Research Article

Knowledge on Diabetic Foot Ulcer among Clients with Diabetes Mellitus

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ABSTRACT

Diabetes mellitus is a group of metabolic disorders in which there are high blood sugar levels over a prolonged period. Symptoms of high blood sugar include frequent urination, increased thirst, and increased hunger. If left untreated, diabetes can cause many complications. The present study aims to assess the knowledge on diabetic foot ulcer among clients with diabetes mellitus in selected community areas. This study was Conducted in selected community areas at Mamandur, Kancheepuram district. Cross sectional research design was selected for this study. The study population comprised of all diabetic clients with the age group of 30 years and above. 50 samples were selected by Non probability - purposive sampling technique. The Inclusion Criteria includes a. Clients who were willing to participate in the study, b. Clients who were present at the time of data collection, c. Clients who could communicate in Tamil and d. Clients who had diabetic foot ulcer. Structured questionnaires were used to assess demographic variables and knowledge on diabetic foot ulcer. The present study results showed that, majority 39 (78%) patients had moderately adequate knowledge on diabetic foot ulcer and only 5 (10%) had adequate knowledge diabetic foot ulcer. All clients with diabetes mellitus should be educated regarding diabetic foot complications and the characteristic specifications of diabetic shoes. Awareness programme can be conducted to improve the knowledge, attitude and practice for the early detection and care of diabetic foot problems.

Keywords: knowledge, diabetic foot ulcer, diabetes mellitus.

INTRODUCTION

Diabetes mellitus, commonly referred to as diabetes, is a group of metabolic disorders in which there are high blood sugar levels over a prolonged period. Symptoms of high blood sugar include frequent urination, increased thirst, and increased hunger. If left untreated, diabetes can cause many complications. Acute complications can include diabetic ketoacidosis, hyperosmolar hyperglycemic state, or death. Serious long-term complications include cardiovascular disease, stroke, chronic kidney disease, foot ulcers, and damage to the eyes. [1]

The World Health Organization estimates that more than 180 million people worldwide have diabetes. These numbers are likely to more than double by 2030. In 2005, an estimated 1.1 million people died from diabetes. Almost 80% of diabetes deaths occur in low and middle-income countries. Almost half of diabetes deaths occur in people under the age of 70 years. 55% of diabetes deaths are in women only. Most notably, diabetes deaths are projected to increase by over 80% in upper-middle income countries between 2006 and 2015. The overall risk of dying among people with diabetes is at least double the risk of their peers without diabetes. Diabetes and its complications impose significant economic consequences on individuals, families, health systems and countries. To prevent type 2 diabetes and its complications, people should achieve and maintain healthy body weight, be physically active-at least 30 minutes of regular, moderate-intensity activity on most days. More activity is required for weight control.[2]

Diabetic foot ulcer is a major complication of diabetes mellitus, and probably the major component of the diabetic foot. Wound healing is an innate mechanism of action that works reliably most of the time. A key feature of wound healing is stepwise repair of lost extracellular matrix (ECM) that forms the largest component of the dermal skin layer. But in some cases, certain disorders or physiological insult disturbs the wound healing process. Diabetes mellitus is one such metabolic disorder that impedes the normal steps of the wound healing process. Many studies show a prolonged inflammatory phase in diabetic wounds, which cause a delay in the formation of mature granulation tissue and a parallel reduction in wound tensile strength. Treatment of diabetic foot ulcers should include: blood sugar control, removal of dead tissue from the wound, wound dressings, and removing pressure from the wound through techniques such as total contact casting. Surgery in some cases may improve outcomes. Hyperbaric oxygen therapy may also help but is expensive.[3]

There is a deep need for an increase in the awareness of diabetes management and its complications in the primary healthcare sector. Continuing education on diabetes mellitus and its complications for primary healthcare providers is crucial and this should be accompanied by a regular assessment of their diabetic

knowledge. Screening for diabetes is important, but equally crucial is patient education and counseling. It is evident from this study that patients are not sufficiently equipped with the knowledge to comprehensively manage their disease. Knowledge of diabetes is therefore essential for primary healthcare and other diabetic patients in order to prevent co-morbidities, which may compromise their lifestyles as well as increase the burden on public health care.[4]

An important area of focus in future studies should be the physical observation of nurses counseling diabetic patients. The inclusion of this parameter in a study will highlight the possible barriers to patient counseling and will also be an important tool in measuring the efficacy of counseling in terms of the use of appropriate language and techniques with the different patient groups, more aggressive counseling for elderly patients, more focus on counseling rural dwellers beyond the urban hub, and the efficacy of post-plasma glucose test counseling. The evaluation of the actual and perceived level of nursing knowledge regarding diabetes mellitus and its co-morbidities is also an area of importance and it would be interesting if a correlation is done between this and patient knowledge, and the prevalence of diabetes-related co-morbidities at the particular clinic. A study of youth awareness of diabetes mellitus in rural settings is also a viable study area, as education will be the key to prevention and disease management in later years. The key to unraveling the knots in rural diabetic patient management thus lies in empowering the patient and the healthcare provider with the essential.[5,6]

The present study aims to assess the knowledge on diabetic foot ulcer among clients with diabetes mellitus in selected community areas at Mamandur, Kancheepuram district.

METHODOLOGY

This study was conducted in selected community areas at Mamandur**,** Kancheepuram district. Cross sectional research design was selected for this study. The study population comprised of all diabetic clients with the age group of 30 years and above. 50 samples were selected by Non probability - purposive sampling technique. The Inclusion Criteria includes a. Clients who were willing to participate in the study, b. Clients who were present at the time of data collection, c. Clients who could communicate in Tamil and d. Clients who had diabetic foot ulcer.

The tool consists of 2 sections. Section A consisted of structured questionnaire for assessing the demographic variables which includes age, sex, marital status, Education, Occupation, Income, Religion, and Types of Family. Section B comprised of structured questionnaire to assess the knowledge on diabetic foot ulcer. The scores are interpreted as adequate knowledge, moderately adequate knowledge, and inadequate knowledge.

Reliability of the tool was established by using test - retest method and its correlation r-value was 0.82. Hence the correlation coefficient was very high, the tool was considered reliable for assessing the knowledge on diabetic foot ulcer among clients with diabetes mellitus.

Ethical Considerations

Formal approval was obtained from the institutional review board and institutional ethical committee of SRM University, Kattankulathur, Kancheepuram, Tamilnadu, India. Content validity was obtained from the various experts from the field of nursing, bio-statistician and research expert. Informed consent was obtained from the study participants, after explaining the nature and duration of the study. Assurance was given to the individuals that each individual report will be maintained confidentially.

RESULTS

The data collected was arranged and tabulated to interpret the findings of the study. The data was analyzed by using both descriptive and inferential statistical methods.

Section A: Frequency and percentage distribution of demographic variables of clients with diabetes mellitus N=50

Demographic variables		Frequency (n)	Percentage distribution (%)
Age	31-40	16	32
	41-50	34	68
Sex	Male	38	76
	Female	12	24
Marital status	Married	18	36
	Un married	20	40
	Widow	8	16
	Separated	4	8
Education	Illiterate	16	32
	Primary	4	8
	Secondary/HSS	19	38
	Degree	11	22
Occupation	House wife	12	24
	Professional	32	64
	Government	6	12
Income	<Rs3000	43	96
	Rs >3000-6000	4	8
	Rs >6000-9000	3	6
Religion	Hindu	28	56
	Christian	13	26
	Muslim	9	18

Type of family	Nuclear	24	48
	Joint	11	22
	Extended	15	30
Duration of taking medicine	1 Year	43	86
	2 Years	4	8
	3 Years	3	6

This above table reveals that, among 50 clients 16 (32%) are in the age group of 31-40 years and others are in the age group of 41-50 Years. Considering the sex of clients, 38(76%) were males and 12 (24%) were females. Considering the marital status of clients, 18 (36%) were married; 20 (40%) were un married, 8 (16%) were widows and 4 (8%) were separated. With regard to the educational level of the clients, 16 (32%) were illiterate, 4 (8%) studied upto primary level of education, 19 (38%) completed secondary and high school level and 11 (22%) were degree holders. Regarding the occupation, 12 (24%) were house wives; 32 (64%) were professionals and 6 (12%) were doing Government employees. Considering the income of the clients, 43 (86%) were earning below Rs.3000/-,4 (8%) were earning in between Rs.3000-Rs.6000, and 3 (6%) were earning in between Rs.6000-Rs.9000. Considering the religion, 28 (56%) are Hindus; 13 (26%) are Christians and 9 (18%) are Muslims. With regard to the type of family, 24 (48%) belonged to nuclear family,11 (22%) belonged to joint family; 15 (30%) were in extended family. Considering the duration of taking medicine, 43 (86%) clients were taking medicine for 1 year; 4 (8%) were taking for 2 years and 3 (6%) clients were taking for 3 years.

Table 4.1.2: Frequency and percentage distribution of the level of knowledge on diabetic foot ulcer among clients with diabetes mellitus
N = 50

Level of knowledge	Frequency (n)	Percentage distribution (%)
In adequate knowledge	6	12
Moderately adequate knowledge	39	78
Adequate knowledge	5	10

The above table reveals that, majority 39 (78%) patients had moderately adequate knowledge, 6 (12%) of them had inadequate knowledge and only 5 (10%) of them had adequate knowledge on diabetic foot ulcer.

DISCUSSION

Foot ulcers can occur in anyone, and refer to a patch of broken down skin usually on the lower leg or feet. When blood sugar levels are high or fluctuate regularly skin that would normally heal may not properly repair itself because of nerve damage. Even a mild injury can therefore start a foot ulcer. People with diabetes may have reduced nerve functioning due to peripheral diabetic neuropathy. This means that the nerves that usually carry pain sensation to the brain from the feet do not function as well and it is possible for damage to occur to your foot without feeling it. Treading on something, wearing tight shoes, cuts, blisters and bruises can all develop into diabetes foot ulcers. Narrowed arteries can also reduce blood flow to the feet amongst some people with diabetes and this can impair the foot's ability to heal properly. When the foot cannot heal, a foot ulcer cans develop.[7]

The current study results showed that, majority 39 (78%) patients had moderately adequate knowledge and only 5 (10%) of them had adequate knowledge on diabetic foot ulcer.

The study results are consistent with the study done by Mohammed T.Al-Hariri et al., on knowledge, attitudes, practices and risk factors influencing diabetic foot ulcers among diabetes patients attending a diabetic clinic in a Saudi hospital. In this cross-sectional study, random samples of 229 participants were selected. A pre-tested structured questionnaire was administered to the diabetes patients to obtain information regarding the outcome variables. The results showed that diabetic foot ulcers were observed among 26% of diabetic patients. Concerning knowledge of the diabetic foot, the majority of participants had good education and favourable attitudes towards diabetic foot care. Interestingly, the results demonstrated that despite these characteristics, a high percentage of the participants ignored very important information and instructions before buying new shoes. [8]

The study results are consistent with the study done by Tesfamichael G. et al., on Prevalence of Diabetic Foot Ulcer and Associated Factors among Adult Diabetic Patients .Systematic random sampling was used to select 279 study participants. Bivariate and multivariable logistic regression model was fitted to identify factors associated with diabetic foot ulcer. Odds ratio with 95% confidence interval was computed to determine the level of significance. Diabetic foot ulcer was found to be 13.6%. Rural residence, type II diabetes mellitus, overweight, obesity, poor foot self-care practice, and neuropathy were factors associated with diabetic foot ulcer. Diabetic foot ulcer was found to be high. Provision of special emphasis for rural residence, decreasing excessive weight gain, managing neuropathy, and promoting foot self-care practice would decrease diabetic foot ulcer.[9]

CONCLUSION

The present study results conclude that, majority 39 (78%) patients had moderately adequate knowledge and only 5 (10%) of them had adequate knowledge on diabetic foot ulcer. All clients with diabetes mellitus should be educated regarding diabetic foot complications and the characteristic specifications of diabetic shoes. Awareness programme can be conducted to improve the

knowledge, attitude and practice for the early detection and care of diabetic foot problems.

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