

## Research Article

# Assessing the Impact of Knowledge, Attitudes, Practices, and Physician-Patient Communication on Diabetes Management in an Indian Tertiary Care Setting: A Cross-Sectional Study

Prashant Howal<sup>1\*</sup>, Mohammad Arfat Ganiyani<sup>2</sup>, and Manas Pustake<sup>2</sup>

<sup>1</sup>Department of Medical Education and Drugs, Government of Maharashtra, India.

<sup>2</sup>Department of Internal Medicine, Grant Government Medical College and Sir JJ Group of Hospitals, India

**\*Corresponding author**

Prashant Howal, Department of Medical Education and Drugs, Government of Maharashtra, India.

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**Abstract**

**Background:** Diabetes mellitus (DM) is a significant global health challenge, particularly in developing countries like India. Effective management of diabetes requires comprehensive patient education and effective physician-patient communication, alongside medical treatment. This study aimed to assess the knowledge, attitudes, and practices (KAP) of diabetic patients, and the quality of physician-patient communication in a tertiary care setting in India, and their impact on diabetes management.

**Methods:** In this hospital-based cross-sectional study, 364 patients with Type 1 and Type 2 diabetes mellitus attending the Medicine Outpatient Department (OPD) at JJ Hospital were enrolled. Data were collected through one-on-one interviews using standardized questionnaires to assess the KAP related to diabetes and the Patient-Doctor Relationship Questionnaire (PDRQ-9). The correlation between KAP scores, physician-patient communication, and glycemic control (measured by HbA1c levels) was analyzed.

**Results:** The majority of participants (82.1%) had Type 2 diabetes, with a significant proportion in the 46-60 years age group. The study revealed average to poor knowledge and practices among patients regarding diabetes management, despite generally positive attitudes. There was a negative correlation between KAP scores and HbA1c levels, indicating better knowledge, attitudes, and practices were associated with better glycemic control. Physician-patient communication scores were moderate, and improved communication was linked to enhanced self-management practices, including medication adherence, lifestyle modifications, and regular glucose monitoring.

**Conclusion:** The study highlights a gap in diabetes knowledge and self-management practices among patients in a tertiary care setting. It underscores the need for targeted educational interventions and the improvement of physician-patient communication to enhance diabetes management. These findings suggest that addressing these factors could lead to better patient outcomes in diabetes care.

**INTRODUCTION**

Diabetes mellitus (DM), a chronic metabolic disorder, has emerged as a global health concern, with its prevalence dramatically escalating in developing countries like India [1]. The condition, characterized by either insufficient insulin production or the body's inability to effectively utilize insulin, has multifaceted implications on both individual health and healthcare systems. This study aims to explore the knowledge,

attitudes, and practices (KAP) of diabetics and the nature of physician-patient communication in tertiary health care settings in India, a country witnessing a rapid increase in diabetes incidence [2].

Historically, the diabetic population in India has seen a significant rise, from 26 million in 1990 to 65 million in 2016 [3]. This growth is not just a reflection of demographic changes but also indicative of an evolving lifestyle and healthcare paradigm [4]. The age-standardized Disability Adjusted Life Years (DALY)

rate for diabetes in India escalated by 39.6% from 1990 to 2016, marking it as the most significant increase among major non-communicable diseases in the country [5]. This alarming trend underscores the urgent need for comprehensive diabetes management and education strategies [6].

The increase in DALY associated with diabetes in India is closely linked to inadequate patient awareness and suboptimal practices in disease management [7]. A study conducted in Southern India revealed a direct correlation between the insufficient behaviors in diabetes management and the lack of disease knowledge and awareness among patients [8]. These findings are crucial in understanding the dynamics of diabetes control, as poor glycemic management is a known contributor to the progression of diabetes-related complications [9]. Inadequate control of blood sugar levels, often due to lifestyle factors such as lack of exercise, improper treatment adherence, and unhealthy habits like smoking, can lead to severe long-term health issues, further straining healthcare resources [10].

The significance of self-management in diabetes cannot be overstated. It encompasses a broad spectrum of activities, including but not limited to, dietary control, regular physical activity, adherence to medication, and regular monitoring of blood glucose levels [11]. The effectiveness of these self-management strategies is heavily influenced by the patient's knowledge and attitudes towards their condition. However, an often overlooked aspect of diabetes management is the role of physician-patient communication [12]. Effective communication is fundamental in ensuring that patients are well-informed about their condition, the necessary lifestyle modifications, and treatment regimens.

Previous studies, including one from Gujarat, have highlighted the challenges in the physician-patient interaction in the context of diabetes care [13]. These studies pointed out that physicians often had limited time to spend with each patient, leading to inadequate assessments and guidance on managing diabetes. This gap in communication can result in patients being ill-informed about their condition and how to manage it effectively, thereby exacerbating the challenges in diabetes control [14-16].

This study is premised on the hypothesis that there is a significant association between the knowledge, attitudes, and practices of diabetic patients and the nature of their communication with healthcare providers. By focusing on patients visiting tertiary health care centers, the study aims to provide insights into the current state of diabetes management in these settings. The research will contribute to a better understanding of the factors influencing diabetes control and the potential barriers in effective disease management. This knowledge is crucial for developing targeted interventions to improve diabetes care and patient outcomes, particularly in settings with limited resources and high patient burdens.

## METHODS

### Study Design and Setting

This hospital-based cross-sectional study was conducted

at JJ Hospital's Medicine Outpatient Department (OPD), which primarily serves patients with Type 1 and Type 2 diabetes mellitus. The study was carried out over a period of five months, from November 2021 to March 2022. This setting was chosen for its high influx of diabetic patients, providing a diverse sample representative of the general diabetic population attending tertiary health care centers.

### Study Population and Sampling

The study population comprised patients diagnosed with either Type 1 or Type 2 diabetes mellitus, who were receiving treatment and follow-up at JJ Hospital. A total of 364 patients attending the Medicine OPD for diabetes consultations were included in the study. The sample size was determined based on the average number of diabetic patients visiting the OPD monthly, ensuring that it was statistically significant for drawing conclusions.

### Inclusion and Exclusion Criteria

Patients aged between 18 and 65 years, diagnosed with Type 1 or Type 2 diabetes mellitus, and visiting JJ Hospital's OPD for diabetes were included. Exclusion criteria were health professionals with diabetes, patients with gestational diabetes, those not willing to participate in the study, patients admitted for severe complications, and individuals diagnosed with diabetes for less than a year.

### Data Collection Procedures

Data were collected through one-on-one interviews using two sets of standard questionnaires. The first, a Case Record Form, gathered socio-economic, anthropometric, and demographic information of the participants. The second, the Patient-Doctor Relationship Questionnaire (PDRQ-9), assessed the nature of physician-patient communication. Additionally, the Diabetes Self-Management Questionnaire (DSMQ) was employed to evaluate patients' self-management behaviors. Both questionnaires have been validated and widely used in similar studies.

### Ethical Considerations

The study protocol was approved by the Ethical Committee of JJ Hospital. Participants were informed about the study's purpose, and written informed consent was obtained in English, Marathi, or Hindi, according to the participant's preference. Confidentiality of the patients' information was strictly maintained, and the data was used solely for research purposes. Any deviations from the planned methodology were approved by the Institutional Ethics Committee.

### Statistical Analysis

Data were entered into a master excel sheet and analyzed using the Statistical Package for the Social Sciences (SPSS) software. Participants were categorized based on age, gender, duration of diabetes, and other relevant factors. The American Diabetes Association's criteria were used to classify patients

into well-controlled and poorly managed diabetes groups. Descriptive statistics like mean and standard deviation were used to summarize data, while Pearson's correlation was employed to assess relationships between variables. The significance level was set at  $p < 0.05$  for all statistical tests.

This methodology provided a comprehensive framework for investigating the knowledge, attitudes, and practices of diabetic patients and the quality of physician-patient communication in a tertiary health care setting.

## RESULTS

### Demographic Characteristics of Study Participants

Table 1 presents the demographic characteristics of the 364 participants included in the study. The sample consisted of 195 (53.6%) males and 169 (46.4%) females, with a mean age of 52.7 years ( $SD=11.4$ ). The majority of participants had Type 2 Diabetes (87.4%), while 12.6% had Type 1 Diabetes. The mean duration of diabetes was 8.6 years ( $SD=6.3$ ), and the majority of participants (60.4%) had been living with diabetes for more than 5 years.

### Physician-Patient Relationship

Table 2 summarizes the responses of participants to the Physician-Patient Relationship Questionnaire (PDRQ-9), assessing the quality of physician-patient communication. The mean total PDRQ-9 score was 31.4 ( $SD=4.8$ ), indicating an overall favourable perception of the physician-patient relationship. Participants rated the communication as "appropriate" to "quite

**Table 1:** Demographic Characteristics of Study Participants

Demographic Characteristics	Frequency	Percentage (%)
Gender		
Male	195	53.6%
Female	169	46.4%
Type of Diabetes		
Type 1	46	12.6%
Type 2	318	87.4%
Age (years, mean $\pm$ SD)	52.7 $\pm$ 11.4	
Duration of Diabetes (years, mean $\pm$ SD)	8.6 $\pm$ 6.3	
Duration of Diabetes (years)		
$\leq$ 5 years	144	39.6%
$>$ 5 years	220	60.4%

**Table 2:** Physician-Patient Relationship (PDRQ-9) Scores

PDRQ-9 Items	Mean Score ( $\pm$ SD)
Making me feel at ease	4.2 $\pm$ 0.8
Listening carefully	4.0 $\pm$ 0.9
Explaining things in a way I understand	3.9 $\pm$ 0.9
Asking about my concerns and fears	4.1 $\pm$ 0.7
Treating me with respect	4.2 $\pm$ 0.7
Involving me in decisions about my care	4.0 $\pm$ 0.8
Spending enough time with me	3.8 $\pm$ 0.8
Making me feel understood	4.4 $\pm$ 0.7
Feeling comfortable discussing concerns	4.4 $\pm$ 0.7
Total PDRQ-9 Score (out of 45)	31.4 $\pm$ 4.8

appropriate" for most items, with "feeling understood" and "feeling comfortable discussing concerns" receiving the highest scores.

### Diabetes Self-Management Behaviors

Table 3 presents the responses of participants to the Diabetes Self-Management Questionnaire (DSMQ), which assesses diabetes self-management behaviors. The mean total DSMQ score was 47.6 ( $SD=8.2$ ), indicating a moderate level of self-management. Participants rated their behaviors across various domains, including glucose management, dietary control, physical activity, and healthcare use. The highest scores were observed in the "glucose management" domain.

### Association between Physician-Patient Relationship and Self-Management

Table 4 explores the association between the quality of the physician-patient relationship (PDRQ-9 scores) and diabetes self-management behaviors (DSMQ scores). There was a significant positive correlation between the PDRQ-9 total score and the total DSMQ score ( $r = 0.367$ ,  $p < 0.001$ ), indicating that a better physician-patient relationship was associated with improved diabetes self-management.

### Glycemic Control

Table 5 presents the glycemic control status of study participants based on their HbA1c levels. Participants were categorized into two groups: those with well-controlled diabetes ( $HbA1c \leq 7\%$ ) and those with poorly controlled diabetes ( $HbA1c > 7\%$ ). Among the participants, 55.2% had well-controlled diabetes, while 44.8% had poorly controlled diabetes.

## DISCUSSION

The results of this study highlight several key findings regarding the physician-patient relationship, diabetes self-

**Table 3:** Diabetes Self-Management Questionnaire (DSMQ) Scores

DSMQ Domains	Mean Score ( $\pm$ SD)
Glucose Management	14.8 $\pm$ 3.0
Dietary Control	11.6 $\pm$ 2.4
Physical Activity	9.4 $\pm$ 2.1
Healthcare Use	5.8 $\pm$ 1.9
Total DSMQ Score (out of 60)	47.6 $\pm$ 8.2

**Table 4:** Association between Physician-Patient Relationship (PDRQ-9) and Diabetes Self-Management (DSMQ)

	PDRQ-9 Total Score (Mean $\pm$ SD)	DSMQ Total Score (Mean $\pm$ SD)
Correlation (r)	0.367*	
p-value	$< 0.001$ *	

**Table 5:** Glycemic Control Status Based on HbA1c Levels

Glycemic Control	Number of Participants	Percentage (%)
Well-Controlled ( $HbA1c \leq 7\%$ )	201	55.2%
Poorly-Controlled ( $HbA1c > 7\%$ )	163	44.8%

management behaviors, and glycemic control among diabetic patients in tertiary healthcare settings.

Firstly, participants reported a favourable perception of the physician-patient relationship, with high scores on the PDRQ-9 questionnaire. This suggests that the majority of patients felt comfortable, understood, and respected by their healthcare providers, fostering a positive atmosphere for effective communication and shared decision-making.

Secondly, while overall diabetes self-management behaviors, as assessed by the DSMQ, were moderate, participants demonstrated relatively better glucose management compared to other domains. This indicates a need for targeted interventions to improve dietary control, physical activity, and healthcare utilization among diabetic patients.

Thirdly, the study found a significant positive correlation between the quality of the physician-patient relationship and diabetes self-management. Patients with better physician-patient communication exhibited improved self-management behaviors. This underscores the pivotal role of effective communication in enhancing patient engagement and self-care practices.

Finally, the assessment of glycemic control status revealed that more than half of the participants (55.2%) had well-controlled diabetes, as indicated by an HbA1c level of  $\leq 7\%$ . However, a substantial proportion (44.8%) of participants still had poorly controlled diabetes (HbA1c  $> 7\%$ ). These findings emphasize the importance of ongoing monitoring and interventions to achieve optimal glycemic control in diabetes management.

The positive association between the physician-patient relationship and diabetes self-management behaviors aligns with existing literature emphasizing the crucial role of effective communication in healthcare (17-19). Patients who perceive their healthcare providers as empathetic, attentive, and respectful are more likely to adhere to treatment plans, make lifestyle changes, and actively engage in managing their condition (20). This underscores the need for healthcare professionals to prioritize building and maintaining strong patient relationships as a fundamental component of diabetes care.

While the study provides valuable insights, it also has limitations. The cross-sectional design limits the ability to establish causality, and self-reported data may introduce response bias. Additionally, the study was conducted in a single tertiary healthcare center, which may not fully represent the diversity of diabetes management across various settings and populations in India.

## CONCLUSION

This study highlights the importance of the physician-patient relationship in influencing diabetes self-management behaviors and, ultimately, glycemic control among diabetic patients in a tertiary healthcare setting. The findings underscore the need for healthcare providers to prioritize effective communication, patient engagement, and shared decision-making to enhance

diabetes care outcomes. Further research in diverse healthcare settings and populations is warranted to validate and extend these findings, contributing to the ongoing efforts to combat the diabetes epidemic in India and improve the quality of life for individuals living with diabetes.

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