

Knowledge and Practices of General Practitioners of Azad Jammu Kashmir in the Field of Diabetes and its Complications: A cross-sectional survey

Muhammad Naeem Aslam

ABSTRACT

Objective: To assess knowledge and practices of general Practitioners working in Primary health care facilities of Azad Kashmir about diabetes mellitus and its complications.

Methodology: A cross sectional survey was conducted from January 2021 to June 2021 in Azad Jammu and Kashmir. A non-probability convenient sampling technique was used. Ethical approval was taken from Baqai Institute of Diabetology and Endocrinology. The data was collected by the participants after verbal informed consent using a self-structured questionnaire developed after taking into account various published studies from the past.

Results: A total of 302 general practitioners working in primary Health care facilities had completed the questionnaire. Approximately 64.6%, 61.3%, and 67.9% of general practitioners (GPs) correctly identified the diagnostic cut-off values for fasting blood sugar, random blood sugar, and HbA1c, respectively. Regarding the overall knowledge scores, 71.9% of participants had poor scores, while 20.5% attained fair scores, and only 7.6% achieved good scores. In regards to the clinical practice, 25.8% of GPs had inadequate scores, whereas 65.9% demonstrated adequate practice, and 8.3% achieved good scores.

Conclusion: The study concludes that a higher number (71.9%) of primary health care physicians in Azad Jammu and Kashmir are unaware of the recent advancement in the field of diabetes and its management. It also highlights significant gaps in knowledge and practices related to diabetes care among those. Furthermore, most practitioners had not undergone formal training in diabetes care since graduation from the medical school and were unaware of standard care guidelines.

KEY WORDS: Knowledge, Attitude, Practice, Diabetes mellitus, Continuing education.

INTRODUCTION

Diabetes mellitus, a chronic metabolic disorder primarily characterized by persistent hyperglycemia, has far-reaching consequences if not managed effectively.¹

The cornerstone of diabetes management lies in achieving near-normal glycemic control, as supported by numerous clinical studies. Despite advances in treatment strategies, diabetes remains a growing global health concern, with its prevalence escalating at alarming rates.

In the Middle East and North Africa (MENA) region, approximately 54.8 million adults (12.8%) aged 20–79 years have diabetes, with a staggering 44.7% of these cases remaining undiagnosed. By 2030, the prevalence is projected to rise to 38.8%, and by 2045, a significant increase of 96.5% is anticipated² Pakistan, in particular, faces a substantial diabetes burden, with around 19.4 million adults currently living with the condition. A recent prevalence study conducted in Pakistan revealed a

Address for Correspondence: Dr. Naeem Aslam
drnaeemaslam124@gmail.com

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diabetes and pre diabetes prevalence of 26.3% and 14.4% respectively.³

Complications arising from poor glycemic control, such as cardiovascular diseases, peripheral vascular disease, stroke, retinopathy, nephropathy, and diabetic foot ulcers, impose significant morbidity and mortality.⁴⁻⁶ Studies consistently demonstrate that optimal glycemic control reduces the risk of such complications in both type 1 and type 2 diabetes. In response, the American Diabetes Association (ADA) and other health organizations have established evidence-based guidelines for diabetes management and monitoring which are regularly updated. Key diagnostic and monitoring tools include HbA1c, urinary micro albumin levels, lipid profiles, foot examinations, and retinal evaluations.⁷⁻⁹

However, despite the availability of clear guidelines, adherence to these recommendations remains suboptimal in many regions. Limited resources, lack of awareness, and inadequate training among healthcare providers, especially general practitioners (GPs), contribute to this gap.^{10,11} GPs play a pivotal role in primary healthcare, particularly in underserved areas where diabetes specialists are scarce. Yet, many GPs are not equipped with up-to-date knowledge of diabetes management due to insufficient exposure to continuous medical education (CME) programs.¹²

This study aims to assess the knowledge and practices of general practitioners in Azad Kashmir regarding the management of diabetes and its complications. By identifying gaps in their understanding and adherence to established guidelines, this research seeks to provide actionable insights to improve diabetes care at the primary healthcare level.

METHODOLOGY

This cross-sectional survey was conducted from January to June 2021, across Primary Health Care (PHC) units in Azad Jammu and Kashmir's three divisions: Mirpur, Poonch, and Muzaffarabad, involving healthcare providers from public and private sectors. The study was approved by Institutional Review Board (IRB) of BIDE. Using a non-probability convenient sampling technique, participants provided verbally informed consent, and data confidentiality was ensured. A self-structured questionnaire, developed based on prior studies, assessed demographics, knowledge, and practices. Demographic details included age, gender, work location, type of practice, CME attendance, and personal diabetes history. Knowledge was evaluated through 14 questions, with scores categorized as poor, fair, or good, while practice was assessed via 15 questions, with levels classified as inappropriate, appropriate, or good.

The data collected in this study were analyzed using statistical software SPSS statistics version 23 to evaluate the knowledge and practices of general practitioners regarding diabetes management. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize demographic variables and responses to the knowledge and practice

assessment questions. Inferential statistics, such as chi-square tests and t-tests, were employed to identify associations between demographic factors and the levels of knowledge and practices. A p-value of <0.05 was considered statistically significant.

RESULTS

A total of 302 general practitioners (GPs) working in primary healthcare facilities completed the questionnaire. Table-I summarizes the sociodemographic and work-related characteristics of the participants. The mean age was 32.8 years (± 8.5), ranging from 24 to 69 years. The cohort consisted of 170 males (56.3%) and 132 females (43.7%). Among the participants, 159 (52.6%) were working in rural health facilities, while 143 (47.4%) were employed in urban areas. A majority, 157 (52%), were from the Mirpur division. The average number of patients seen daily by a healthcare provider was 43, ranging from 2 to 150 patients per day.

Of the participants, 192 (63.6%) worked in the public sector, and 110 (36.4%) in the private sector. Continuing medical education (CME) sessions on diabetes had been

Table-I: Demographic characteristics of the Participants.

	N	%
Gender		
Male	170	56.3
Female	132	43.7
Age (mean) years	32.88	
Workplace		
Rural	159	52.6
Urban	143	47.4
Type of practice		
Public	192	63.6
Private	110	36.4
Division		
Mirpur	157	52.0
Poonch	90	29.8
Muzaffarabad	55	18.2
Duration of practice		
Lessthan5years	183	60.6
Morethan5years	119	39.4
Patients seen daily (mean)	43.37	
Attended CMEs		
Yes	122	40.4
No	180	59.6
Personal history of Diabetes		
Yes	11	3.6
No	191	96.4

attended by 122 participants (40.4%). Notably, only 11 (3.6%) of the GPs were themselves diabetic.

Table-II presents the frequency of correct answers by GPs on diabetes-related knowledge and its complications. Approximately 64.6%, 61.3%, and 67.9% of GPs correctly identified the diagnostic cutoffs for fasting blood sugar, random blood sugar, and HbA1c, respectively.

The mean knowledge score was 7 (± 2.2) out of a maximum of 14, while the mean practice score was 8.3 (± 1.5) out of a maximum of 13. About 71.9% of participants had poor knowledge scores, 20.5% had fair scores, and 7.6% achieved good scores. For practices, 25.8% had inadequate scores, 65.9% had adequate scores, and 8.3% achieved good scores (Fig.1 and 2).

Analysis of the association between demographic features and knowledge scores (Table-III) indicated no significant impact of gender on knowledge. However, urban GPs had lower percentages of poor knowledge scores compared to rural GPs (68.5% vs. 74.8%). GPs working in the public sector showed higher fair knowledge scores than those in the private sector (23.4% vs. 15.5%). Participants practicing for more than five years demonstrated better knowledge scores than those with less experience (68.9% vs. 73.8%). Diabetic physicians had fewer poor knowledge scores compared to non-diabetic physicians (45.5% vs. 72.9%).

DISCUSSION

In the present study, male general practitioners (GPs) demonstrated better practices compared to their female counterparts, although their knowledge levels were similar. This finding contrasts with a study conducted in

Table-II: Correct Answers by GPs on Knowledge.

Question of Knowledge	n	%
Cutoff of fasting blood sugar	195	64.6
Cutoff of random blood sugar	185	61.3
Duration of practice		
Lessthan5years	183	60.6
Morethan5years	119	39.4
Patients seen daily (mean)	43.37	
Attended CMEs		
Yes	122	40.4
No	180	59.6
Personal history of Diabetes		
Yes	11	3.6
No	191	96.4
Cutoff of HbA1c	205	67.9
Fasting blood sugar targets	90	29.8
Random blood sugar targets	197	65.2
HbA1ctargets	73	24.2
Recommended systolic BP	192	63.6
Recommended diastolic BP	145	48
Recommended LDL	162	53.6
Recommended Triglycerides	97	32.1
Gestational diabetes Cutoff	181	59.9
Cutoff values	23	7.6
Type-2 diabetes complication screening time	174	57.6
Type-1 diabetes complication screening time	125	41.4

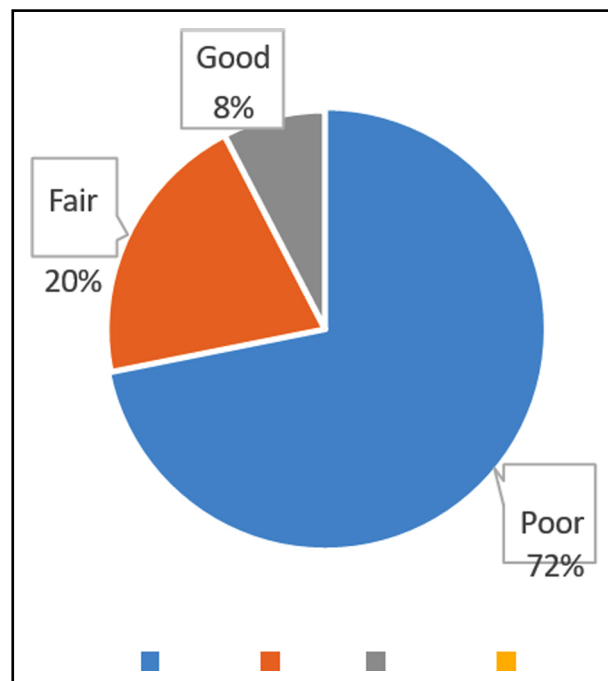


Fig.1: Score of knowledge of primary healthcare physicians.

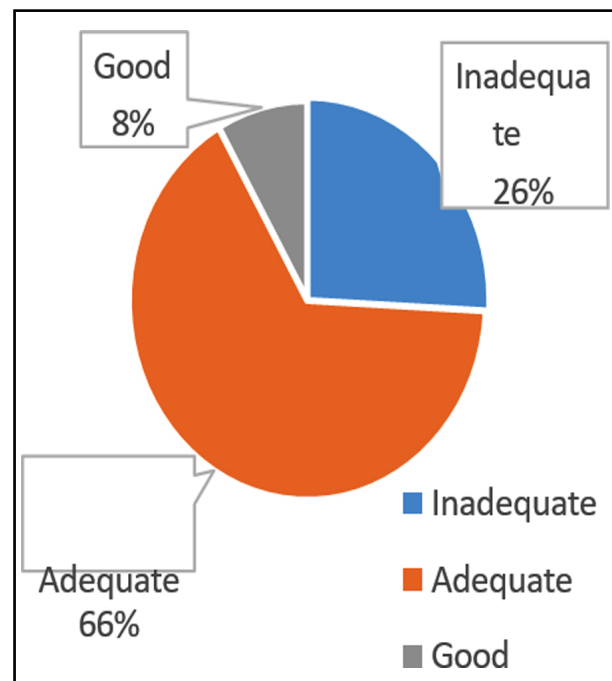


Fig.2: Score of Practices of primary healthcare physicians.

Table-III: Association of demographic features with knowledge score.

		<i>Poor</i>		<i>Fair</i>		<i>Good</i>		<i>P-Values</i>
		<i>No</i>	<i>%</i>	<i>N</i>	<i>%</i>	<i>No</i>	<i>%</i>	
Gender	Male	122	71.8	38	22.4	10	5.9	0.3
	Female	95	72	24	18.2	13	9.8	
Working Area	Rural	119	74.8	33	20.8	07	4.4	0.08
	Urban	98	68.5	29	20.3	16	11.2	
Sector	Public	134	69.8	45	23.4	13	6.8	0.2
	Private	83	75.5	17	15.5	10	9.1	
Division	Mirpur	120	76.4	22	14	15	9.6	0.042
	Poonch	62	68.9	24	26.7	04	4.4	
	Muzaffarabad	35	66.2	16	29.1	04	7.3	
Practice Duration	Lessthan 5 years	135	73.8	34	18.6	14	7.7	0.5
	Morethan 5 years	82	68.9	28	23.5	09	7.6	
CMEs	Yes	89	73	24	19.7	09	7.4	0.9
	No	128	71.1	38	21.1	14	7.8	
Diabetic	Yes	5	45.5	5	45.4	01	9.1	0.1
	No	212	72.9	57	19.6	22	7.6	

Pakistan where male GPs exhibited greater knowledge than females, as well as a similar observation from a study in Iran.^{13,14} GPs practicing in urban areas were found to have superior knowledge and practices regarding the management of diabetes mellitus and its complications compared to those in rural areas. This may be attributed to urban practitioners' easier access to specialists for consultations and opportunities to update their knowledge based on feedback, aligning with findings from a Saudi Arabian study.¹⁵

GPs employed in the public sector were more knowledgeable than their private sector counterparts. Conversely, some studies have reported better practices among GPs in the private sector. Respondents from the Muzaffarabad division exhibited significantly higher knowledge and better practices than those from Poonch and Mirpur divisions, potentially due to the presence of postgraduate teaching hospitals in Muzaffarabad, which offer more educational opportunities for practitioners.

The study also revealed that GPs with more than five years of experience were more knowledgeable but exhibited fewer good practices than those with less experience. This could be due to established practitioners being less involved in educational activities, similar to findings from a 2016 study in Saudi Arabia involving GPs at primary healthcare facilities. Interestingly, respondents who had attended continuing medical education (CME) programs displayed better practices despite having less

knowledge about diabetes, underscoring the critical role of CME in improving patient care.¹³ Additionally, diabetic GPs demonstrated better knowledge, likely because of their personal engagement with updated guidelines to manage their own condition.

Among diagnostic tests, HbA1c was the most commonly used by primary care providers (83.66%), followed by fasting blood sugar (60.66%), oral glucose tolerance test (16.33%), and random blood sugar (13.66%).

CONCLUSION

This study highlights significant gaps in knowledge and practices related to diabetes care among primary care physicians in Azad Jammu and Kashmir. While the practices of general practitioners at primary healthcare centers were generally adequate, the majority lacked comprehensive knowledge about diabetes management and its complications. Furthermore, most practitioners had not undergone formal training in diabetes care since graduating from medical school and were unaware of standard care guidelines.

Recommendations: Based on the findings, the following recommendations are made:

Awareness and Education Programs: Implement programs to update family physicians on diabetes screening, effective treatments, and prevention of complications.

Simplified Management Algorithm: Develop and disseminate a simplified diabetes management algorithm by the specialty societies of Pakistan, in collaboration with health ministries, for use by all primary care doctors.

Mentorship Programs: Establish mentorship initiatives where groups of primary care physicians in defined communities are paired with diabetes specialists for easy access to professional guidance.

Conflict of interest: Nothing to declare.

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Author Contribution:

Dr. Naeem conceived the idea, did literature search, collected data and wrote the manuscript.

AUTHOR:

- Dr. Naeem Aslam
E-mail: drnaeemaslam124@gmail.com