Research Article

Assessment of Knowledge and Practice regarding Foot Care among Type 2 Diabetic Patients attending Sher-i-Kashmir Institute of Medical Sciences (SKIMS), Soura, Srinagar, Jammu and Kashmir

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I N F O

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A B S T R A C T

Background: Diabetes mellitus is a chronic disease, which occurs when the pancreas does not produce enough insulin, or when the body cannot effectively use insulin.

Objectives: The objectives of the study were to assess the knowledge and practice level among diabetic patients regarding this disease and to find the association of knowledge and practice level with selected demographic/ clinical variables.

Methodology: A non-experimental descriptive design was selected to carry out the study. It was conducted in 2020 among 100 type 2 diabetic patients. The sample was selected by non-probability purposive sampling technique.

Results: The findings of the present study showed that majority (41%) of the study subjects had satisfactory, 30% had poor, and 29% had good knowledge regarding foot care. The mean ± SD of the knowledge level was 41.1±9.86. With regards to practice, majority (48%) of the study subjects had poor, 40% had satisfactory, whereas only 12% had poor practice regarding foot care. The mean ± SD of the practice level was found to be 5.91 ± 2.26. The association of knowledge and practice with demographic/ clinical variables was found to be significant with residence, education, occupation, and monthly family income.

Conclusion: The findings led to the conclusion that the knowledge regarding foot care was satisfactory and practice was poor among type 2 diabetic patients. Therefore, there is a need to conduct awareness programmes about foot care among type 2 diabetic patients.

Keywords: Type 2 Diabetic Patients, Foot Care, Knowledge, Practice

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Introduction

Diabetes is an iceberg disease. According to a recent estimation, the prevalence of diabetes mellitus in adults was around 4% worldwide and this means that over 143 million persons are now affected. It is projected that the disease prevalence will be 5.4% by the year 2025, with the global diabetic population reaching 300 million.[1]

A study was conducted on the global prevalence of diabetes for the year 2000 and projections for 2030. The projections for the year 2030 show that in developing countries, the number of people with diabetes will be close to 60 million in the age group of 20-44 years, and over 140 million in the age group of 45-64 years. It points out that "the greatest absolute increase will occur in India, where 79.4 million people will be affected by diabetes across all age groups".[2]

In India, World Health Organization (WHO) reports showed that 32 million people had diabetes in the year 2000. The International Diabetes Federation (IDF) estimated the total number of diabetic subjects to be around 40.9 million in India and this is further set to rise to 69.9 million by the year 2025. This study reported an overall prevalence of 2.1% in the urban areas and 1.5% in the rural areas, while among those above 40 years of age, the prevalence was 5% in urban and 2.8% in rural areas.[3]

A study was conducted by Abdissa D et al. on the prevalence of diabetic foot ulcer and associated factors at a follow-up clinic at Jimma Medical Center, Southwest Ethiopia among 277 type 2 diabetic patients. The result of this study showed that more than three-fourths of participants (82.7%) had type 2 diabetes mellitus. The mean duration of diabetic patients was 6.00 ± 5.07 years. The prevalence of diabetic foot ulcer was found to be 11.6% among the study participants.[4]

Shahi SK et al. conducted a study on the prevalence of diabetic foot ulcer and associated risk factors in diabetic patients from North India. The results of this study showed that the prevalence of diabetic foot ulcers among diabetic patients was 14.3%. Among 581 diabetic patients, 42.16% belonged to urban areas whereas 57.84% belonged to rural areas.[5]

Diabetes mellitus is already an epidemic among the Indians of the Asian subcontinent. As per WHO, India leads the world with 31.7 million diabetic subjects and this number is expected to increase to 57 million by the year 2025. In India, which is called the global diabetes capital, where most Indians still walk barefoot and are ignorant of foot care, there is an urgent need for coordinated preventive clinical measures to reduce the impact of diabetic foot.[6]

Taking into consideration the high prevalence of diabetes in India, there are millions of feet at risk. The prevalence of diabetic foot ulcers in the clinical population is 3.6%. Socio-cultural practices such as barefoot walking, use of improper footwear, and lack of knowledge regarding foot care attributes to an increase in the prevalence of foot complications in India.[7]

However, there is a lack of research in India, done with an aim of evaluating the effect of health education on diabetic foot care practice of patients, especially in primary care settings. Hence this study was conducted to analyse the knowledge and practice related to foot care in diabetic patients.[8]

Measures taken to increase the awareness of people can lead to an improvement in both knowledge and practice regarding diabetic foot care. Foot problems like corns and callosities can be decreased by ensuring the adoption of appropriate foot care practices. This also leads to the healing of foot ulcers. There was no study on knowledge and practice among type 2 diabetic patients in J&K prior to our study and hence our aim was to conduct a study in a tertiary care hospital (SKIMS) of J&K from September to October 2020 to determine the knowledge and practice regarding foot care among type 2 diabetic patients.

Methodology

A non-experimental descriptive research design was selected to carry out the study. It was conducted from September to October 2020 among 100 type 2 diabetic patients. The researcher selected the patients as per the inclusion criteria (type 2 diabetes mellitus patients who were in the age group of 40-60 years and without complications of diabetic foot ulcers) and exclusion criteria (type 2 diabetes mellitus who were below 40 years and above 60 years of age and with complications of diabetic foot ulcers) and after taking permission from the Medical Superintendent, SKIMS, and HOD, Endocrinology SKIMS. Data were collected from 100 type 2 diabetic patients at the Endocrinology OPD of SKIMS and the assessment of knowledge regarding foot care was conducted through a self-structured interview schedule. The data were collected individually from the study subjects through 70 items of the self-structured interview schedule and the assessment of practice was done through an interview checklist from the patients through 12 items. Each correct and incorrect response was given a score of one (1) and zero (0) respectively.

The knowledge and practice were categorised into various levels based on the criterion developed by Desalu O et al.[9] in their study in 2011. For knowledge, if the score was ≥ 70% (49-70), it was considered good knowledge; if the score was 51-69% (36-48), it was considered satisfactory knowledge, and if the score was ≤ 50% (0-35), it was considered poor knowledge. For practice, if the score was ≥ 70% (9-12), it was considered good practice; if the score was 51-69% (6-8), it

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was considered satisfactory practice, and if the score was ≤ 50% (0-5), it was considered poor practice.

Ethical Consideration

Ethical approval for the current study was obtained from the Ethics Committee of SKIMS Deemed University. The participants were told that they have the right to not participate in the study or to withdraw from the study if they wish at any time. The study subject's privacy was respected, and data were kept confidentially and utilised for study purposes only. They were asked to read and sign a consent form.

Results

Statistical Package for Social Sciences (SPSS) was used for data analysis. Frequency distributions were obtained and descriptive statistics were calculated.

Maximum study subjects (69%) belonged to the age group of 51-60 years. The number of males (51%) and females (49%) was almost equal. Most of the study subjects (64%) resided in rural areas. Maximum study subjects (56%) were illiterate. Most of the study subjects (97%) had a non-health-related occupation. Maximum study subjects (35%) had a monthly family income of INR 15,000-50,000. 54% of the study subjects had type 2 diabetes mellitus for more than 10 years, which is almost equal to the number of subjects who had it for less than or equal to 10 years (46%) as depicted in Table 1.

Table 1.Demographic/ Clinical Data of the Study Subjects

Demographic/ Clinical Variables		f (%)
Age (years)	40-50	31 (31)
	51-60	69 (69)
Gender	Male	51 (51)
	Female	49 (49)
Residence	Rural	64 (64)
	Urban	36 (36)
Education	Illiterate	56 (56)
	Primary school	16 (16)
	High school	23 (23)
	Graduate and above	5 (5)
Occupation	Health related	3 (3)
	Non-health related	97 (97)
Monthly family income (INR)	≤ 5000	17 (17)
	5001-15000	28 (28)
	15001-50,000	35 (35)
	> 50,000	20 (20)
Duration of illness (years)	≤ 10	46 (46)
	> 10	54 (54)

Knowledge of Foot Care

Majority of the study subjects (41%) had satisfactory knowledge (score 51-69%), followed by 30% of study subjects who had poor knowledge (score ≤ 50%), and 29% had good knowledge (score ≥ 70%) regarding foot care. The mean knowledge score of study subjects was 41.1 ± 9.86. The minimum score was 17 and maximum was 65 with a range of 48 as depicted in Table 2.

Table 2.Knowledge of Foot Care

Level of Knowledge	Frequency (f)	Percentage (%)
Poor (0-35)	30	30
Satisfactory (36-48)	41	41
Good (49-70)	29	29

Practice of Foot Care

Majority (48%) of the study subjects had poor practice (score ≤ 50%), 40% had satisfactory practice (score 51-69%), and only 12% of the study subjects had a good practice (score ≥ 70%) regarding foot care. The mean practice level of study subjects was 5.91 ± 2.26 with a median of 6. The minimum score was 1 and maximum was 11 with a range of 10 as depicted in Table 3.

Table 3.Practice of Foot Care

Level of Practice	Frequency (f)	Percentage (%)
Poor (0-5)	48	48
Satisfactory (6-8)	40	40
Good (9-12)	12	12

Association of Knowledge level with Demographic/ Clinical Variables

There was a significant association between the knowledge level and demographic variables. Hence the researcher rejected the null hypothesis for demographic variables like residence (p = 0.01), education (p = 0.01), occupation (p = 0.023), and income (p = 0.01) at p ≤ 0.05 level of significance except for demographic/ clinical variables like age (p = 0.791), gender (p = 1.138), and duration of illness (p = 0.119) as depicted in Table 4.

Association of Practice Level with Demographic/ Clinical Variables

There is a significant association between practice level and demographic variables. Hence the researcher rejected the

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null hypothesis for demographic variables like residence (p = 0.01), education (p = 0.01), occupation (p = 0.01), and income (p = 0.01) at p ≤ 0.05 level of significance except for demographic/ clinical variables like age (p = 0.259), gender (p = 0.150), and duration of illness (p = 0.295) at p ≤ 0.05 level of significance as depicted in Table 5.

Table 4.Association of Knowledge Level with Demographic/ Clinical Variables

Demographic/ Clinical Variables		Knowledge Level						
		Poor (0-35)	Satisfactory (36-48)	Good (49-70)	Chi-Square	df	p Value	Remarks
Age (years)	40-50	8	14	9	0.453	2	0.791	NS
	51-60	22	27	20				
Gender	Male	13	23	15	0.66	2	1.138	NS
	Female	17	18	14				
Residence	Rural	25	29	10	16.87	2	0.01*	S*
	Urban	5	12	19				
Education	Illiterate	27	25	4	61.25	4	0.01*	S*
	Primary school	3	11	2				
	High school	0	5	18				
	Graduate and above	0	0	5				
Occupation	Health related	0	0	3	7.572	2	0.02*	S*
	Non-health related	30	41	26				
Monthly family income (INR)	≤ 5000	11	4	2	31.572	6	0.01*	S*
	5001-15000	9	15	4				
	15001-50000	10	16	9				
	> 50,000	0	6	14				
Duration of illness (years)	≤ 10 years	12	16	18	4.252	2	0.119	NS
	> 10 years	18	25	11				

S*: Significant, NS: Non-significant

Table 5.Association of Practice Level with Demographic/ Clinical Variables

Demographic/ Clinical Variables		Knowledge Level						
		Poor (0-35)	Satisfactory (36-48)	Good (49-70)	Chi-Square	df	p Value	Remarks
Age (years)	40-50	15	10	6	2.700	2	0.259	NS
	51-60	33	30	6				
Gender	Male	20	25	6	3.795	2	0.150	NS
	Female	28	15	6				
Residence	Rural	37	23	4	9.198	2	0.01*	S*
	Urban	11	17	8				
Education	Illiterate	36	18	0	42.93	6	0.01*	S*
	Primary school	7	8	1				
	High school	2	13	8				
	Graduate and above	1	1	3				

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Occupation	Health related	0	0	3	22.68	2	0.01*	S*
	Non-health related	48	40	9				
Monthly family income (INR)	≤ 5000	13	4	0	34.01	6	0.01*	S*
	5001-15000	19	8	1				
	15001-50000	15	17	3				
	> 50,000	1	11	8				
Duration of illness (years)	≤ 10 years	20	18	8	2.442	2	0.295	NS
	> 10 years	28	22	4				

S*: Significant, NS: Non-significant

Discussion

The results of this study showed that most of the study subjects have satisfactory knowledge and a majority of them had poor practice regarding foot care. These lacunae may arise due to a lack of awareness about diabetes mellitus, diabetic foot care, complications of diabetes like diabetic foot ulcers, and the need for specialist consultations when warning signs like redness and fungal infections occur between toes. The lack of knowledge and practice in this study is consistent with the findings of the descriptive study conducted by Desalu O et al. in 2011 among (N = 352) type 2 diabetic patients in Nigeria.[9]

It was also found that residence, education, occupation, and monthly family income were significant with knowledge and practice level while age, gender, and duration of illness were not significantly associated with knowledge and practice level. The association between education and knowledge may be due to the fact that the educated patients were able to read and understand some of the educational and supportive materials and also use information technology to obtain more information about the disease.

The poor level of foot care is inconsistent with the findings of a descriptive study conducted by Desalu O et al. in 2011 among 352 type 2 diabetic patients in Nigeria.[9] Some of the inadequacies of foot care practices in this study were using a magnifying hand mirror to look at the bottom of the feet, moisturising the feet but not in between the toes, and inspecting the inside of shoes before wearing them.

The deficiencies in knowledge and practice may be due to poor communication between the health care professionals and patients, and lack of counselling by the doctors and nurses due to a busy clinic schedule. Patient education on the prevention of foot ulceration should be incorporated into the routine care of patients with diabetes in the hospital. Furthermore, the physician should reinforce the behaviour of the patient with regard to foot care.

Conclusion

In conclusion, the knowledge regarding foot care among type 2 diabetes mellitus patients was satisfactory and practice was poor in this study. The results of this study have highlighted the gaps in their knowledge and practice and have determined the urgent need to educate the patient regarding foot care practices so as to reduce the risk of diabetic foot ulcers and amputations.

Conflict of Interest: None

Source of Funding: None

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