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Original Research Article

Predictors of diabetes-specific knowledge and attitude among people residing in the urban settlement of Jodhpur

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ABSTRACT

Background: Diabetes has progressively increased in India and around the world over the last quarter-century, with India accounting for a significant portion of the worldwide burden. Researches show that diabetes mellitus related complications can be reduced by early diagnosis of the disease and appropriate treatment. This study aimed to investigate diabetes-related knowledge, attitudes, and practices in adults in the high-income, middle-income, and low-income groups in families of Jodhpur and to create awareness among the community about diabetes.
Methods: With the use of an adequately constructed and validated questionnaire, the current cross-sectional study was conducted on the general population of Rajasthan. The questionnaire was pre-tested and pre-validated. The data were statistically analysed using SPSS.
Results: There were 53.3% males and 46.8% females who were enrolled in the study. The mean knowledge score was 8.82±3.467 and the mean attitude score was 3.62±1.439. Respondents who were educated at least till high secondary or above were significantly more knowledgeable and with more attitude scores as compared to people who were either illiterate or educated only up to secondary.
Conclusions: We discovered a reasonable gap between knowledge, attitudes, and practices, thus formulating and implementing strategies to transform positive attitudes into helpful practices is the need of the hour.

Keywords: Attitude, Awareness, Diabetes, Knowledge, Management

INTRODUCTION

Diabetes (DM) is one of the fastest-growing non-communicable diseases (NCDs) threats to public health in the world. It is now recognized as a significant chronic pandemic disease that affects people of all ethnic backgrounds and regardless of their financial status. Diabetes has progressively increased in India and around the world over the last quarter-century, with India accounting for a significant portion of the worldwide burden.[1,2] By 2025, India's National Health Policy 2017 seeks to extend diabetes screening and treatment to 80% of persons with diabetes, as well as reduce diabetes-related early deaths by 25%.[3] Researches show that diabetes mellitus related complications can be reduced by early diagnosis of the disease and appropriate treatment.[4] Diabetes management has a comprehensive goal of improving quality of life, reducing complications, preventing premature death, and lifestyle changes to empower and motivate patients with self-care, medication, and patient education. KAP levels of diabetes need to be studied to support the future development of programs and technologies for effective health education. This study aims to investigate diabetes-related knowledge, attitudes, and practices in adults in the high-income, middle-income, and low-income groups in families of Jodhpur and to create awareness among the community about diabetes.

METHODS

The households were chosen by adopting simple random sampling. The participants were consenting adults (>18 years old) residents of the Housing Board, Jodhpur. For this survey, a pre-tested and pre-validated questionnaire is used for 2 months (August-September 2019). Sample size was calculated assuming 50% prevalence using the formula $N = Z^2PQ/l^2$ where Z = 1.96, P = prevalence, Q = 100-P, and l = precision.[5] A sample size of 400 at a 95% confidence interval was estimated.

To create awareness among the community about the diabetes resident's welfare association/active residents of the colony were contacted first and were told about the purpose of the study and the benefits the community may have. The research team visited house to house and made people understand the purpose of the research and after obtaining written consent work was initiated. With the support of a member of the residential welfare organization, a health talk session was organized for the community members at a common gathering place in the residential colony. The health talk session was supplemented with audio-visual aids and pamphlets on awareness about Diabetes. The session lasted for 5 to 10 minutes. The team communicated with people in Hindi and the local language for better understanding. The research team tried to involve the people in discussion during the health talk to make it more informative and productive.

There was a total of 18 questions in the pre-validated and pre-tested questionnaire. Out of them, 10 questions assessed knowledge. The maximum score was 25 and the minimum was 0. A score of <10 was considered poor knowledge and ≥10 was considered good knowledge. To assess attitude regarding diabetes, 5 questions were included. The maximum score was 5 and the minimum was 0. A score up to 4 was considered poor and a score of 5 was considered a good attitude score.

Data were entered in Microsoft Excel and analysed using SPSS version 23. Nominal data like gender, presence, or absence of knowledge were described using counts and proportions and were analysed using the chi-square test or Fisher's exact test as applicable. Ordinal variables like the composite score were described using median and IQR and were analysed using the Mann-Whitney U test. Interval/ratio type of data example age was described using mean and standard deviation and analysed using an unpaired t-test. A p-value of less than 0.05 was considered significant.

Ethical Committee Clearance of DMRC, Jodhpur was obtained.

RESULTS

Table 1 shows the socio-demographic details of the study population. There were 53.3% (n=213) males and 46.8% (n=187) females who were enrolled in the study. The majority of the subjects 70.3% (n=281) were below 40 years of age. The majority of the subjects were married 69.5% (n=278). Most of the respondents 56% (224) were at least graduated or had higher degrees.

Table 1: Socio demographic distribution of study population.

Variables		N	%
Age (years)	≤30	146	36.5
	31-40	135	33.8
	41-60	87	21.8
	≥60	32	8
Sex	Male	213	53.3
	Female	187	46.8
Marital status	Married	278	69.5
	Unmarried	103	25.8
	Widow/widower	19	4.7
Religion	Hindu	378	94.5
	Muslim	22	5.5
Educational status	Illiterate	16	4
	Just literate	12	3
	Primary	56	14
	Middle	12	3
	Secondary	12	3
	High Secondary	68	17
	Graduate and above	224	56
Occupation	Agriculture and animal work	10	2.5
	Government/private service	101	25.3
	Skilled/unskilled worker	22	5.4
	Businessman	54	13.5
	Housewife	109	27.3
	Unemployed/student	104	26
Type of house	LIG	151	37.8
	MIG	163	40.8
	HIG	86	21.5

Table 2 depicts the association between demographic details with knowledge scores. Age, gender, marital status, religion, and type of house had no significant association with knowledge. The education status and occupation of respondents were significantly associated with knowledge about diabetes.

On post hoc analysis it was seen that respondents who were educated at least till high secondary or above were significantly more knowledgeable as compared to people who were either illiterate or educated only up to secondary. Housewives were significantly less knowledgeable as compared to students, businessmen, government and private service people, and the unemployed.

Table 2: Demographic association with knowledge score.

Variables	Knowledge (mean±SD)	P value	Post hoc	
Age (years)				
≤30	8.25±3.898	0.715		
31-40	8.13±3.816			
41-60	7.70±3.992			
>60	7.69±4.948			
Gender				
Male	8.21±4.022	0.020		
Female	7.86±3.923			
Marital status				
Married	8.00±4.033	0.065		
Unmarried	8.50±3.822			
Widow/widower	6.21±3.521			
Religion				
Hindu	8.08±3.956	0.445		
Muslim	7.45±4.350			
Educational status		<0.001	-Illiterate/just literate- upto secondary	0.636
Illiterate/just literate	5.71 ±3.452		-Illiterate/just literate- high secondary/ graduate and above	0.001
Up to secondary	6.78±3.611		-Up to secondary- high secondary/ graduate and above	0.001
High secondary/graduate and above	8.62±3.966			
Occupation		0.023	- Government and private service/businessman-skilled/unskilled worker/ agriculture and animal work	1.000
Government and private service/ businessman	8.39±3.909		- Government and private service/ businessman-unemployed/student	1.000
Skilled/unskilled worker/ agriculture and animal work	8.09±3.866		- Government and private service/ businessman-housewife	0.037
Unemployed/ student	8.52±4.108		- Skilled/unskilled worker/agriculture and animal work- unemployed/student	1.000
Housewife	7.06±3.846		-Skilled/unskilled worker/agriculture and animal work- housewife	1.000
			-Unemployed/student- housewife	0.042
Type of house				
LIG	7.48±3.807	0.082		
MIG	8.46±4.205			
HIG	8.24±3.738			

Table 3: Logistic regression analysis for knowledge.

Variables	Category	Unadjusted OR with 95% CI	Adjusted OR with 95% CI	P value
Educational status	Illiterate/just literate	1	1	
	Up to secondary	1.617 (0.425-6.155)	1.613 (0.420-6.192)	0.486
	High Secondary and above	5.414 (1.598-18.346)	4.865 (1.393-16.989)	0.013
Occupation	Government and private service/ businessman	2.302 (1.328-3.991)	1.569 (0.873-2.820)	0.132
	Skilled/unskilled worker/ agriculture and animal work	1.653 (0.605-4.515)	1.598 (0.562-4.549)	0.380
	Unemployed/student	1.796 (0.977-3.302)	1.209 (0.636-2.302)	0.562
	Housewife	1	1	

Table 4: Demographic association with attitude score.

Variables	Attitude (mean±SD)	P value	Post hoc	P value
Age (years)				
≤30	3.77±1.260	0.117		
31-40	3.68±1.418			
41-60	3.40±1.588			
>60	3.25±1.778			
Gender				
Male	3.65±1.368	0.246		
Female	3.58±1.520			
Marital status				
Married	3.59±1.481	0.090		
Unmarried	3.81±1.261			
Widow/widower	3.05±1.615			
Religion				
Hindu	3.65±1.422	0.287		
Muslim	3.09±1.659			
Educational status				
Illiterate/ Just literate	2.68±1.657	<0.001	-Illiterate/ just literate- upto secondary	1.000
Up to secondary	2.84±1.657		-Illiterate/ just literate- high secondary/ graduate and above	<0.001
High secondary/graduate and above	3.92±1.223		-Up to secondary- high secondary/ graduate and above	<0.001
Occupation				
Government and private service/ businessman	3.69±1.377	0.004	- Government and private service/ businessman- skilled /unskilled worker/ agriculture and animal work	1.000
Skilled/unskilled worker/ agriculture and animal work	4.14±0.990		- Government and private service/ businessman- unemployed/ student	1.000
Unemployed/student	3.81±1.352		- Government and private service/ businessman- housewife	0.045
Housewife	3.22±1.606		- Skilled /unskilled worker/ agriculture and animal work- unemployed/ student	1.000
			- Skilled /unskilled worker/ agriculture and animal work- housewife	0.036
			- Unemployed/ student- housewife	0.016
Type of house		<0.001	- LIG- MIG	<0.001
LIG	3.08±1.639		- LIG- HIG	<0.001
MIG	3.74±1.220		- MIG- HIG	0.004
HIG	4.33±1.045			

Table 5: Logistic regression analysis for attitude.

Variable	Category	Unadjusted OR with 95%CI	Adjusted OR with 95%CI	P value
Educational status	Illiterate/just literate	1	1	
	Up to secondary	1.500 (0.455-4.940)	1.375 (0.401-4.712)	0.612
	High secondary/graduate and above	4.683 (1.585-13.837)	3.405 (1.081-10.725)	0.036
Occupation	Government and private service/businessman	1.974 (1.156-3.372)	1.274 (0.705-2.302)	0.422
	Skilled/unskilled worker/agriculture and animal work	2.531 (0.984-6.513)	2.975 (1.069-8.283)	0.037
	Unemployed/student	2.409 (1.346-4.311)	2.004 (1.052-3.818)	0.035
	Housewife	1	1	
Type of house	LIG	1	1	
	MIG	1.452 (0.894-2.359)	1.327 (0.785-2.244)	0.291
	HIG	4.244 (2.416-7.456)	4.003 (2.174-7.373)	<0.001

On applying binomial logistic regression, where educational status and occupation are independent variables and knowledge is a dependent variable, education status was found as a significant predictor of knowledge about diabetes among respondents. Those who had completed high secondary education were having higher odds of 4.865 (1.393-16.989) of knowing diabetes as compared to their counterparts (Table 3).

Table 4 depicts the association between demographic details with attitude scores. Age, gender, marital status, and religion had no significant association with knowledge. Whereas educational status, occupation, and type of house were significantly associated with attitude scores.

On post hoc analysis it was seen that respondents who were educated at least till high secondary or above were significant with more attitude scores as compared to people who were either illiterate or educated only up to secondary. Housewives had significantly fewer attitude scores as compared to students, businessmen, government and private service people, and the unemployed. The attitude score for diabetes was significantly higher in respondents residing in HIG as compared to people residing in MIG and LIG.

On applying binomial logistic regression, where educational status, occupation, and type of house were independent variables and attitude was a dependent variable, education status was found as a significant predictor of attitude about diabetes among respondents. Those who had completed high secondary education were having higher odds of 3.405 (1.081-10.725) of having a positive attitude about diabetes as compared to their counterparts. Housewives have lesser odds of knowledge as compared to respondents with other occupations.

Participants residing in HIG were having higher odds of 4.003 (2.174-7.373) of having a positive attitude about diabetes as compared to LIG and MIG (Table 5).

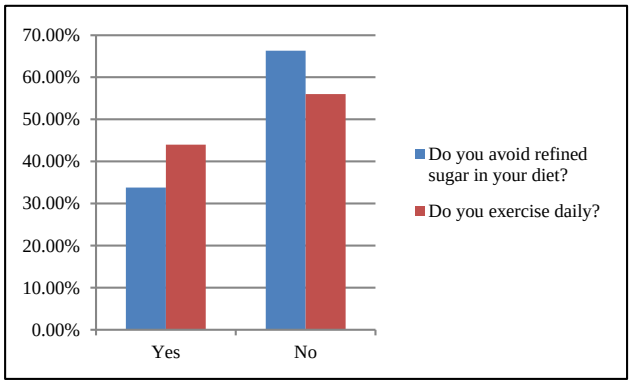

Figure 1: Bar graph showing the distribution of study participants as per intake of refined sugar and exercise.

When the participants were asked about the intake of refined sugar in their diet, 66.3% agreed that they consume the same, whereas 33.8% avoided refined sugar in their diet. On asking about exercise, 44% of respondents said that they exercise on daily basis (Figure 1).

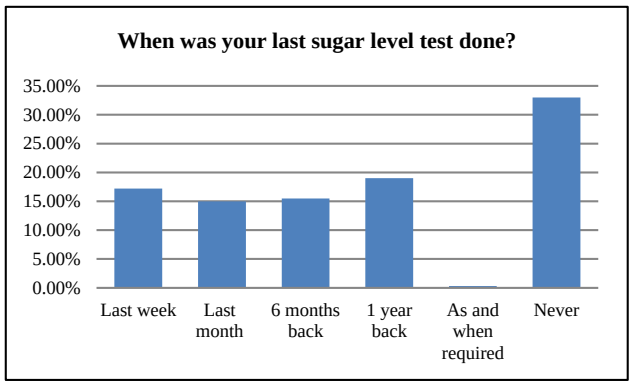

Figure 2: Bar graph showing the distribution of respondents as per the timing of the last sugar test done.

On asked when was their last sugar level test done, the majority (33%) of the participants answered that they never attempted this test. Only 0.3% responded that the test was done as and when required (Figure 2).

DISCUSSION

Knowledge, attitude, practice, and perception of diabetes vary greatly according to demographic variables and socioeconomic status. In our study, there were 53.3% of males and 46.8% of females were enrolled in the study. The majority of the subjects (70.3%) were below 40 years of age and 69.5% were married.

There are many possible causes for the increase in the number of cases of diabetes including urbanization, a swift cultural and social alteration, lack of regular exercise regimen, malnutrition, and obesity.[6-9] Diabetes has been proven to be reduced by eating a low-fat, high-fiber diet.[7] As a result, eating fruits and vegetables daily helps to reduce the chance of developing diabetes. People with diabetes who want to live a normal life and their family members need to know a lot about their illness. Therefore, knowledge and awareness of diabetes and its complications have become an integral part of diabetes care for people in society. A correct understanding of these variables plays an important role in the design of various protocols for the prevention and management of diabetes.

In our study, the mean knowledge score was 8.82±3.467. Only 32.8% of the respondents had good knowledge about diabetes and 67.3% had poor knowledge. This is comparable to the results of a study in Uttar Pradesh by

Kanojia et al.[10] However, in some studies in different countries, good knowledge about diabetes was shown.[6,11,12] The possible explanation might be because there are socio-demographic variations across the countries, different educational levels, and even different sample sizes. Our study revealed that disease knowledge was higher among those with at least high secondary education and the result is statistically significant. Our results are also consistent with studies in different countries.[9,13,14] Whereas some studies show the inverse relationship between educational level and diabetes prevalence.[15] Low education leads to a lack of understanding of the illness and its implications, increasing the likelihood of poor dietary habits, medication noncompliance, and fewer health check-ups.

The mean attitude score came out to be 3.62±1.439. Only 37% of the participants had a positive attitude towards the disease. This finding is supported by a study that shows 46.3% of respondents with a positive attitude.[4] In contrast, some of the literature shows a high percentage of people with positive attitudes regarding diabetes.[11,12] This difference might be due to differences in study settings as these studies were hospital-based.

Physical exercise was reported by 44% of the sample. In contrast with our study findings, a study by Karaoui et al reported that only 16% of the respondents were engaged in physical exercises.[16] Whereas a systematic review shows varying rates of adherence to exercise ranging from 26.7% to 69%.[17] Research shows that patients are more liable to participate in physical exercises when suggested by their medical care experts as a component of diabetes management. A few reasons could be answerable for the current circumstance including a lack of time, sedentary lifestyles, and cultural beliefs. Avoiding refined sugar in the diet will help in the management of diabetes.[18-20] Our study shows that only 33.8% of respondents avoided refined sugar in their diet.

This study endures a few limitations. Since it was a cross-sectional study, the correlation between cause and effect could not be identified. The sample size being small, we may not be accurate in generalizing the interpretations to the entire population. We might have shown some bias in selecting some patients and prompting some patients when certain questions were not well understood by the patients.

CONCLUSION

This study shed light on Indians with knowledge, attitudes, and practices about diabetes mellitus. We discovered a reasonable gap between knowledge, attitudes, and practices, thus formulating and implementing strategies to transform positive attitudes into helpful practices is the need of the hour. This can be accomplished by improving the quality of health education and expanding the breadth of health education at all levels.

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