diabetes mellitus.

Section II
Consists of question assessing knowledge and care about patient with pacemaker. There are a total of 24 items in the interview, includes Assessment of knowledge about meaning and causes of diabetes mellitus, Assessment of knowledge about clinical features of diabetes mellitus. & neuropathy, Assessment of knowledge regarding management diabetes mellitus & diabetic foot and Assessment of knowledge regarding preventive aspects of diabetic foot.

Questionnaire to assess the knowledge of type II diabetic patient regarding foot care it consisted of 24 items covering the areas of procedure. Item had four responses and each item scored as 1.Score of each item refers to the presence or absence of knowledge, a score of (0-8) indicates poor

knowledge, a score of (9-16) indicates average knowledge, a score (17-24) indicates good knowledge. Scoring was done in accordance with suggestions of experts in Medical surgical nursing field.

Reliability: Reliability of the tool was calculated using split half method i.e. 'r' = 0.89, which showed that the tool was reliable.

Data Collection and Data Analysis: The collected data are organized and presented under the following sections:

Section I: Socio demographic data

Section 1
Frequency and percentage of socio demographic variables

Section 2
Association with pretest knowledge score and selected demographic variables.

Section 3
Correlation between pretest and post-test knowledge and score.

Table 2: Frequency and Percentage Distribution of Sample Characteristics (N=60)

Sr. No.	Demographic variables	Frequency (n)	Percentage (%)
	Age in years		
1.	31-40	5	8.3
	41-50	19	31.6
	51-60	27	45
	>60	9	15
	Sex		
2	Male	36	60
	Female	24	40
	Marital status		
3.	Single	4	6.66
	Married	47	78.33
	Divorced	4	6.66
	Widow	5	8.3
	Education		
4.	Illiterate	9	15
	Primary Education	9	15
	Higher Secondary	36	60
	Graduate and above	6	10
	Occupation		
5.	Labourer	8	13.33
	Business	14	23.33
	Service	22	36.66
	Unemployed	16	26.66
	Monthly Income in Rs.		
6.	<5000	19	31.6
	5000-10,000	15	25
	10,000-15,000	23	38.3
	>15,000	3	5
	Family history of diabetes		
7.	Yes	36	60
	No	24	40
	Years of diabetes mellitus		
8.	≤ 5	12	20
	6-10	30	50
	11-15	12	20
	>15	6	10

Pre-test was done to assess the knowledge of the subjects by using structured interview schedule. Structured teaching was given to individual sample with pamphlet and power point presentation and pamphlet were hand over to them after session. Post-test was conducted on the fifteenth day with the same interview schedule. The collected data were analyzed by using descriptive and inferential statistics.
Demographic data shows that majority belonged 51-60 years (45%), 36 were males (60%), 4 (6.66) were single, 47 (78.33) were married, 4 (6.66%) were divorced and widow, 9 (15%) Illiterate, 9 (15%) were primary educated, 36 (60%) were higher secondary educated and only 6(10%) are Graduate and above. regarding occupation 8 (13.33%) patients were laborer, 14 (23.33%) were having their own

business, 22 (36.66) were of service class and 16 (26.66%%) were unemployed, 20 (31.6%) patients have Family income per month less than 5000 and 15(25%) patients have 5001-10,000 income per month 22(38.3%) have 10,000-15000 rupees monthly income of family and 3 (5%) patients have income more than 15,000,36 (60%) patients had family history of diabetes.
The study findings revealed that there is significant association with knowledge of diabetic patients and selected variables like occupation, monthly income, and family history of diabetes mellitus so the RH_1 was accepted.
Finding of study shows that pre-test knowledge score shows majority of samples 31 (51.66%) scored poor knowledge and 26 (43.33%) samples scored average knowledge and 3

(5%) scored good knowledge. Post-test knowledge score shows most of the sample i.e.30 (50%) scored average knowledge and 30 (50%) sample scored good knowledge.

Table 2: Frequency and percentage distribution of pretest knowledge score of diabetic patient (N=60)

Pretest Knowledge Score	Frequency	Percentage
(0-8) Poor	31	51.66%
(9-16) Average	26	43.33%
(17-24) Good	3	5%

The above depicted table shows that.31(51.66%) samples

Section II

scored poor knowledge and 26(43.33%) samples scored average knowledge and 3(5%) scored good knowledge.

Table 3: Mean, mean percentage and standard deviation of pretest knowledge scores

Pretest Mean	Mean%	Standard Deviation
8.53	35.54%	4.33

This table - 3 depicts the pretest knowledge mean is 8.53, and mean percentage 35.54% and standard deviation is 4.33.

Table 4: Association with pretest knowledge scores and selected demographic variables. N=60

Sr. No.	Demographic variables	Score			DF	χ^2 value
		Avg. (0-8)	Good (9-16)	Very Good (17-24)		
1.	Age in years				6	10.52 NS
	31-40	5	0	0		
	41-50	13	6	0		
	51-60	10	14	3		
	Above 60	3	6	0		
2.	Sex				2	1.87 NS
	Male	16	18	2		
	Female	15	8	1		
3.	Marital status				6	2.77 NS
	Single	2	2	0		
	Married	26	19	2		
	Divorced	1	2	1		
	Widow	2	3	0		
4.	Education				6	10.88 NS
	Illiterate	8	1	0		
	Primary Education	8	1	0		
	Higher Secondary	13	20	3		
	Graduate and above	2	4	0		
5.	Occupation				6	15.11 S*
	Laborer	6	2	0		
	Business	5	9	0		
	Service	8	11	3		
	Unemployed	12	4	0		
6.	Monthly Income in Rs.				6	20.74 S**
	<5000	15	4	0		
	500-10,000	5	10	0		
	10,000-15,000	11	9	3		
	>15,000	0	3	0		
7.	Family history of diabetes				2	9.3 S**
	Yes	13	20	3		
	No	18	6			
8.	Duration of diabetes mellitus				6	5.44 NS
	<5 years	9	3	0		
	5-10 years	12	16	2		
	10-15 years	7	4	1		
	>15 years	3	3	0		

$p < 0.05*$ $p < 0.01**$ $p < 0.001***$ NS – Non significant S – Significant

The data in Table shows that there is significant association with Pretest knowledge score and selected demographic variable. Such as age, occupation, monthly income& family history of diabetes & there is no significant association between Pretest knowledge score and selected demographic variable. Such as sex, marital status, education & duration of diabetes eye witness of their parents when care them.

Table 5: Frequency and percentage distribution of posttest knowledge score of diabetic patient. (N=60)

Posttest Knowledge Score	Frequency	Percentage
(0-6) Poor	0	0
(7-13) Average	30	50%
(14-20) Good	30	50%

The above depicted table shows the frequency and percentage score, most of the sample i.e.30 (50%) scored average knowledge and 30 (50%) sample scored good knowledge

Table 6: Mean, mean percentage and standard deviation of posttest knowledge scores

Post-test Mean	Mean%	Standard Deviation
16.76	69.83%	3.83

This table depicts the posttest knowledge mean is 16.76, and mean percentage 69.83% and standard deviation is 3.83

Section III

Table 7: Analysis of significant difference between pretest and post-test knowledge regarding foot care among "Type II diabetic patient".
N=60

Test	Mean	Mean percentage	SD	Actual gain Of Knowledge	Mean Difference	't' Value
Pretest	8.54	35.54%	4.33			
				34.29%	8.22	15.33**
Post test	16.76	69.83%	3.83			

$p< 0.05*$ $p< 0.01**$ $p< 0.001***$ NS – Non significant S – Significant

The mean post-test knowledge score ($x2=16.76$) of diabetic patients was higher than the mean pre-test knowledge score ($x1=8.53$). The computed 't' value ('t'59=15.33; $p<0.05$) showed a significant difference between the pre and post-test knowledge scores. So RH_2 was accepted.
Findings of the study showed that the knowledge scores of type II diabetic patients were less before the STP. STP facilitated them to learn to care a foot correctly and independently, which is indicated by the post-test knowledge scores. All the subjects showed their interest to learn self-care of foot. Learning was most effective and satisfying to the patients, expressed by many subjects. So the STP was very effective and appreciated by everybody. The subjects brought some other patients and caregivers to teach them foot care. The STP was accepted by all the subjects.

Conclusion

Conclusions drawn from present study was as follows-
Educating the patient will help them to improve their knowledge regarding foot care, prevents furture complication and leads to safe diabetes mellitus.Structured teaching programme through pamphlet is considered an effective education strategy to improve the awareness and knowledge of type II diabetic patient regarding foot care.

References

1. Dorresteijn JAN., Kriegsman DMW, Valk GD. Complex interventions for preventing diabetic foot ulceration. Cochrane Database of Systematic Reviews. 2010, 1(2).
2. Sun PC, Jao SH, Lin HD, Chan RC, Chou CL, Wei SH. Improving preventive foot care for diabetic patients participating in group education. J Am Podiatr Med Assoc. 2009;99(4):295-300.
3. Sascha S; Herbert M, Eva-Maria P. Journal of Clinical Nursing. 2008;;17(21):2920-2926. (7)
4. Iversen MM, Ostbye T, Clipp E. Regularity of preventive foot care in persons with diabetes: results from the Nord-Trondelag Health Study. Res Nurs Health. 2008;31(3):226-237.
5. Searle A, Gale L, Campbell R, Wetherell M, Dawe K, Drake N, *et al*. Reducing the burden of chronic wounds: prevention and management of the diabetic foot in the context of clinical guidelines. J Health Serv Res Policy, 2008, 82-91.
6. RochaI RM, ZanettiII ML, dos SantosIII MA. Brazil. To describe the knowledge and behaviors of patients with diabetes towards foot care. Acta Paul. Enferm. São Paulo Jan./Feb. 2009, 22(1).
7. Juliana CN Chan, Malik V, Jia W, Kadowaki T, Yajnik CS, Kun-Ho Y, *et al*., Diabetes in Asia Epidemiology, Risk Factors, and Pathophysiology JPhD JAMA. 2009;301(20):2129-2140.
8. Cothran MM, Sereika SM, Fischl AR, Schmitt PL, Charron-Prochownik D. A self-instructional program for diabetes educators on preconception counseling for women with diabetes. The international journal of lower extremity wounds Diabetes Educ 2009;35(4):652-6.
9. Uplinger N, Turkel MC, Adams PC, Nelson-Slemmer D, Pierce S. Development of a Diabetes Nurse Champion Program. Diabetes Educ; c2009 Aug 11.
10. Brunner, Suddarth. Medical Surgical Nursing.-foundation of clinical practice (2th ed.). Philadelpia, W.B. Saunders s company; c1998.
11. Brunner, Suddarth. Medical Surgical Nursing-foundation for clinical practice (10th ed.). Philadelpia, W.B. Saunders's company; c2006.
12. Canale, Ulrich, Wendell. Medical Surgical Care Planninig Guide (4th Edition), Pheladelphia, W.B. Saunder'S company, 1998, 718.
13. Dutta. Fundamentals of biostatistics-practice approach (1st edition)New Delhi, kanishka publishers, 2002, 127-145, 90-109.
14. Kerlinger N. Foundation of behavioral research. (ed. 1st). New Delhi: Jaypee publication; c2000.
15. Kothari CR. Research Methodology Methods and techniques. (ed. 2nd). New Delhi: New age international pvt. Ltd., publisher; c2006.
16. Lewis SM, Heitkemper MM, Dirksen SR. Medical Surgical Nursing. 6th edition. America: Mosby Publishers; c2000.
17. Lippincott. Manual of Nursing Practice, (8th ed.). Williams and Wilkins, Philadelpia; c2006.