

Assess the Effectiveness of Planned Health Teaching regarding Prevention of Foot Ulcer among type II Diabetes Mellitus Patients

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Abstract: *Diabetes mellitus (DM) is a metabolic disorder that is characterized by chronic hyperglycemia; it is a common and potentially disabling chronic disease. The condition is presently afflicting 194 million people worldwide and is estimated to rapidly increase to 333 million people in 2025 as a consequence of longer life expectancy, sedentary lifestyle and changing dietary patterns. The various research studies are done to identify the best clinical practice and preventive measures to prevent foot ulcer among the type II Diabetes mellitus Patient. This study was based on descriptive evaluative approach. The method used for this study was Quasi experimental one group pretest post test research design. 30 samples were selected with non-probability purposive sampling technique. Sample selection was based on inclusive and exclusive criteria. The tools used for this study was questionnaires with including selected Demographic variables, which was prepared on the basis of review of literature, various information & informal discussion with the patients. While data collection process followed the ethical consideration such as written permission was obtained from hospital authority and informed written consent obtained from type II Diabetes mellitus patients. Based on the objectives and the hypothesis the data were analyzed by using various statistical tests. Analysis of data showed that there is significant difference between pre test and post test knowledge. The calculated 't' values are much higher than the tabulated values. Hence it is statistically interpreted that the planned health teaching regarding prevention of foot ulcer among type II Diabetes mellitus patients was effective.*

Keywords: Foot Ulcer, Type II Diabetes mellitus, metabolic disorder, chronic hyperglycemia, Dietary patterns

1. Introduction

Globally, DM foot lesion is a result of peripheral vascular disease and neuropathy which is the major contributing factor that is preventable in most cases in developing countries. Some environmental factors like increasing urbanization, unhygienic conditions, poverty, frequent co-existing HIV infection, barefoot gait, low income, and cultural practices have also been said to compound the situation. People with diabetes are prone to develop foot ulcer, amputation and other lower extremity clinical abnormalities if they do not have good knowledge of foot care practice.¹

Currently, there are an estimated 366 million people affected with diabetes mellitus globally. India is estimated to have 61.3 million diabetics, which is projected to cross 100 million by the year 2030. Along with the rising prevalence of diabetes, an increase in its complications is expected. Diabetes along with its complications is expected to result in increasing morbidity, mortality and health expenditure due to the requirement of specialized care. Furthermore, amputations due to diabetic foot ulcer are characterized by loss of productivity, which adds to the economic burden of diabetes. The prevalence of diabetic foot ulcer among outpatient and inpatient diabetics in a rural Indian study was found to be 10.4%.²

Diabetic foot ulcer is a result of microvascular and neuropathic complications in diabetics. Studies such as the United Kingdom Prospective Diabetes Study have shown that proper control of blood glucose through diet, exercise and medications prevents the development of microvascular complications. Furthermore, the practice of diabetic foot care including daily foot examination and use of appropriate

footwear is considered important in its early detection and prevention of complications. People with poor knowledge and practice regarding diabetic foot care are known to have a higher incidence of diabetic foot ulcers. On the other hand, simple health education measures can improve both the knowledge and practice regarding diabetic foot care. Adoption of foot care practice after education has also been shown to reduce foot problems such as corns and callosities and promote healing of foot ulcers. However, there is a dearth of studies in India, which assess the effect of health education on diabetic foot care practice of patients, especially in primary care setting. Thus, the objective of our study was to assess the risk factors for poor diabetic foot care and to determine the effectiveness of health education in improving diabetic foot care practice in a rural outpatient setting.³

2. Literature Survey

A study conducted in University Of health Service, Jaja clinic, University Of Ibadan, Nigeria, by Rabi I Ekore. A total of 137 patients participated in this study and ranged in age from 37 to 75 years, with the mean SD age being 58.2 9.2 years. Of the participants, 98 (71.5%) were men and 39 (28.5%) were women: all of the participants were married. The duration of illness ranged from 1 year to 20 years, with the median duration of illness being 31 years. 126 (92%) patients had never received any education on foot care from their health care providers, while 11 (8%) had received some form of foot care education. Among those who had never received any foot care education, 92 (73%) had been diabetic for 1-5 years, while the remaining 34 (27%) had been diabetic for 6-20 years. Of the foot care measures that were know, 35 (25.5%) patients knew to wash their feet daily and dry in between the toes thoroughly, 31 (22.6%)

knew not to go outdoors barefooted, 27 (19.7%) chaked inside their shoes daily, 8(5.8%) consciously made an effort to avoid injuries to their feet and 4(2.9%) clipped their toenails with care.⁴

A study conducted in BMJ Open Diabetes Research and Care, by (R.B Paisey,T Darby). Taller stature and higher quartiles of serum triglyceride and HbA1c level were associated with neuropathy at follow- up (p=0.008). Remission of baseline neuropathy was observed in 7 participants with type 2 diabetes mellitus developed foot ulcers by the end of the study, only1 at low risk. Mean HbA1c level were higher in those who developed foot ulceration (p<0.0001). 1 participant with neuropathy throughout developed a charcot foot. Failure to perceive 2 or more 2, 4 and 6 g MF stimuli at baseline predicted loss of protective sensation at follow-up.⁵

A study conducted in I PhD In Basic Nursing At Ribeirao preto Nursing School of universidade de sao Paulo (USA) Brazil, by Maria Lucia Zanetti. The participants did not recognize the dimension of the true risks regarding lack of foot care. The participant knowledge of diabetes did not translate into action to prevent foot problems. These results suggest the need to take into consideration specific individual characteristics and the individual’s interaction with the environment in designing educational interventions.⁶

A study conducted In Diabetic Foot Research In India, Diabetic Amputation Prevention initiative, by Dr. Vijay Viswan Athan (M.D Phd). In the sample, 41% had up to eight years of schooling. As for family income, 52.7% reported three to five monthly minimal wages (MMWs) and 20% one to two MMWs; 72.7% of the subject were low income. In regard to time since diabetes diagnosis, 40% had 6 to 10 years of disease and 32.7% one to five mean 9.7years.⁷

A study conducted in Saudi National Diabetes Registry (SNDR), by Khalid A Rubeaan and in this study Chronic complications of diabetes mellitus are important implications for planning nursing care irrespective of where the patient is at home or in hospital. The nurse should carefully assess his nursing needs giving special consideration to risk associated with impaired circulation and sensation, increased risk of infection and delayed healing. Recognition of these risk factors will enable care to accommodate the patient’s particular vulnerabilities and will help to ensure that suitable educational support is provided to prevent complications.⁸

A study conducted in Department of Health and Kinesiology, Texas A and M university college station USA, by Margaret Foster. Thirty studies met the inclusion criteria and were classified according to randomized controlled trial (n=9), survey design (n=13), cohort studies (n=4) cross-sectional studies (n=2), qualitative studies (n=2), and case series (n=1) improving lower extremity complication associated with type 2 diabetes can be done through effective foot care interventions that include foot care knowledge and foot care practices.⁹

3. Problem Definition

“A quasi experimental study to assess the effectiveness of planned health teaching regarding prevention of foot ulcer among type II Diabetes mellitus patients attending outpatients department in selected diabetic clinic in Nasik .”

Objectives of Study

- 1) To assess the knowledge regarding prevention of foot ulcer among type II Diabetes mellitus patients.
- 2) To evaluate the effectiveness of planned health teaching on prevention of foot ulcer among type II Diabetes mellitus patients.
- 3) To associate the knowledge regarding prevention of foot ulcer among the type II Diabetes mellitus patients with their selected demographic variables.

4. Material and methods

A single group pre test and post test (quasi-experimental) design was chosen for the study. In the present study a pre test was administered by means of structured questionnaire depicted as P1 and then planned health teaching was given depicted as X, a post test was conducted using the same structured questionnaire depicted P2.The study design is depicted as –

Pre Test	Planned health teaching	Post Test
P1	X	P2

A descriptive Evaluative approach was found to be more appropriate to assess the effectiveness of planned health teaching regarding prevention of foot ulcer. The proposed study was undertaken in at selected outpatients department in selected diabetic clinic in Nasik. The population and samples were type II Diabetes mellitus patients who were fulfilling the inclusion and exclusion criteria and the sample consisted of thirty patient of type II Diabetes mellitus. The sampling technique used in this study was non-probability convenient non-probability purposive sampling. Tools used for data collection include two section namely demographic variable and structured knowledge questionnaires.

5. Results

A structured questionnaire is used for data collection. The analysis was done with the help of descriptive and inferential statistics.

SN	Data analysis	Method	Remark
1.	Descriptive statistics	Mean, standard deviation, percentage.	Health teaching regarding prevention of foot ulcer.
2.	Inferential statistics	Paired “t” test	Effectiveness of planned health teaching
		Unpaired “t” test and one way ANOVA	Associate demographic variables with level of knowledge.

The data was analyzed and is presented in the following sections:-

Section –A: Distribution of knowledge regarding prevention of foot ulcer among type II Diabetes mellitus patients according to their selected demographic variables.

Section – B: Distribution of knowledge regarding prevention of foot ulcer among type II Diabetes Mellitus patients in pretest and posttest assessment.

Section – C: Comparison of mean, S.D. and mean difference on knowledge regarding prevention of foot ulcer among type II Diabetes mellitus patients.

Section – D: Hypothesis testing

- Effectiveness of planned health teaching by comparing pretest and post test knowledge score of prevention of foot ulcer among type II Diabetes mellitus patients.
- Association of knowledge regarding prevention of foot ulcer among the type II Diabetes mellitus patients with their selected demographic variables

Overall	Mean knowledge score	SD	t-value	p-value
Pre Test	10	3.51	24.9	0.000
Post Test	17.25	7.71		S _p <0.05

The P value is less than the level of significance that is 0.05. This indicates that the gain in post test knowledge is significant. It proves the significance of planned health teaching in the improvement of the knowledge statistically.

6. Discussion

The finding of the study was discussed with reference to the objectives and with the findings of the other studies in this section. The present study was undertaken to assess the effectiveness of planned health teaching regarding prevention of foot ulcer among the type II Diabetic mellitus patients in selected outpatients department in selected diabetic clinic in Nasik.

Diabetic foot ulcer is a result of microvascular and neuropathic complications in diabetics. Studies such as the United Kingdom Prospective Diabetes Study have shown that proper control of blood glucose through diet, exercise and medications prevents the development of microvascular complications. Furthermore, the practice of diabetic foot care including daily foot examination and use of appropriate footwear is considered important in its early detection and prevention of complications. People with poor knowledge and practice regarding diabetic foot care are known to have a higher incidence of diabetic foot ulcers. On the other hand, simple health education measures can improve both the knowledge and practice regarding diabetic foot care. Adoption of foot care practice after education has also been shown to reduce foot problems such as corns and callosities and promote healing of foot ulcers. However, there is a dearth of studies in India, which assess the effect of health education on diabetic foot care practice of patients, especially in primary care setting. Thus, the objective of our study was to assess the risk factors for poor diabetic foot care and to determine the effectiveness of health education in improving diabetic foot care practice in a rural outpatient setting.

So, accordingly the major findings of this study is as follow-

- In the pre-test knowledge score, (53.33%) of patients had good knowledge, and (43.33%) had average knowledge (3.33) & patient had poor knowledge.
- After the intervention during posttest, it was observed an increase knowledge score of patients with maximum (96.33%) of patients having excellent knowledge & (3.33%) having good knowledge.
- Paired t-test with two-tailed P value was less than 0.0001, i.e. extremely statistically significant with 95% confidence interval, therefore it could be concluded that the planned health teaching regarding prevention of foot ulcer among type II Diabetes mellitus patients was effective.

7. Conclusion

The planned health teaching programme significantly brought out improvement in the knowledge of Diabetic mellitus Type II patients regarding foot care. Analysis of data showed that there was significant difference between pre tests and post test knowledge score and effectiveness of planned health teaching regarding prevention of foot ulcer among type II Diabetes mellitus patients attending outpatients department in selected diabetic clinic in Nasik and there is no significant association between demographic variable.

8. Future Scope

The future scope of this study has implications for nursing administration, nursing education, nursing research and nursing practice.

Nursing Services

Nurses working in the clinical practice and community set up can benefit from such researches, as it will provide more insight regarding the foot care among the diabetic mellitus type II patient. They should know the importance of the preventive aspect with regard to foot care.

Nursing Education

The nursing teachers can use the result of the study as an informative illustration for the students. Nursing education should help in inculcating values and a sense of responsibility in the students to educate the diabetic mellitus type II patient regarding foot care and to foster the practice of health education to promote and prevent complications.

Nursing Administration

Nursing administration can depute nurses for various workshops, conferences, and special courses; and also in-service education programs can be arranged for the nursing staff. The findings of the study should be used as a basis of in-service education programs for nurses so as to make them aware of the present problems in the society.

Nursing research

Nursing research is an essential aspect of nursing as it uplifts the profession and develops new nursing norms and a body of knowledge. Another research has been added to the Nursing literature. Very few studies have been done on a

similar basis. The research design, findings and the tool can be used as avenues for further research.

There is a need for extended and intensive nursing research in the area of health education for diabetic mellitus type II patient regarding foot care to improve their knowledge for better health and prevent them from possible complications and make them healthy and productive citizens.

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Author Profile



Ms. Priyanka is the Nursing Tutor, from Maharashtra India. She has been working in the field of Nursing for the last 2 years. She interested all the aspect of nursing including fundamental of nursing, medical-surgical nursing, child health nursing, maternity and psychiatric nursing.