



Original article

A study on knowledge and self-care practices about Diabetes Mellitus among patients with type 2 Diabetes Mellitus attending selected tertiary healthcare facilities in coastal Karnataka

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ABSTRACT

Objective: To assess knowledge and self-care practices about Diabetes among patients with type 2 Diabetes Mellitus attending selected tertiary health care institutions.

Methods: Cross-sectional study was conducted to assess the knowledge and self-care practices about Diabetes among diagnosed Type 2 Diabetes Mellitus patients attending the out-patient facilities of Medicine Department at selected tertiary healthcare institutions of Udupi Taluk. The data collection occurred from January to March 2017. A total of 166 participants were included in the study and they were selected using consecutive sampling. Knowledge about Diabetes Mellitus was assessed using structured pre-tested questionnaire. Diabetes Self-Management Questionnaire-Revised version was used to assess self-care practices regarding Diabetes Mellitus. **Results:** Most of the participants (> 65%) had knowledge about different aspects of Diabetes. The Mean total score of self-care practices among participants without and with intensive insulin treatment was $6.25 \pm 1.25SD$ and $6.20 \pm 1.01SD$ respectively. Mean subscales score related to dietary control, glucose management and physician contact was almost the same as that of total mean scale score except for physical activity subscale score in both the group of patients.

Conclusion: This study emphasizes the need to strengthen the initiatives related to generating awareness about diabetes and improving self-care practices related to it.

1. Introduction

Diabetes is a chronic disease marked by high blood sugar level resulting from lack of either insulin (a hormone that regulates blood glucose) production, insulin action, or both.¹ Diabetes can lead to premature deaths as well as serious complications and disabilities.² As per the Diabetes Atlas published by the IDF (International Diabetes Federation) in the year 2011, the adjusted prevalence rate of Diabetes worldwide was 8.3% which is expected to rise to 9.9% by the year 2030. Similarly, India would see an increase in prevalence of Diabetes from 9% to 10.6% during the same time period.³ The prevalence of Type 2 Diabetes Mellitus is showing a rising trend among developing countries like India because of myriad socio-demographic, political and economic influences.⁴ India has been dubbed as the “Diabetes Capital of the World” as it is home to largest number of patients with Type 2 Diabetes Mellitus in the world.⁵ The direct cost related to management

of Diabetes in India has almost doubled between the years 1998–2005.⁶ Studies have shown that awareness about Diabetes Mellitus and following the recommended self-care practices for it, are the mainstay of controlling Diabetes Mellitus and its complications.⁷ Furthermore, research has shown that non-adherence to prescribed self-care practices for Diabetes is associated with adverse outcomes like decreased quality of life and reduced life expectancy.^{8,9} Considering the above, present study was conducted to assess the knowledge and self-care practices about Diabetes Mellitus among patients with Type 2 Diabetes Mellitus attending selected tertiary healthcare facilities in Udupi taluka of Karnataka state.

2. Materials and methods

The present study was a cross-sectional study conducted among diagnosed Type 2 Diabetes Mellitus patients coming for follow up at

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out-patient Department (O.P.D) of Medicine department in selected tertiary healthcare facilities (Kasturba Medical College, Manipal: a teaching hospital and District Hospital, Udupi) in Udupi Taluk from January to March 2017. The inclusion criteria adopted for the study was that the study subject should be an adult, ambulatory, diagnosed with disease at-least one year before the study began possessing a medical record and attending the outpatient department of Department of Medicine at selected tertiary healthcare institutions in Udupi taluk. Exclusion criteria were: Type 2 Diabetes Mellitus patients who were seriously ill or bed ridden and those who refused to give their consent to participate in the study. The total number of subjects included in the study was 166 and they were selected using consecutive sampling. A structured questionnaire was used for collecting information from the participants about socio-demographic characteristics of the respondents and their knowledge about Diabetes through face to face interview. Awareness of study participants about what is Diabetes Mellitus; the cutoff of blood sugar level (BSL) for diagnosis of Diabetes Mellitus, its symptoms, complications of Diabetes Mellitus, foot care for Diabetes, role of diet and exercise in Diabetes, role of stress in Diabetes and role of medication in Diabetes was assessed. In this study self-care practices for the Type-2 Diabetic patients was defined as adherence to prescribed guidelines related to diet, physical activity, self-monitoring of BSL, foot care, adherence to the prescribed anti-diabetic medications or insulin use.¹⁰ Self-care practices related to Diabetes Mellitus were assessed using DSMQ-R (Diabetes Self-Management Questionnaire-Revised) scale. This tool comprises of total 27 items for patients receiving intensive Insulin therapy and 20 items for patients not receiving intensive Insulin treatment. The items are distributed into four subscales which are (i) Dietary Control (DC) sub-scale (ii) Glucose Management (GM) sub-scale (iii) Physical Activity (PA) sub-scale and (iv) Physician Contact (PC) sub-scale. This individual subscales scores are combined to find the total sum scale score. Both the individual subscale scores as well as the total sum scale score vary between 0 and 10. Higher score on a subscale or sum scale indicates that patient is more adherent to self-care practices for Diabetes Mellitus as compared to patient with lower score on the scale.¹¹

Ethics approval was obtained from the Institutional Ethics Committee, Manipal University and Kasturba Hospital Ethics Committee, Manipal. The data was collected after taking the informed consent from the participants. The data collected were analyzed using SPSS version 16. Frequency and percentages were tabulated for the socio-demographic characteristics and knowledge about different aspects of Type 2 Diabetes. Also, mean and standard deviation (SD) of total sum scale and sub-scale score for DSMQ-R tool were computed.

3. Results

In the present study, the gender wise distribution of study subjects was 65.7% males and 34.3% females. The age group to which most of the subjects belonged was between 49 and 68 years and 97% of the participants were married. In this study, majority of the respondents (55.4%) were unemployed which included retired people or housewives and 21.7% respondents belonged to category clerk, shop owner and farmer. Most of the study subjects had received education up to high-school and above and only 6 (3.6%) among all were found illiterate (Table 1). About knowledge aspect of Diabetes, this study found that majority of the participants (80%) knew about the various symptoms of Diabetes. In this study, about 72% respondents knew the consequences if the disease is not treated. More than 70% of them were aware about complications of Diabetes i.e body parts or organs that Diabetes can affect. According to this study about 70% of the respondents knew about how to deal with cuts and abrasions in foot in other words about footcare in Diabetes. Also, about 65% of the respondents were aware of the role of diet and exercise in Diabetes. However, only 25.9% of respondents were able to explain “what is Diabetes”, 16.3% of the participants were aware that they were actually

Table 1
Table showing the Socio-Demographic characteristics of the respondents.

Socio-Demographic Characteristic	Category	Frequency	Percentage (%)	
Gender	Male	109	65.7	
	Female	57	34.3	
	Total	166	100	
Age (in complete years)	19–28	0	0	
	29–38	6	3.6	
	39–48	31	18.7	
	49–58	49	29.5	
	59–68	48	28.9	
	69–78	27	16.3	
	79 and above	5	3.0	
	Total	166	100	
Marital status	Single	4	2.4	
	Married	161	97.0	
	Divorced	1	0.6	
	Widowed	0	0	
	Total	166	100	
Occupation	Unemployed (Housewife/Retired)	92	55.4	
	Professional	9	5.4	
	Semi-professional	2	1.2	
	Clerk, Shop owner, Farmer	36	21.7	
	Skilled worker	8	4.8	
	Semi-skilled worker	10	6.1	
	Unskilled worker	9	5.4	
	Total	166	100	
	Educational Qualification	Primary	38	22.9
		High-school	55	33.1
Pre-university		26	15.7	
Graduate & above		41	24.7	
Illiterate		6	3.6	
Total	166	100		

Table 2
Table showing the knowledge of participants regarding different aspects of Diabetes.

Awareness about what is Diabetes	Category	Frequency	Percentage (%)
	Know	43	25.9
	Don't know	123	74.1
Awareness about cutoff of blood sugar level for a person to be considered as diabetic.	Know	17	10.2
	Don't Know	149	89.8
Awareness about the type of Diabetes respondent is suffering from.	Type-1	9	5.4
	Type-2	27	16.3
	Gestational	0	0
	Don't Know	130	78.3
Awareness about symptoms of Diabetes.	Know	134	80.7
	Don't Know	32	19.3
Awareness about receiving instruction from physician about Diabetes care.	Yes	158	95.2
	No	8	4.8
Awareness about role of Diet in Diabetes	Know	114	68.7
	Don't Know	52	31.3
Awareness about role of Exercise in Diabetes.	Know	107	64.5
	Don't Know	59	35.5
Awareness about consequences if Diabetes is not treated.	Know	119	71.7
	Don't Know	47	28.3
Awareness about role of Medications (drugs/insulin) in Diabetes.	Know	133	80.1
	Don't Know	33	19.9
Awareness about role of Stress in Diabetes.	Know	128	77.1
	Don't Know	38	22.9
Awareness about how to deal with cuts and abrasions in Diabetes (Foot care)	Know	116	69.9
	Don't Know	50	30.1
Awareness of the body parts or organs that Diabetes can affect.	Know	126	75.9
	Don't Know	40	24.1
Total		166	100

Table 3

Table showing subscale scores (Diet control, Glucose management, Physical activity, Physician contact) and total sum scale score for patients without and with intensive insulin treatment.

Patients without intensive insulin treatment	Diet scale score	Glucose management scale score	Physical activity scale score	Physician contact scale score	Total scale score of 20 items
Total number of respondents	166	166	166	166	166
Mean	6.6432	6.9799	4.9331	6.5110	6.2500
Std. Deviation	± 1.92484	± 1.79888	± 2.80144	± 1.53962	± 1.24624
Patients with intensive insulin treatment	Diet scale score	Glucose management scale score	Physical activity scale score	Physician contact scale score	Total scale score of 27 items
Total number of respondents	166	47	166	166	47
Mean	6.6432	6.3298	4.9331	6.5110	6.2017
Std. Deviation	± 1.92484	± 1.38639	± 2.80144	± 1.53962	± 1.00831

suffering from Type2 Diabetes. The percentage of subjects aware about the cutoff of blood sugar level for diagnosis of Diabetes was 10.2 (Table 2). The mean total sum scale score of DSMQ-R tool for self-care practices among participants without intensive insulin treatment was $6.25 \pm 1.25SD$ and $6.20 \pm 1.01SD$ for participants on intensive insulin therapy. This study found that mean subscale score related to Dietary Control, Glucose Management and Physician Contact was almost the same as that of total sum scale score except for the Physical Activity subscale score. The Physical Activity subscale score was lower than total sum scale and other sub-scale scores (Table 3).

4. Discussion

In the present study, about 65% of respondents had knowledge about the role of diet and exercise in Diabetes. These findings agree with the results of studies conducted by Shrivastava et al. and Padma et al.^{12,13} In this study, more than 70% study subjects knew about the complications of Diabetes. Similar findings were reported by a study done by Kurian et al.¹⁴

In this study, sum scale score for Diabetes self-care practice was almost same in patients with and without intensive insulin therapy. This score was 6.25 ± 1.24 and 6.20 ± 1.01 for patients with and without intensive insulin therapy. The individual mean subscale scores related to Dietary Control, Glucose Management and Physician Contact sub-scales were almost same and sub-scale score for Physical Activity was lower than other sub-scale scores. A study done by Hammad et al. among patients with Type 2 Diabetes in Jordan found a similar sum scale score and lower score on Physical Activity subscale as compared to other subscale scores.¹⁵ This finding was quite different from the findings of study conducted by Mehravar et al., where similar tool was used in which they found that mean subscale score of Glucose Management and Dietary Control sub-scale were same as sum scale score mean whereas Physical Activity and Physician Contact sub-scale score were lower than sum scale score.¹⁶

The strength of the study is that it used a standardized tool to compare self-care practices among patients with Type 2 Diabetes Mellitus on intensive Insulin therapy with those not on intensive Insulin therapy and it points towards themes that awareness campaigns on Type-2 Diabetes in India need to focus on. However, limitation of this study was that the HbA1c level of the patients with Type 2 Diabetes was not assessed due to resource constraints, this could have been correlated with self-care practices about Diabetes Mellitus.

5. Conclusion

This study points towards the need for initiatives for improving self-care practices among patients with Type 2 Diabetes Mellitus in India and use of standardized tools like DSMQ-R for the assessment of the same. The awareness campaigns for Diabetes Mellitus should focus on informational needs of the patients with Type 2 Diabetes and this study

points towards the informational gaps which should be addressed by Diabetes prevention interventions.

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Declaration of competing interest

Declarations of interest: none.

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