A Cross-Sectional Study to Assess Knowledge on Self-Administration of Insulin among Diabetic Patients Attending General Medicine OPD of Shah Satanam Ji Speciality Hospitals Sirsa Haryana

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Abstract: Background: Diabetes Mellitus is widely recognized as one of the leading causes of death and disability among world population. According to WHO in 2014, 8.5% of adults aged 18 years and older had diabetes. In 2019, diabetes was the direct cause of 1.5 million deaths and 48% of all deaths due to diabetes occurred before the age of 70 years. Between 2000 and 2016, there was a 5% increase in premature mortality rates (i.e. before the age of 70) from diabetes. *Objectives:* To assess the knowledge regarding self-administration of insulin injection among diabetes mellitus patients in medicine OPD and to find the association between the knowledge and selected demographic variables. *Methods:* Total50 diabetes mellitus patient on insulin therapy were selected by convenient sampling method. Researcher's convenience and familiarity with settings were added reason. The tools used for data collection is a structured questionnaire to assess the knowledge of the diabetes mellitus patients regarding self-administration of insulin injection. *Results:* In the study, 30 participants (60.0%) are having average knowledge regarding self-administration of insulin injection, 15 participants (30.0%) are having good knowledge regarding self-administration of insulin injection and 5 participants (10.0%) are having poor knowledge regarding self-administration of insulin injection. *Conclusion:* Better knowledge of self-administration of insulin is required among patients.

Keywords: Knowledge; Self administration; Insulin injection; Diabetes mellitus; Medicine OPD

INTRODUCTION

The International Diabetes Federation's 2003 estimate indicated that diabetes mellitus had a global prevalence of 194 million people. The World Health Organization (WHO) projected that this figure would rise to 300 million by 2025. By 2011, it was approximated that 366 million individuals had diabetes, and this number was expected to increase to 552 million by 2030. Type 2 diabetes was on the rise in all countries, with 80% of diabetes cases occurring in low- and middle-income nations. In 2011, diabetes resulted in 4.6 million deaths, and it was predicted that 439 million people would have type 2 diabetes by 2030. In India, both urban and rural areas saw an increase in the prevalence rate of diabetes, with a 9% increase.

Insulin plays a crucial role in normal bodily metabolism. In type I Diabetes Mellitus, the body no longer produces insulin, while in type II DM, individuals do not depend on external insulin for survival but may require supplementary insulin over time (as per the American Diabetic Association).

The WHO has declared diabetes an epidemic due to a significant increase in its prevalence over the past few decades. In 1985, there were only 30 million diabetes patients, which increased to 135 million in 1995, 177 million in 2000, and exceeded 200 million by 2010. According to WHO estimates, if current trends continue, there will be over 300 million diabetes patients by 2025. The majority of this increase will occur in developing countries like India, China, and other densely populated nations.

The Diabetes Control and Complication Trial (DCCT) has shown that strict blood sugar control reduces the risk of microangiopathy, retinopathy, and nephropathy in diabetic patients. Diabetes treatment should be tailored to each individual and involve a multidisciplinary team, patient commitment, and family support.

Deepa M et al conducted an epidemiological survey on "Awareness and Knowledge of Diabetes in Chennai." Their structured questionnaire, administered to 26,001 people, revealed that only 75% of the population were aware of diabetes, indicating that nearly 25% of Chennai's population had the condition.

Dall'Antonia C et al conducted a descriptive study to characterize children with type-I diabetes by socio-demographic factors and identify challenges related to insulin self-management and home care. They interviewed 34 children with type 1 diabetes in a large hospital. Their findings showed that 82.4% of the children were of Caucasian ethnicity, 61.8% were female, 54.1% were aged 9 to 11, 67.7% were Catholic, and 64% had been living with the disease for 3 years. Additionally, 35.3% of them learned insulin use from their mothers, and 32.3% adhered to their insulin self-administration schedule.

OBJECTIVES

- To assess the knowledge on self-administration of insulin among diabetic patients attending Medical OPD of a tertiary care institute.

- To associate the knowledge in self-administration of insulin therapy among diabetic patients with selected demographic variables.

METHODOLOGY

Quantitative approach with descriptive research design was used to assess the knowledge on self-administration of insulin among diabetic patients attending Medical OPD. The study was conducted in the medical outpatient department at a Speciality Hospital.After a pilot study was done on **5** patients, **50** patients taking insulin who were attending medical outpatient department were recruited using convenience sampling technique.

TOOLS OF DATA COLLECTION

The tool had two parts

Part I: It included the questionnaires to assess the socio-demographic variables like age, sex, area of living, marital status, education, occupation, monthly income and source of information.

Part II: It included the questionnaires on knowledge regarding self-administration of insulin and it consisted of 30 questions each carries one mark.

SCORING TOOL:

Above 75%: Good Knowledge
50-74%: Average Knowledge
>50%: Poor Knowledge

VALIDITY AND RELIABILITY:

Validity of the tool was obtained by getting opinions from experts. The reliability of the tool was obtained test-retest method and the score was 0.8.

FINDINGS OF THE STUDY

Section-I

Scio-demographic Variables

The study revealed that the majority of patients (45.0%) were under the age group 41-49, 40.0% of the patients were more than 50 and 15.0% were in the age group of less than 40. 55.0% of the patients were males and 45.0% were females. 65.0% of the patients were Hindus, 20.0% were others, 12.0% were Muslims and 3.0% were Christians. 70.0% of the patients were living in rural areas and 30.0% were from urban area. 30.0% of the patients had an education of primary level, 30.0% had secondary school education and 40.0% has graduation or above. Most 70.0% of the patients were private employees, 20.0% were govt job holders and 10.0% of the patients were retired from job. 60.0% of them had monthly income less than Rs. 10,000 20.0% had 10001-15000and 20.0% had monthly income of more than 20,000/- Most of the subjects i.e. 70.0% of them got information from newspaper and health magazines and 30.0% from electronic Medias.

Section-II
Assessment of knowledge score of diabetic patients regarding self-administration of insulin

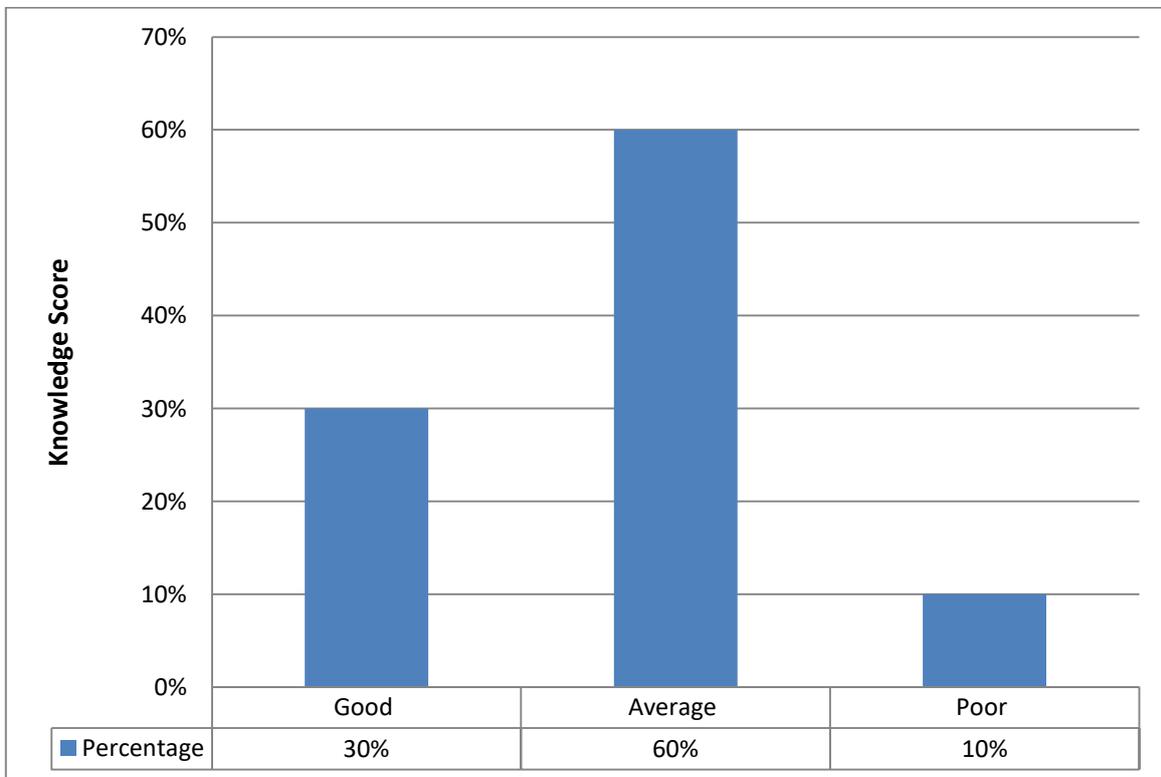| Knowledge Score	Good	Average	Poor
■ Percentage	30%	60%	10%

Figure.1 shows the knowledge score of patients on self-administration of insulin, 30.0% of the patients have good knowledge, 60.0% have average knowledge and 10.0% patients have a poor knowledge.

Section-IIIAssociation of knowledge of patients with socio-demographic variables.

Demographic Variables	Level of Knowledge				
	%	Good (n)	Average (n)	Poor (n)	Chi-square
Age					
<40	16	4	3	1	
41-49	44	12	10	4	
>50	40	6	8	2	13.09 NS
Sex					
Male	56	10	16	2	
Female	44	4	12	6	17.50 NS
Religion					
Hindu	66	8	20	5	
Muslim	12	1	2	4	
Christian	4	0	1	1	
Others	20	2	6	2	50.60 NS
Area of Residence					
Rural	70	6	18	11	
Urban	30	5	15	10	74.87 NS
Marital Status					
Mariied	80	14	10	16	
Unmarried	16	1	3	2	
Divorced	4	1	2	1	16.40 NS
Educational Status					
Primary	30	4	9	2	
Secondary	30	2	12	1	
Graduation	40	6	12	2	15.64 NS
Occupation					
Private	70	5	22	3	
Government	20	4	4	2	
Retired	10	1	2	2	21.32 NS
Monthly Income					
<10000	24	1	8	3	
10001-15000	46	4	15	4	
>15000	30	3	9	3	9.85 NS
Source of Previous Information					
newspaper and health magazines	30	9	6	10	
Other electronic media	70	7	10	8	12.00 NS

DISCUSSION

The research findings revealed that there was a deficiency in knowledge and a subpar level of practice observed. Inadequate awareness in these areas could potentially lead to the development of complications associated with diabetes and insulin usage. The extent of a patient's knowledge concerning self-administration of insulin appeared to be influenced by the duration of their insulin self-administration. This implies that a prolonged period of insulin self-administration may contribute to an enhanced understanding among patients. This is plausible because

over time, patients are likely to encounter more informational resources that can contribute to their knowledge, ultimately leading to an improvement in their practical skills.

Numerous studies have also indicated that individuals with diabetes often possess a limited understanding of the disease and its self-care management. Similarly, a significant portion of patients self-administering insulin lacks awareness regarding the potential complications associated with insulin usage and their management. Consequently, there is a pressing need to intensify efforts aimed at

educating individuals about diabetes and its self-care management to promote adherence to diabetes treatment protocols.

There are various means by which knowledge can be enriched. For instance, patients could be provided with a booklet containing visual aids, offering information on different types of insulin along with their corresponding color codes, insulin administration sites, techniques for insulin administration, proper insulin storage, recognition of signs of hypoglycemia and hyperglycemia, as well as details about insulin-related complications and their management. Such resources could greatly assist patients in achieving a better grasp of insulin self-administration and ultimately enhance their practical skills in this regard.

CONCLUSION

The study revealed that the knowledge regarding insulin administration among 60.0% are average which would be improved to prevent injection related complications. Thus, stressing the importance of creating awareness through health education of these patients at OPD could achieve maximum out during the hospital visit. Results show the need for planned sessions for improving knowledge integrated by a multi-professional team.

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