ORIGINAL ARTICLE

A Cross Sectional Study on Knowledge, Attitude and Practice of Type 2 Diabetes Mellitus Subjects about Diabetes

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Abstract

Background: Strategies to improve awareness about diabetes and translation of preventive measures by innovative programmes have to be implemented at national levels to decrease the morbidity rate. *Aim and Objectives:* To study the baseline level of knowledge, attitude and practice among five hundred subjects with Type 2 diabetes mellitus about diabetes mellitus. *Material and Methods:* Five hundred Type 2 diabetes subjects from five diabetes specialty clinics were selected for Knowledge, Attitude and Practice (KAP) survey. Based on their baseline blood parameters and their willingness to participate, data was elicited using a checklist to study their knowledge, attitude and practice. *Results:* Majority (66.8%) of the subjects in the study were of normal weight. Only 3% of the subjects got a perfect score of 10 while among the remaining 97% subjects, the majority (80%) scored from 7 to 9. There was no significant difference in the mean scores of KAP, between the male and female subjects. There was a significant difference between duration and knowledge of diabetes at 5% level and a significant difference (p-value = 0.004) in knowledge score when compared with attitude and practice score of the diabetes subjects. *Conclusion:* There is a need to strengthen the health care system to generate awareness, to enable early detection, and to provide standard and uniform care, and rehabilitation for people with Type 2 diabetes mellitus to manage diabetes and delay the onset of complications.

Keywords: Type 2 Diabetes, Knowledge, Attitude and Practice

Introduction:

Diabetes is rapidly rising as a global health care problem that threatens to attain pandemic levels by 2030. The number of people with diabetes worldwide is projected to escalate from 171 million in 2000 to 366 million by 2030.This upward surge will be most noticeable in developing countries, where people with diabetes is anticipated to increase from 84 million to 228 million [1]. Rapid urbanization and lifestyle changes have led to a dietary transition, globally. There is a shift towards high fat, refined carbohydrate and low-fibre diet. Consumption of fat and refined carbohydrates per person has increased 5 to10 fold over the past two centuries, while the consumption of fibre-rich grains has turned down considerably [2].

In another 20 years, nearly one-fifth of the world's diabetic population will be in India. India faces several major challenges in the management and prevention of diabetes. Awareness about diabetes is still low among the healthy population to curb it. Lack of knowledge about type 2 diabetes, its risk factors, symptoms, complications, and healthy life style is a challenge that needs to be solved. Government and non-governmental organizations are implementing awareness campaigns by mass rallies, exhibitions and by media. Wide disparities in socioeconomic level, educational background and non-availability of diabetes care are some of

the stumbling blocks in the management of diabetes in India [3].

Patient's lack of knowledge about diabetes can hinder the ability to manage their disease. Although the field of diabetology is experiencing remarkable advancements and the disease is doubling at an alarming rate, it is saddening that public has very little knowledge about diabetes. At least diabetes patients need to have sufficient knowledge about the disease, its complications and self-management. Health promoting measures like encouraging patients to have balanced and healthy diets, regular monitoring of blood glucose levels and physical activity are essential to reduce the complications of the disorder [4].

As a signatory to the sustainable development goals, India has committed to extend every possible effort to reduce one-third of premature mortality from non-communicable diseases by 2030 [5]. With these scenario, the objectives of the study was framed to check the knowledge, attitude and practice of people with diabetes about diabetes.

Material and Methods:

The study protocol was reviewed and approved by the Independent Institutional Ethics Committee of Women's Christian College, Chennai (Ethical clearance No. WCC/HSC/11EC-2014:02). A cross-sectional study was conducted among 500 subjects with diabetes, visiting the outpatient clinic of five diabetes specialty clinics, Chennai, from January 2016 to June 2016. Purposive sampling technique was used to identify the subjects for the study.

Inclusion criteria for the participants were male and female subjects with diabetes, who were willing to participate and in the age group of 40-60 years. Pregnant and lactating mothers were excluded from the study. After getting informed consent form signed, the data was elicited using a checklist to study their knowledge, attitude and practice. The check list used was an existing validated check list framed by [6]. The check list was administered by the researcher. The check list comprised of six questions: two questions each for knowledge, attitude and practice. Total score for checklist carried 10 marks; one mark was given for the first five questions each while five marks were allotted for the last question. Each correct answer for a question by the participant was scored '1' and, incorrect or unsure answers earned '0'. The information provided by the subjects was kept in strict confidence. To determine the differences in knowledge, attitude and practice, ANOVA tests were performed. Correlation of analysis was done to study the relationship between demographic characteristics and knowledge, attitude and practice of the subjects with diabetes.

Results:

Demographic profile of the selected subjects with diabetes

Five hundred subjects with type 2 diabetes were recruited for the study from five diabetes specialty clinics. Their demographic profile which include gender, age, marital status, literacy level and anthropometric measurements like height and body weight were elicited and are presented in Table 1. Among the five hundred subjects with diabetes, 53.4% were male and 46.6% were female. Subjects in the age group of 40 – 60 years were selected for the study. Results indicate that 28% of the subjects were aged between 40-45 years and 26% were in the age group of 46-50 years and 56 – 60 years respectively. Majority of the subjects (60%) were educated up to higher secondary level, while about 25.4% were graduates.

Table 1: Demographic Profile of Subjects

Characteristics		N=500	Percent
Gender	**Female**	233	46.6
	Male	267	53.4
Age (years)	**40-45**	140	28.0
	46-50	133	26.6
	51-55	97	19.4
	56-60	130	26.0
Literacy	**Illiterate`**	10	2.4
	High school	63	12.2
	Higher Secondary	300	60.0
	Graduate	127	25.4

Table 2: Body Mass Index

BMI Classification (kg/m^2)	N=500	Percent
Underweight (Below 18.5)	33	6.6
Normal (18.5–22.9)	334	66.8
Overweight ($\geqslant$23 – 24.9)	91	18.2
Obese ($\geqslant$25)	42	8.4

Table 3: Knowledge, Attitude and Practice Scores Obtained by Subjects

Scores obtained (Total: 10 marks)	N=500	Percent
10	15	3
7-9	400	80
4-6	85	17

Body Mass Index (BMI)

WHO classification for South Asians was used for the classification. Table 2 indicates that majority (66.8%) of the subjects in the study were of normal weight, 18.2% were overweight while 8.4% were obese. Only 6.6 % were underweight

Knowledge, Attitude and Practice (KAP) scores obtained by the subjects

Knowledge, attitude and practice scores obtained by the subjects is presented in Table 3. Results indicate that only 3% got a perfect score of 10 while among the remaining 97% subjects, the majority (80%) scored from 7 to 9 and the remaining 17% scored between 4 and 6.

The split scores of KAP of the subjects
Percent distribution of subjects based on knowledge score about diabetes

Using the checklist, the selected subjects were assessed for their knowledge regarding the cause and symptoms of diabetes. Table 4 indicates that only 22% had knowledge about the cause of diabetes while 78% subjects were not aware about the disease. All the subjects were aware of at least five common symptoms of diabetes. The most common symptoms were that the subjects expressed polyuria, polyphagia, polydipsia,

Table 4: Percent Distribution of Subjects Based on Knowledge Score about Diabetes

Questions		N=500	Percent
Knowledge about diabetes	**No**	390	78.0
	Yes	110	22.0
Symptoms of diabetes	**Aware**	500	100.0
	Not Aware	-	-

Table 5: Percent Distribution of Subjects Based on Attitude Score about Diabetes

Questions		N=500	Percent
Adherence to dietary regimen	No	107	21.4
	Yes	393	78.6
Habit of exercising	No	205	41.0
	Yes	295	59.0

itching and tiredness. The results suggest that more education about diabetes and its management in the prevention and control should be given to subjects.

In terms of attitude assessment, Table 5 indicates that 78.6% adhered to strict diet control and 21.4% did not comply with dietary regimen. With regard to habit of exercising 41% subjects did not exercise regularly due to negligence, lack of time and knee pain while 59% had the habit of exercising.

Independent sample t-test was performed to find out the association between mean KAP scores and gender. From the Table 6 it was evident that there was no significant difference in the mean scores of knowledge, attitude and practice, between the male and female subjects.

Kruskal-Wallis H test was used to determine the impact of literacy level on knowledge, attitude and practice scores. The results are presented in Table 7. There was significant difference in the mean scores of attitudes, and education level of the subjects. Subjects who were graduates had a positive attitude towards the care of diabetes. P-value was found to be 0.010.

Table 8 indicates the independent sample t-test performed to find out the mean score difference between knowledge, attitude and practice among the subjects. There was a significant difference (p-value = 0.004) in knowledge score when compared with attitude and practice score of the diabetes subjects.

One way ANOVA was used to find out the significant difference between the mean KAP scores and age of subjects in Table 9. Results indicate that there is no statistical significant difference between age and KAP score of the subjects.

Table 6: Test of Significance Between Gender and Mean KAP Scores

Gender vs. Scores	Gender	N	Mean score ± SD	p-value
Knowledge Score	Male	267	4.57 ± 0.692	0.978 NS
	Female	233	4.57 ± 0.599	
Attitude Score	Male	267	1.35 ± 0.797	0.149 NS
	Female	233	1.44 ± 0.706	
Practice Score	Male	267	1.72 ± 0.692	0.450 NS
	Female	233	1.77 ± 0.642	

Table 7: Test of Significance Between Subject's Literacy Level and Mean KAP Scores

Education Vs Scores	Education	N	Median	p-value
Knowledge Score	Illiterate	10	5	0.956 NS
	High school	63	5	
	Secondary	300	5	
	Graduate	127	5	
Attitude Score	Illiterate	10	2	0.010*
	High school	63	2	
	Secondary	300	2	
	Graduate	127	2	
Practice Score	Illiterate	10	2	0.418 NS
	High school	63	2	
	Secondary	300	2	
	Graduate	127	2	

*NS- Not significant, *- significant at p<0.01*

Table 8: Test of Significance (t-test) Between Mean KAP Scores of the Subjects

Test of Significance		N=500	Mean ± SD	p-value
Knowledge Score	Yes	115	4.58±0.65	0.004*
	No	385	4.57±0.65	
Attitude Score	Yes	116	1.33±0.73	-0.087 NS
	No	384	1.41±0.76	
Practice Score	Yes	114	1.84±0.55	0.116 NS
	No	386	1.72±0.69	

*NS- Not significant, *- significant at p<0.01*

Table 9: Analysis of Variance Between Mean KAP Score and Age

Analysis of Variance		Sum of Squares	Mean Square	F	p-value
Knowledge Score	**Between Groups**	2.997	0.749	1.786	0.130 [NS]
	Within Groups	206.900	0.420		
Attitude Score	**Between Groups**	1.126	0.282	0.489	0.743 [NS]
	Within Groups	283.519	0.575		
Practice Score	**Between Groups**	1.820	0.455	1.017	0.398 [NS]
	Within Groups	221.412	0.447		

*NS- Not significant, *- significant at $p < 0.05$*

Discussion:

Findings of the present study are in line with a study by Hansraj *et al.* [7] in which majority of subjects in the knowledge, attitude and practice study were in the age group of 41-60 years.

This reflects the fact that type 2 diabetes mellitus usually has its onset after the age of 40 years. Currently, the age group that is largely affected by diabetes is the 40–59 years, and by 2030, this is expected to move to the 60–79 years [8].

Gender inequities in access to healthcare have been documented in various studies. In a finding by ICMR, women in urban areas (12.5%) are more affected by diabetes than rural areas (7%) in Tamil Nadu. The escalating incidence of type 2 diabetes in women in urban area is due to the craze for junk foods, use of mechanised transport, sedentary life style and increase in obesity rates [9].

Asian-Indian phenotype is predisposed to develop type 2 diabetes. The Asian-Indian phenotype is the "thin-fat Indian" which means they have higher body fat composition and lesser Body Mass Index than their White or African counterparts [10] and the results of the present study were similar to that of the above researcher.

Ramchandran *et al.* (2013) [11] reported that 87% of the respondents were able to answer 50% knowledge questions correctly. The lack of proper knowledge of each patient should be given personal attention as there is a positive correlation between knowledge and good attitude. The major source of knowledge for the selected population was from family members and friends with diabetes, followed by magazines and newspaper, and lastly, the family physician. Knowledge and practice levels among Type 2 diabetes mellitus patients were generally poor. Though the majority of the patients have positive attitude towards healthy lifestyle habits, they were not able to translate it into practice due to lack of time and finance. Diabetes mellitus along with its complications creates a significant disaster to society [12].

Higher education level was associated with significantly higher knowledge, practice, and self-monitoring scores, but not with attitude. Education on self-care management had positive influence on patients' practice scores. The results

of Islam *et al*. (2015) [13] indicated a significant difference of knowledge among educated subjects and were similar to the results of the study. The level of awareness affects treatment adherence, monitoring, and prevention of complications. In a study conducted in a rural area of Karnataka, South India, only 50.8% of subjects knew about diabetes and only 48.4 % of patients with diabetes were aware of the role of self-care in diabetes and their knowledge about complications was poor.

Results are in agreement with the results obtained by Chavan *et al.* [14] who stated that although most of the patients were suffering with diabetes for many years there is a lack of knowledge, attitude and practice regarding the disease and self-care management. The compliance to the management of diabetes was poor in elderly subjects.

Many people with diabetes are non-compliant and have multiple complications due to poor control of the disease. These problems would have resulted from unrecognized and low health literacy. When communication and patient education materials are appropriate to literacy needs and preferences, people can succeed in managing their disease [15].

Limited data is available on the efficacy of large-scale awareness interventions for non-communicable diseases in developing countries, in part because they have only been attempted in the last decade. It is now clear that prevention of non-communicable diseases through increased awareness needs to be the thrust of the effort in resource-poor contexts, where treatment can be prohibitively costly [16].

Conclusion:

Patients' lack of understanding about diabetes can reduce their skill to handle their disease. With the right education and regular access to health professionals, a person with diabetes can make the appropriate changes to their life and better improve control of diabetes.

Acknowledgements

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