Knowledge, attitudes, and practices related to diabetes mellitus among diabetic patients with complications in Rawalakot, Azad Kashmir

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Abstract

Objective: To determine the knowledge, attitudes and practices of type 2 diabetes mellitus patients.

Methods: The cross-sectonal study was conducted at Sheikh Khalifa Bin Zayed Al Nahyan Hospital, Rawalakot, Azad Kashmir, from March 26 to September 25, 2017, and comprised patients of type 2 diabetes mellitus who were enrolled using convenience sampling. Each participant completed a self-administered 35-item questionnaire. Data was analysed using SPSS 23 to determine the correlations among variables.

Results: Of the 116 patients, 74(63.8%) were females, and the largest group 58(50%) was aged 51-70 years. Of the total, 111(95.6%) had heard about type 2 diabetes mellitus, 112(96.6%) had sought treatment after diagnosis, and 115(99.1%) had blood sugar tested within the preceding year. There was a positive correlation between knowledge and attitude ($p=0.005$), knowledge and practice ($p<0.001$), and attitude and practice ($p<0.001$). Knowledge, attitude and practice improved with increase in education ($p>0.05$).

Conclusion: The subjects had fair knowledge and good attitude toward type 2 diabetes mellitus, and they appeared willing to improve diabetic control. However, diabetes-related practice was found to be poor.

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Introduction

Type 2 Diabetes Mellitus (T2DM) is one of the most important and rapidly increasing non-communicable diseases (NCDs) in the world. In 1995, there were an estimated 135 million patients with DM, and by 2000 the number had increased to 151 million.[1,2] Current estimates indicate that, by 2025, there will be approximately 300 million DM patients worldwide; with more than 75% of them living in developing countries.[3,4] In 2007, the World Health Organisation (WHO), and the United Nations (UN) indicated that DM would likely evolve to be one of the most significant global public health issues. In South Asian countries, inadequate patient understanding of T2DM, underutilisation of medical services, and poor attitudes toward T2DM control may well worsen the current outlook.[5-8]

Pakistan is a developing country in South Asia and has a population of approximately 207.77 million.[6] A decade ago, DM was not included in the country's list of severe diseases. Around the end of 2015, there was an increased incidence of DM in both urban and rural Pakistan. According to Shera et al.,[7,9] 12% of Pakistanis aged >25 years suffer from DM. Overall weighted prevalence of diabetes was 26.3%, of which 19.2% had known diabetes, and 7.1% were newly-diagnosed. Prevalence of diabetes in urban and rural areas was 28.3% and 25.3%, respectively. Prevalence of pre-diabetes was 14.4%.[10] WHO estimates that Pakistan has the seventh highest prevalence of DM globally.[3,11] Thus, effective interventions, increased disease-related awareness, and innovative preventive measures are urgently needed.[8,11]

The adequacy of DM-related knowledge among patients affects disease detection and control.[12] The relationship that exists among knowledge, attitude and practice (KAP) factors is vital for researchers. Increases in one KAP variable will directly increase the other two factors.[13,14] However, socio-demographic characteristics of the patients may also affect KAP variables.[15,16] KAP literature focuses on the importance of increasing disease knowledge and awareness that relates to prevention, risk factor control, and disease management. Hence, there is a need for KAP studies in developing countries because of the rising incidence of T2DM in these countries.[15,17]

Although KAP studies have been conducted with patients living in Karachi,[17,18] there is limited research data available for the northern regions. Therefore, the current study was planned to measure KAP factors in T2DM patients with complications residing in a mountainous area.

Subjects and Methods

The cross-sectional study was conducted at Sheikh Khalifa

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Annexure: Questionnaire.

Age: _____ Gender: _____ Occupation:_____
City/Village: _____ Education Level: _____

FOR KNOWLEDGE

K1) Have you ever heard of diabetes?
a. Yes
b. No
K2) What actions can you take to make sure that you do not develop diabetes in future?
a. Limit sugars
b. Exercise regularly
c. Quit smoking
d. Lose weight
e. Don't know
K3) What do you think is the major cause of diabetes?
a. Hereditary
b. Obesity
c. Smoking
d. Eating too much sugar
e. Don't know
K4) What are the early symptoms of diabetes?
a. Frequent urination
b. Increased thirst
c. Increased hunger
d. Weight loss
e. Don't know
K5) Do you think diabetes affects the heart?
a. Yes
b. No
c. Don't know
K6) Do you think diabetes affects the kidneys?
a. Yes
b. No
c. Don't know
K7) Do you think diabetes affects the eyes?
a. Yes
b. No
c. Don't know
K8) Should a diabetic patient check his/her own blood sugar?
a. Yes
b. No
c. Don't know
K9) Do you think regular exercise helps in glucose control?
a. Yes
b. No
c. Don't know
K10) Treatment of diabetes includes?
a. Insulin injections
b. Oral medications
c. Don't know
K11) Do you think that in a diabetic patient, high blood pressure can worsen diabetes?
a. Yes
b. No
c. Don't know
K12) A diabetic patient should measure his/her blood pressure?
a. Yes
b. No
c. Don't know
K13) What are the important factors that help in controlling blood sugar?
a. Changing diet
b. Losing weight
c. Quitting smoking
d. Exercising regularly
e. Don't know
K14) Do you know how to measure diabetes?
a. Oral glucose tolerance test
b. Blood sugar random
c. Don't know
K15) Do you think diabetes can be controlled by avoiding sugars?
a. Yes
b. No
c. Don't know
K16) Do you think diabetes can be controlled by avoiding smoking?
a. Yes
b. No
c. Don't know

FOR ATTITUDE

A1) When you or someone is diagnosed with diabetes, should they seek treatment?
a. Yes
b. No
c. Don't know
A2) Do you exercise regularly?
a. Yes
b. No
A3) Have you cut down sugars from your diet?
a. Yes
b. No
A4) Do you think missing doses of your diabetic medication will worsen your disease?
a. Yes
b. No
A5) Do you think you should visit your physician for diabetes?
a. Yes
b. No

FOR PRACTICE

P1) When your blood sugar was last checked?
a. Within past 12 months
b. Within past 3 years
c. 3 or more years ago
d. No
e. Don't know/ not sure
P2) When was your last visit to your physician?
a. Within past 12 months
b. Within past 3 years
c. 3 or more years ago
d. No

e. Don't know/ not sure
P3) When was your last eye examination?
a. Within past 12 months
b. Within past 3 years
c. 3 or more years ago
d. No
e. Don't know/ not sure
P4) When was your last Blood pressure checked?
a. Within past 12 months
b. Within past 3 years
c. 3 or more years ago
d. No
e. Don't know/ not sure
P5) When was your last Renal function tests?
a. Within past 12 months
b. Within past 3 years
c. 3 or more years ago
d. No
e. Don't know/ not sure
P6) Do you take your food on time?
a. Yes
b. No
P7) Do you control your weight?
a. Yes
b. No
P8) Do you add extra salt to your meals?
a. Yes
b. No
P9) Do you smoke?
a. Yes
b. No

Bin Zayed Al Nahyan Hospital, Rawalakot, Azad Kashmir, from March 26 to September 25, 2017, and comprised outpatients with T2DM and complications who were enrolled using convenience sampling. Patients were approached with the study questionnaire and those who furnished informed consent were included. Patients with type 1 DM and type 2DM without any known complication were excluded.

Data was collected using a questionnaire that was successfully used in an earlier study.[12] Written permission was obtained from the main author[12] and modified the questionnaire to reflect specific regional and cultural attributes of the study population. Additionally, it was pilot-tested with 20 respondents, and the questionnaire was accordingly amended considering the issues raised during the pilot testing. The questionnaire was validated by two epidemiology professors, and the self-administered questionnaire had 35 questions. Of these, 5 assessed demographic characteristics, 16 assessed knowledge, 5 assessed attitudes, and 9 assessed practices (Annexure). The questionnaire was translated into the native language of the respondents for better understanding, and all the responses were back-translated into English.

Data was analysed at 95% confidence interval (CI) using SPSS 23. and it was expressed as frequencies and percentages. Normality tests for the number of correct responses were done using Shapiro Wilk test and Kolmogorov Smirnov test, which revealed the data was in non-normal distribution. Correlation between knowledge, attitude, and practice was evaluated with Spearman correlation test. KAP score was calculated by adding the number of correct responses to knowledge-related, attitude-related, practice-related questions. Mean KAP scores were compared between males and females by Mann Whitney U test. Mean KAP scores were compared across age groups, occupation and education levels by Kruskal Wallis H test.

Results

Of the 125 patients approached, 116(92.8%) responded positively. Of them, 74(63.8%) were females, and the largest group 58(50%) was aged 51-70 years (Table-1).

Table-1: Baseline characteristics of all respondents.

Characteristics	Frequency	Percentage
Age		
◆ Up to 30 years	8	6.9
◆ 31 – 50 years	50	43.1
◆ 51 – 70 years	58	50
Gender		
◆ Male	42	36.2
◆ Female	74	63.8
Occupation		
◆ Blue collar worker	17	14.7
◆ White collar worker	24	20.7
◆ Unemployed/ Housewives	75	64.7
Education		
◆ No formal education	53	45.7
◆ Primary level	32	27.6
◆ Secondary level	25	21.6
◆ College or higher level	6	5.2

Table-2: Correlation between knowledge, attitude and practice.

	Attitude	Practice
Knowledge	0.257*	0.397*
	-.005**	<0.001**
Attitude		0.394*
		<0.001**

*correlation coefficient.
**p-value.

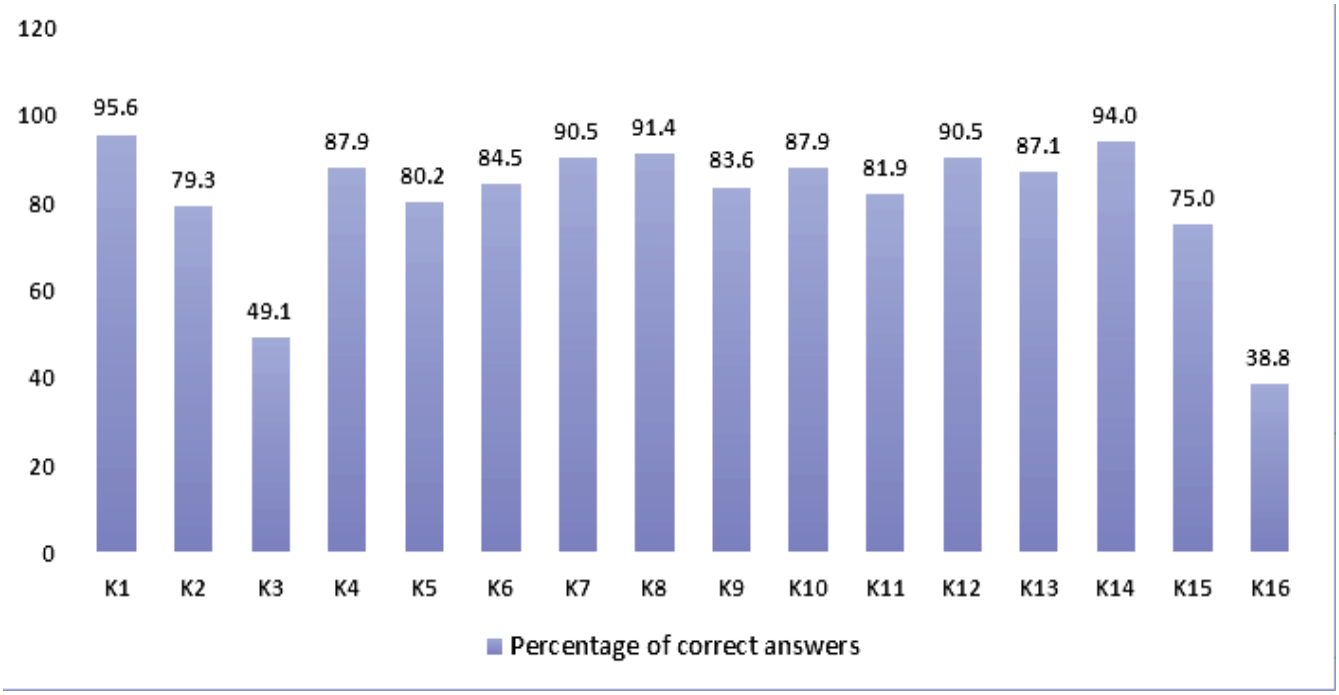

Figure-1: Percentages of correct answers to knowledge-related questions.

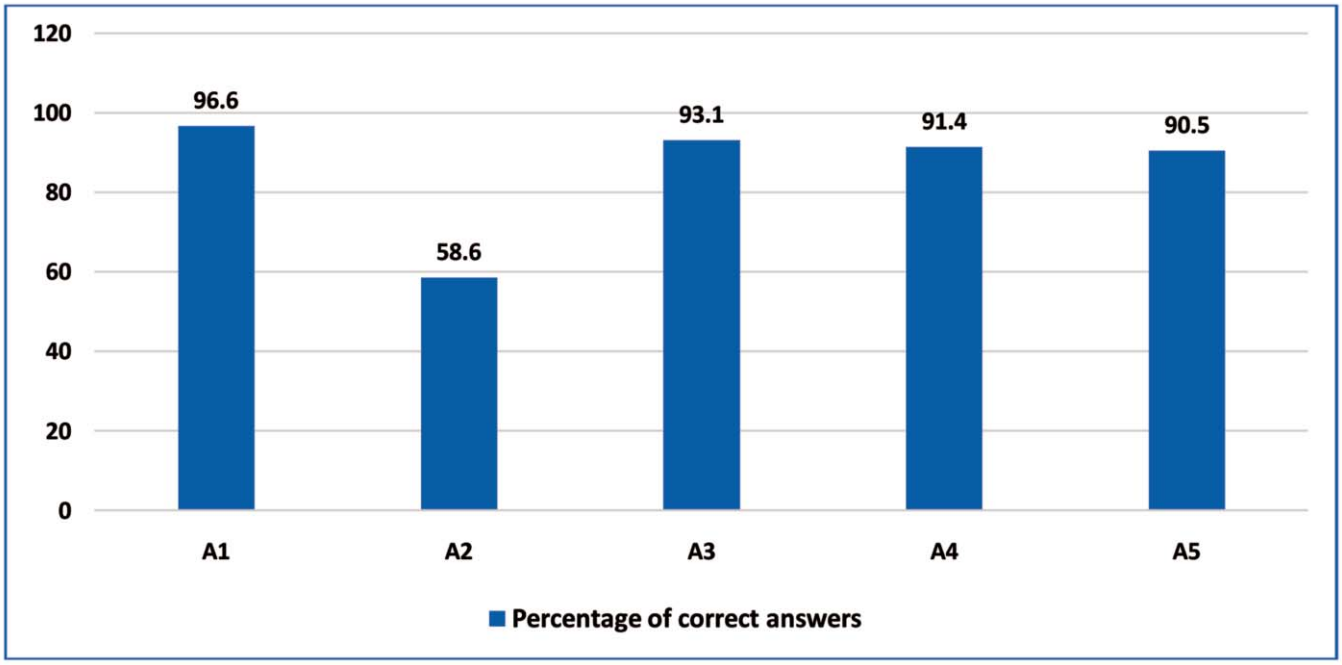

Figure-2: Percentages of correct answers to attitude-related questions.

Of the total, 111(95.6%) had heard about T2DM, 112(96.6%) had sought treatment after diagnosis, 115(99.1%) had blood sugar tested within the preceding year, and 68(58.6%) were doing regular physical exercise (Figures-1-3).

There was a positive correlation between knowledge and attitude, knowledge and practice, and attitude and practice (Table-2). KAP improved with increase in education level, but the improvement was not statistically significant (Table-3).

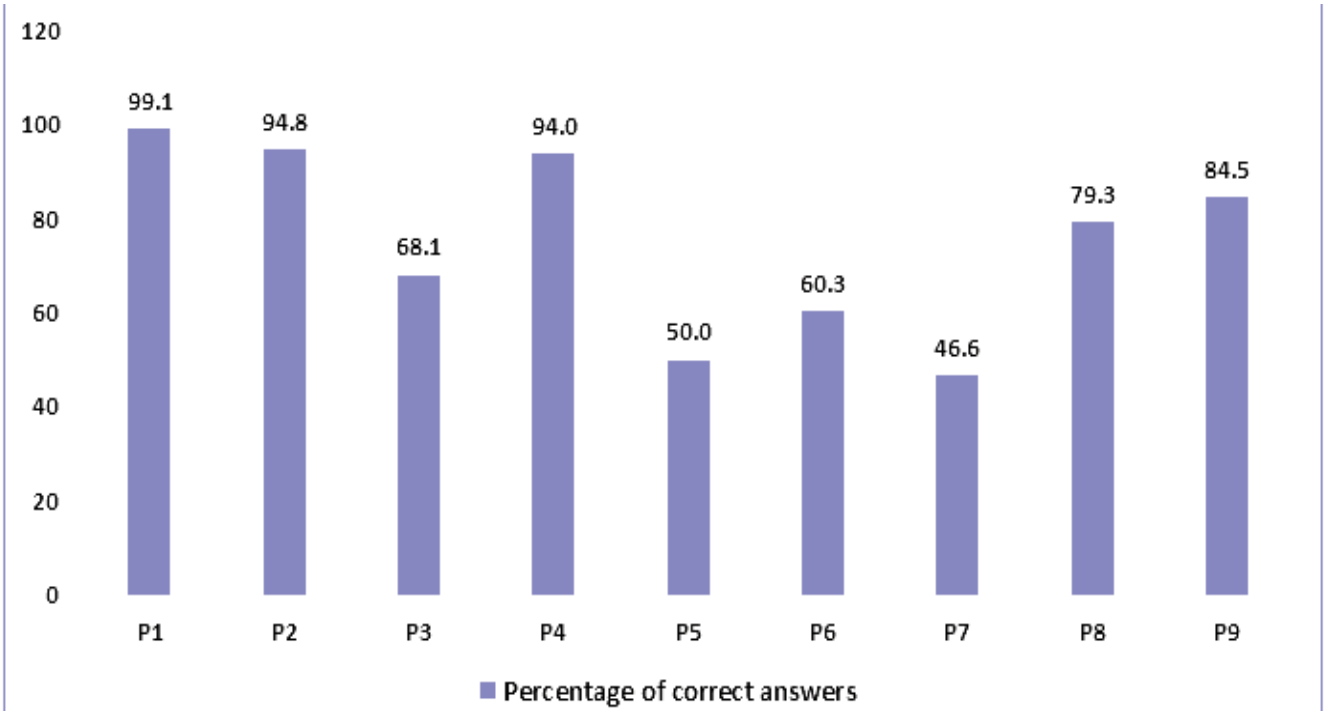

Figure-3: Percentages of correct answers to practice-related questions.

Table-3: Relationship between KAP score and baseline characteristics.

Characteristics	KAP score	p-value
Age		
◆ Up to 30 years	24.00 ± 2.51	
◆ 31 – 50 years	24.18 ± 3.35	0.252
◆ 51 – 70 years	22.74 ± 4.40	
Gender		
◆ Male	24.17 ± 3.32	0.226
◆ Female	23.04 ± 4.18	
Occupation		
◆ Blue collar worker	23.35 ± 3.50	
◆ White collar worker	24.29 ± 2.93	0.596
◆ Unemployed	23.20 ± 4.26	
Education		
◆ No formal education	22.57 ± 4.11	
◆ Primary level	24.00 ± 3.21	0.145
◆ Secondary level	24.12 ± 4.22	
◆ College or higher level	25.50 ± 3.02	

KAP: Knowledge, attitude, practice.

Discussion

There were statistically significant positive correlations among the knowledge of patients with T2DM and their attitudes and practices. However, despite their positive attitude toward practices and knowledge, the participants with limited knowledge of T2DM tended to exhibit negative practices. A similar descriptive study[19] found that their participants had insufficient knowledge regarding T2DM. Most of the participants were >40 years, and there were almost twice as many females (64%) as males. The study[19] showed that a small number of respondents had a good understanding of nutrition and risk factors, such as smoking and high blood pressure (BP), but were largely inactive. The findings of the present study showed a low awareness of the necessity of eye and renal failure testing which was in accordance with the earlier study[19] which concluded that there was a need for improved education and awareness regarding T2DM, as evidenced by low KAP variable scores.

In another study,[16] patients with and without T2DM in Bangladesh were compared to explore the effects of KAP variables on the two groups. Their population exhibited average levels of practices and knowledge, but both samples showed good attitudes. There is an urgent need to increase knowledge and coordinate appropriate practices to effectively treat DM in patients with T2DM and prevent the condition from materialising in non-diabetic patients. The findings of the present study also revealed an average outcome for the variables of knowledge and practices in comparison to the variable of attitudes.

Jabbar et al.[20] found increasing DM-related complications

among Pakistanis, accompanied by poor awareness and inadequate education related to risk factors. The study recommendations included enhancing the relationships between patients and physicians, and the development of community initiatives for increasing knowledge and lifestyle habits of DM patients. Medical care standards are often poor in underprivileged areas of Pakistan, contributing to patients' low levels of awareness.[13,14] We found that female patients in Azad Kashmir had poorer levels of literacy. Lack of education was the primary reason for the lack of DM-related knowledge and for failure to adopt advantageous practices, including regular renal and eye check-ups, and diet control.

The popular assumption of significant associations among KAP variables were suggestive of the high control of T2DM.[16,17] Al-Maskari, et al.[18] showed low levels of DM-related knowledge, but highly positive attitudes toward practices directed at controlling DM. Patients residing in the United Arab Emirates (UAE) had ready access to well-equipped healthcare facilities, which improved their collective ability to cope with DM. Similarly, in the present study, positive attitudes did not concur with levels of knowledge and practices because of the participants' low levels of education and awareness. The roles of physicians, educators, and medical facilities are critical in improving knowledge and encouraging appropriate practices.[7,8]

A study revealed that the education level of diabetic patients significantly affects their KAP regarding disease management. Highly educated individuals had good knowledge about diabetes condition, positive attitude towards disease management, good compliance to diabetes treatment and better practice regarding planned diet and regular exercise habit.[21] Another study identified positive attitude toward seeking healthcare for DM was strongly associated with having sufficient income for most of the time compared with an insufficient income for the whole year.[22]

The limitations of the current study included its small sample size and single-centre design. The study only included outpatients while leaving out in-patients. No statistical method was used to calculate the sample size. Thus, there was a potential selection bias. Furthermore, the use of quantitative data limits the accuracy and detailed findings of the study. Future studies should use a more holistic sample and employ both quantitative and qualitative measures to collect data.

Conclusion

Although all variables were positively correlated, knowledge and attitude were better compared to practice regarding T2DM. Better knowledge, attitude and practice were observed among the participants with higher education. Health education may improve overall practice regarding DM.

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Conflict of Interest: None.

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