

Understanding the Knowledge, Attitude, and Practice of Type-1 Diabetes among Healthcare Professionals in Bangladesh

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Abstract

Type-1 diabetes is a significant health concern globally, including in Bangladesh, where its prevalence is rising. However, there is a dearth of studies assessing the knowledge, attitudes, and practices (KAP) of physicians regarding type-1 diabetes in Bangladesh. This cross-sectional study aimed to address this gap by surveying medical professionals via an online questionnaire.

Results from 110 participating physicians revealed varying levels of knowledge regarding type-1 diabetes. While the majority correctly identified key aspects such as its definition, genetic predisposition, and common symptoms, gaps were observed in understanding diagnostic tests and management approaches. Attitudes toward type-1 diabetes management were generally positive, with most physicians recognizing the importance of patient education, glycemic control, and insulin therapy. However, some misconceptions persisted, such as the efficacy of herbal remedies and the role of diet and exercise.

In terms of practice, findings indicated suboptimal diagnostic accuracy and monitoring practices among physicians. Many were unaware of the significance of certain diagnostic tests like C-peptide and exhibited limited adherence to recommended monitoring intervals. Notably, a considerable proportion of physicians expressed willingness to consider oral medications for type-1 diabetes management, despite established treatment guidelines.

The study underscores the need for targeted interventions to enhance physician KAP regarding type-1 diabetes in Bangladesh. Strategies may include tailored educational programs, increased exposure to type-1 diabetes cases during medical training, and ongoing professional development initiatives. Improving physician proficiency in managing type-1 diabetes is crucial for ensuring optimal patient outcomes and reducing the burden of this chronic condition. Further research is warranted to explore KAP among patients and caregivers, providing a comprehensive understanding of type-1 diabetes management in Bangladesh.

Keywords: KAP, type-1 diabetes, Bangladesh, physician

1. INTRODUCTION

Diabetes is one of the four major noncommunicable illnesses, the others being cardiovascular disease, diabetes, cancer, and chronic respiratory disorders⁽¹⁾. In Bangladesh 24878 people are living with type-1 diabetes and 47 healthy year of life are lost per person⁽²⁾.

Bangladesh is one of the seven countries that comprise the IDF SEA area. Diabetes affects 537 million people worldwide, with 90 million in the SEA Region; by 2045, this figure will

climb to 151.5 million⁽³⁾. At both the individual and healthcare system levels, awareness of the full effects of diabetes is also lacking. A public health emergency of approaching diabetes is caused by the combination of low awareness, burden, and policy inertia about diabetes⁽⁴⁾. Patients bear a heavy burden from diabetes and its accompanying comorbidities and complications, such as hypertension, obesity, and micro and macrovascular problems, as a result of delayed diagnosis or non-diagnostic⁽⁴⁾. Diabetes problems can be minimized with early

diagnosis and treatment. By keeping an eye on blood glucose levels, the main goal of diabetes management is to delay the micro and macrovascular consequences^(5,6). Despite recent advances in diabetes therapy, there is still room for improvement in the overall standard of care for people with diabetes. Effective educational initiatives for managing glycemic control must address knowledge and attitude skills in addition to procedural skills⁽⁷⁾.

Type-1 diabetes can be managed by incorporation of proper intervention, which has a significant impact on diagnosis and management of patients. It has been demonstrated that doctors who are knowledgeable about glycemic control, food, exercise, and diabetic education help their patients maintain more effective and long-lasting diabetic control. Analyzing the discrepancy between physicians' knowledge and current evidence-based interventions and advancements that are helpful in the prevention, management, and control of diabetes is made easier using the assessment of knowledge, attitude, and practice (KAP).

There have been numerous KAP studies conducted on diabetes all throughout the world. However, type-1 diabetes KAP studies are relatively uncommon, and none have been identified in Bangladesh. To our knowledge, this study is the first to assess medical doctors' knowledge, attitudes, and practices about type 1 diabetes. Better understanding of type 1 diabetes literacy in Bangladesh is the goal of the study.

2. METHODS

Sampling and Study Design

This is a cross sectional study in Bangladesh conducted through online survey. Convenient sampling procedure was used to conduct data

Table 1. Demographics of physicians

Demographic data of the physicians		
Demographic Characteristics	N	%
Gender		
Male	38	34.55
Female	68	61.9
Prefer not say	4	3.67
Age		
20-25	38	34.55
26-30	60	54.55
31-35	12	10.90
Professional Qualifications		
Trainee physician	42	38.18
MBBS	38	34.54
Post Graduation	30	27.27
Residing area		

collection. Sample population was all the medical graduates of different ages accessed through medical social medical platforms. This study was approved by Diabetic Association of Bangladesh Ethical Review committee and informed written consent was obtained from every participants.

3. PROCEDURE

An 8–10-minute self-completion questionnaire was created to assess the knowledge, attitudes, and practices of medical professionals addressing type 1 diabetes. The questionnaire was developed and validated by public health professionals and a pediatric diabetologist following a thorough evaluation of the literature.

4. DATA COLLECTION AND STATISTICAL ANALYSIS

The study was approved by the ethical review board of BADAS(ERC/EC/24/16) and informed written consent was obtained from all the participants. The completed survey forms was transferred to excel automatically and coded using spss. The data was analyzed by simple frequency distribution.

5. RESULTS

110 doctors in all answered the questions. Participants' gender distribution for doctors was (68)61.9% women and (38)34.55% men. The majority of doctors (60) 54.55% are between the ages of 26 and 30. (38) 34.55% are between 20 and 25, while (12) 10.90% of participants are between the ages of 31 and 35. The majority of participants (42)38.18% were trainee physicians, followed by 38 (34.54%) post-MBBS participants, and 30 (27.27%) post-graduation physicians. The majority of participants (89) come from urban areas, followed by 8 (7.27%) semi-urban physicians and 4 (3.63%) rural physicians.

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Urban	98	89.09
Semi-urban	8	7.27
Rural	4	3.63

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Knowledge

Type-1 diabetes was known to the majority of doctors (94.5%). Doctors disagreed on the peak age of type 1 diabetes, which they believed to fall between adolescence (42.7%), childhood (39.1%), and young adulthood (32.7%). The majority of doctors (76.4%) and the influence of family history on type-1 diabetes (70.95%) accurately identified the genetic susceptibility to

type-1 diabetes. Doctors have determined that autoimmunity is the primary cause of type 1 diabetes in 85.5% of cases, whereas 10.9% believe the cause is uncertain and 9.1% believe environmental factors are to blame.

The majority of doctors recognized polydipsia (92.7), polyphagia (87.3%), and polyuria (92.7) as signs of type 1 diabetes. Additionally, 74.5% of respondents said that weight loss is a sign of type 1 diabetes, and 9.1% said that skin darkening is a sign as well. Only 14.5% of doctors recognized DKA as an emergency type-1 diabetes presentation, while the majority (74.5%) believe only symptomatic presentation is possible.

Table 2. Knowledge

Knowledge			
		N	%
What is type-1 Diabetes	Insulin Deficiency	104	94.5
	Insulin resistance	2	1.8
	No answer	4	3.6
Peak Age	Adolescent	47	42.7%
	Children	43	39.1%
	Young adult	36	32.7%
Genetic predisposition	Yes	84	76.4%
	No	18	16.4%
	Don't Know	4	3.6%
Positive family impact on causation	Yes	78	70.9%
	No	14	12.7%
	Don't Know	14	12.7%
Cause of Type-1 Diabetes	Unknown	12	10.9%
	Environmental	10	9.1%
	Autoimmunity	94	85.5%
Sign-symptoms	Polydipsia	102	92.7%
	Polyphagia	96	87.3%
	Polyuria	102	92.7%
	Darkening of skin	10	9.1%
	Weight Loss	82	74.5%
Emergency presentation of Type-1	HONK	6	5.5%
	DKA	16	14.5%
	Symptomatic Presentation	84	76.4%
Diagnostic Investigation	FBS	20	18.2%
	RBS	18	16.4%
	HbA1C	50	45.5%
	Glucose Tolerance test	86	78.2%
Effect of Diet	Yes	52	47.3%
	No	42	38.2%
	Don't Know	10	9.1%
Effect of exercise	Yes	52	47.3%
	No	36	32.7%
	Don't know	16	14.5%

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Chief treatment of Type-1	Insulin	102	92.7%
	Metformin	2	1.8%
Complication of type-1 Diabetes	Diabetic retinopathy	90	81.8%
	Diabetic Neuropathy	88	80%
	Diabetic Nephropathy	92	83.6%
	Don't know	12	10.9%
Insulin can be withdrawn	Yes	94	85.5%
	No	8	7.3%
Knowledge of insulin carb ratio	Yes	40	36.4%
	No	48	43.6%
	Don't know about ICR	16	14.5%

The Glucose Tolerance Test, which was properly identified as the diagnostic investigation by the majority of doctors (78.2%), is used to diagnose type-1 diabetes. Ideas for conducting additional research ranged in FBS (18.2%), RBS (16.4%), and HbA1C (45.5%). In order to control type-1 diabetes, nutrition is considered to be important by 47.3% of doctors, yet 38.2% of doctors are unaware of this. When it comes to their understanding of the relationship between exercise and type-1 diabetes, 47.3% of physicians think it helps with control, while 32.7% think it doesn't.

Insulin was chosen as the best treatment for type-1 diabetes by nearly all doctors (92.7%). The majority of individuals were aware of type 1 diabetes problems include diabetic retinopathy (81.8%), diabetic neuropathy (80%), and diabetic nephropathy (83.6%). 85.5% of doctors

correctly recognized that insulin cannot be stopped at the point of death. 43.6% of doctors are unaware of the insulin-carb ratio.

Attitude

Table 3 displays the results of the attitude questionnaire. The majority of doctors are aware that type -1 diabetes is becoming more common in Bangladesh. They all concur that parenteral education can aid in glucose control more effectively. While a sizable portion of doctors (58) are aware that diet and exercise can be essential in the management of type-1 diabetes, a sizable portion of doctors (32), do not. Most doctors agree that rigorous glycemic management can stop further complications. Many doctors believe that regular insulin therapy is challenging. The majority of doctors are aware that using natural remedies to treat type 1 diabetes is useless.

Table 3. Attitude

1. Prevalence of diabetes is increasing in Bangladesh	Strongly disagree		
	Disagree	4	3.6%
	Neutral		
	Agree	42	38.2%
	Strongly Agree	58	52.7%
2. Educating the patients about their disease will help in better glycemic control	Strongly disagree		
	Disagree	4	3.6%
	Neutral	2	1.8%
	Agree	34	30.9%
	Strongly Agree	64	58.2%
3. Diet and exercise are the integral part of type 1 diabetes management	Strongly disagree	4	3.6%
	Disagree	28	25.5%
	Neutral	16	14.5%
	Agree	42	38.2%
	Strongly Agree	14	12.7%
4. Complications of diabetes can be prevented by strict glycemic control	Strongly disagree		
	Disagree	10	9.1%
	Neutral	2	1.8%
	Agree	54	49.1%
	Strongly Agree	34	30.9%
5. Regular Insulin therapy is the difficult method of treatment	Strongly disagree	2	
	Disagree	38	34.5%
	Neutral	10	9.1%
	Agree	50	45.5%
	Strongly Agree	4	3.6%

6. Herbal Alternative medicine can cure type1 Diabetes	Strongly disagree	72	65.5%
	Disagree	22	20%
	Neutral	6	5.5%
	Agree	4	3.6%
	Strongly Agree		

Practice

The following table summarizes how physicians responded in their type-1 diabetic practices: 4. The majority of doctors (60%) only gave a partial diagnosis of type-1 diabetes. Physicians misdiagnosed type-1 diabetes in over 63.6% of cases. The majority of doctors (76.4%) correctly said that HbA1c should be checked every three months. The majority of them correctly

identified (65.6%) the routine to check patients with type 1 diabetes who have high lipid profiles. The difference between doctors who supported using oral medicine and those who opposed it in type 1 diabetes was rather small (41.8% versus 50.9%). Almost no doctor (65.5% say no, and 12.75% say they might) had the idea to provide c-peptide to patients with type-1 diabetes.

Table 3. Practice

Diagnostic Test of Type-1 Diabetes	Practice		
	Correct	18	16.4%
Partially Correct	66	60%	
Incorrect	20	18.2%	
Monitoring Investigations	Correct	12	10.9%
	Partially Correct	22	20%
	Incorrect	70	63.6%
Frequency of monitoring HbA1c	Annually	4	3.6%
	Monthly	4	3.6%
	Quarterly	10	9.1%
	Three monthly	84	76.4%
Frequency of monitoring Lipid Profile	Annually	16	14.5%
	Six monthly	72	65.5%
	Three monthly	16	14.5%
Oral Medication effect on type-1	Yes	46	41.8%
	No	56	50.9%
Performing C-peptide test	Yes	10	9.1%
	No	72	65.5%
	May be	14	12.7%

6. DISCUSSION

The KAP study was done among physicians to assess their knowledge, attitude and practice of type-1 diabetes. Over the past few years substantial progress has been observed in the understanding, management and treatment of type-1 diabetes in Bangladesh. Assessing the KAP of physicians will allow the improvement of their knowledge and subsequently aid to the benefits of patients. Though many of the physicians identified the epidemiological facts of Type-1 diabetes, the percentage of physician not knowing the epidemiology of type-1 diabetes is not low too.

The level of knowledge among health care providers regarding type-1 diabetes is less than average. This is probably due to low level exposure to the knowledge of type-1 diabetes during undergraduate and post graduate medical training. This might deprive the type-1 diabetic patients not to emphasize the different

component of multi-disciplinary care like diet, physical exercise and solely focus on insulin-based treatments. Previously no resources are available to in Bangladesh to compare with. One of the most common presentation of type-1 diabetes is DKA(8) but a very percentage of physicians possess the knowledge of this rather they believe type-1 diabetes can have symptomatic presentation only.

Dietary adherence is extremely crucial for type-1 diabetes(9) but a significant number of health care professional believes that diet has got no benefits over the glycemic control of type-1 diabetes. It is important to understand the effect of exercise on metabolism and individualized exercise program for better glycemic control(10). Though majority health care professionals are aware of this, the number of physician unaware of the importance of exercise in type-1 diabetes is also high.

There are series of laboratory investigations to

diagnosis and monitor type-1 diabetes such as Fasting and Random blood sugar, HbA1C, C-peptide, urinary acetone etc(11). Monitoring HbA1C, Lipid profile were identified accurately by most of the participants. Most of the health care providers could not identify all the answers correctly. Majority of the physicians are not aware of the importance of C-peptide in type-1 diabetes(Table:3). The increasing prevalence of type-1 diabetes in Bangladesh(12) is known to almost all the physicians participated in the survey. Many of the physicians showed tendency to use oral medications for the control of type-1 diabetes.

The survey highlights the deficiencies in knowledge, attitude and practice of medical physicians to manage type-1 diabetes probably due to the less exposure to patients in different centre and more exposure to type-2 diabetes. Continuous and regular professional monitoring are essential for upgrading professional efficiency regarding type-1 diabetes of the medical physicians. This survey identified the knowledge, attitude and practice of type-1 diabetes of medical physicians in Bangladesh for the very first time.

Study Limitations: This research was conducted exclusively online via social media platforms, introducing potential biases in participant engagement and response quality. Additionally, the study suffered from a small sample size, limiting the generalizability of findings and raising concerns about statistical power. Consequently, caution is warranted in extending conclusions beyond the sampled population, emphasizing the need for further research to validate and build upon these findings. But there is further scope to conduct the study in a broader aspect in future.

7. CONCLUSION

It is essential to focus over the knowledge, attitude and practice of type-1 diabetes among physicians. In many aspects physicians have enough knowledge of about it but in most cases like investigation and management, the gap is eye catching. More training programmes are required to meet the gap and initiative to ensure appropriate and better care to ensure equal management facilities for the type-1 diabetic patients. Further KAP study should be done to assess the knowledge, attitude and practice patients and caregiver regarding type-1 diabetes and related NCD.

ETHICAL APPROVAL

This study was approved by Diabetic Association of Bangladesh Ethical Review committee. (Approval no: BADAS-ERC/ EC/ 24/22)

DECLARATION

The authors affirm that they have no conflicts of interest to disclose.

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AUTHORS' CONTRIBUTION

Ajmina Hasan Flabe: Study design, Data analysis and manuscript writing, Bedowra Zabeen: Supervision & Review, Suraiya Akter: Data Analysis, Arnab Aditya Das & Mehedi Hasan: Data collection.

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