

Original Research Article

## **A Study to Assess the Knowledge, Attitude and Practice Regarding Blood Glucose Monitoring among Diabetic Patients Attending at Tertiary Care Hospital, Karad**

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### **ABSTRACT**

**Objectives:** (1) To assess diabetic patient's knowledge attitude and practice regarding blood glucose monitoring. (2) To find association between diabetic patients's knowledge attitude and practice regarding blood glucose monitoring with selected demographic variables.

**Methods:** Descriptive approach, non-experimental research design was used for study. 100 samples were included by convenient purposive sampling technique. Setting of study was medical and surgical out-patients as well as in-patients department of Krishna hospital, Karad. Structured questionnaire were used which consist of demographic data, knowledge, attitude and practice questionnaire. The collected data were studied and analyzed in terms of objectives of the study using descriptive and inferential statistics.

**Result:** Among study subjects the level of knowledge were good in 21(21%), average in 70(70%) and poor in 9(9%) of diabetic patients. The levels of attitude were also described accordingly as positive for 66(66%) and negative for 34(34%) of diabetic patients. The level of practice of study were found to be good in 24(24%), average in 48(48%) and poor practice in 28(28%) of diabetic patients.

**Conclusion:** In this study we found average knowledge, positive attitude and average level of practice towards blood glucose monitoring among diabetic patients.

**Key Words:** Knowledge, Attitude, Practice, Diabetes Mellitus and Blood glucose monitoring

### **INTRODUCTION**

Almost all countries of the world it is said that diabetes mellitus is a silent disease and is now recognized as one of the fastest growing threats to public health. Diabetes is it is also called the disease of prosperity. <sup>[1]</sup>

The incidence of diabetes has been raised intensively in many parts of the world from the last twenty years. <sup>[2]</sup> According to WHO it is said that India is the diabetic capital of the world. Total 3.5 Core diabetes

are present in India which is expected to raise up to 5.2 core by 2025. <sup>[3]</sup>

10-16% of urban populations are affected by diabetes and 5.33-6.36% of rural population and this is going too projected to double by 2030. Self-care in the form of Adherence to diet and drug regimens, self-administration of insulin, blood glucose monitoring, maintenance of optimum weight, blood pressure, recognition of symptoms associated with glycosuria and hypoglycaemia are the self-care and crucial elements in secondary prevention. <sup>[4]</sup>

The goal of diabetic management is to reduce symptoms, promote well-being & prevent acute & chronic complication of hyperglycaemia. It is a chronic disease that requires daily decision about food intake, regular blood glucose monitoring, medication & exercise. Patients are the most active participant in his or her own care. [3]

Diabetic knowledge alone is not sufficient for diabetic patients to convince patients change their life style to protect their future. It has been suggested that, attitude is one of the psychological variable for diabetic patients, which effect on the relationship between knowledge and life style change of practice. However, for the better improvement of glycemic control, there is a need of increasing knowledge about the disease among diabetic patients, which would affect their attitude and this will in turn lead to decrease in morbidity, mortality and related to diabetes and increase in their in health related quality of life. [5]

The role of self-monitoring of blood glucose (SMBG) in diabetes management continues to be debated especially for type 2 diabetes (T2D). Since continuous glucose monitoring (CGM) is only approved as adjunctive to SMBG, its role in self-management of type 1 diabetes (T1D) is at least noncontroversial. Most of the literature supports use of frequent SMBG in T1D for better glucose control. [6]

Self-monitoring of blood glucose is mostly suggested as a component of diabetes management, but there is a substantial controversy about this costly practice, especially for patients with type 2 diabetes. However, The American Diabetes Association's Clinical Practice Recommendations suggest monitoring at least daily for patients with type-2 diabetes. [7]

The disease condition requires efficient self-care, which can be developed from a thorough understanding of the disease process and the management challenges by the patient and family members. This study will help in identifying

diabetic patient's knowledge attitude and practice in monitoring of blood glucose level and its complications. Therefore assessment of knowledge, attitude and practice of blood glucose monitoring among diabetic patients is critical in the prevention and control of the diseases.

This study is designed to explore patient's knowledge level, their attitude & practices of blood glucose monitoring. In order to control their disease, patient with diabetes need to adopt proper knowledge, attitude & practices regarding blood glucose monitoring. People do not die from the diabetes; they die because of its complication. So they need to have good lifestyle, monitor blood glucose level regularly, go for routine check up to doctor.

### **Problem statement**

“A study to assess the knowledge, attitude and practice regarding blood glucose monitoring among diabetic patient's attending at tertiary care hospital, Karad”.

### **Objectives:**

1. To assess diabetic patient's knowledge attitude and practice regarding blood glucose monitoring.
2. To find association between diabetic patient's knowledge attitude and practice regarding blood glucose monitoring with selected demographic variables.

### **METHODS**

The research approach used for the study was descriptive approach. Non-experimental research design was used for study. This study was conducted in medical and surgical out-patient and in-patient department of Krishna hospital, Karad. Present study was conducted on 100 diabetic patients attending in Krishna hospital Karad. The researcher obtained ethical clearance from Ethics committee of Krishna Institute of Medical Sciences Deemed University, Karad. After an detail study on review of literature, books, internet, journals and with the help of experts structured questionnaire was

prepared on the basis of objectives. Tool was divided into two sections 1. Demographic variables 2. Knowledge attitude and practice questionnaire. Tool has been refined with some experts. Tool was translated in Marathi language for better understanding. Data collection was done by using convenient purposive sampling technique. The investigator explained the purpose of the study to patients. Informed written consent was taken from the each participant. Data were collected using structured questionnaire. The data were tabulated and analyzed in terms of objectives of the study using descriptive and inferential statistics.

## RESULTS

### Description of sample characteristics

Among all study participants majority 31% within the age group of 31-40years and 32% within the age group of

41-50years. In relation to the gender 52% were male and 48% were female, 100% samples were married. Most of them 71% lived in the rural area and only 29(29%) are from the urban area. Maximum 40% were completed the SSC, 31% participants were illiterate and it was found that 40% of the participants are doing the sedentary work, 36(36%) of subjects are doing physical hard work.

Information related to disease condition (DM) majority 62% of diabetic patients have been treated on oral medication and 38% on the insulin based treatment. It was found that 30% of participants are taking treatment from less than 1years and 29% subjects are taking treatment from last 3-6years. Among 100 subjects 35% were having family history of diabetic and majority 65% participants does not having family history of diabetes (Table 1).

**Table 1: Frequency and percentage distribution of sample characteristics according to demographic data. (n=100)**

| S.No. | Socio-demographic variables         | Frequency (%)                |            |
|-------|-------------------------------------|------------------------------|------------|
| 1.    | Age (years)                         | 31-40 years                  | 31 (31%)   |
|       |                                     | 41-50 years                  | 32 (32%)   |
|       |                                     | 51-60 years                  | 27 (27%)   |
|       |                                     | 61-70 years                  | 7 (7%)     |
|       |                                     | 71-80 years                  | 3 (3%)     |
| 2.    | Gender                              | Male                         | 52 (52%)   |
|       |                                     | Female                       | 48 (48%)   |
| 3.    | Marital Status                      | Married                      | 100 (100%) |
|       |                                     | Unmarried                    | 0 (0%)     |
|       |                                     | Widowed                      | 0 (0%)     |
| 4.    | Place of Residence                  | Urban                        | 29 (29%)   |
|       |                                     | Rural                        | 71 (71%)   |
| 5.    | Level of Education                  | Illiterate                   | 31 (31%)   |
|       |                                     | SSC                          | 40 (40%)   |
|       |                                     | HSC                          | 27 (27%)   |
|       |                                     | Graduate                     | 2 (2%)     |
| 6.    | Type of Occupation                  | Sedentary work               | 40 (40%)   |
|       |                                     | Physical hard work           | 36 (36%)   |
|       |                                     | Migrant work                 | 12 (12%)   |
|       |                                     | Leisure                      | 12 (12%)   |
| 7.    | Family history of diabetes          | Yes                          | 35 (35%)   |
|       |                                     | No                           | 65 (65%)   |
| 8.    | Duration of therapy for diabetic    | Less than 1 year             | 30 (30%)   |
|       |                                     | 1-3 years                    | 13 (13%)   |
|       |                                     | 3-6 years                    | 29 (29%)   |
|       |                                     | 6-9 years                    | 5 (5%)     |
|       |                                     | More than 9 years            | 22 (22%)   |
| 9.    | Type of treatment taken by patients | Injection Insulin            | 38 (38%)   |
|       |                                     | Oral Hypoglycemic medication | 62 (62%)   |

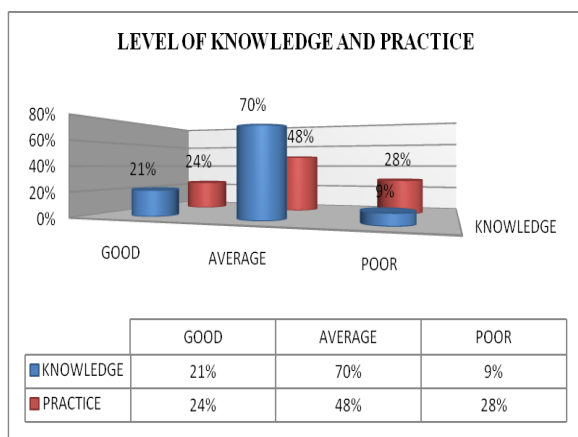


Figure 1: Cylindrical Graph showing percentage distribution of patients according to level of knowledge and practice regarding blood glucose monitoring.

Figure 1 indicates that majority of participants 70(70%) were having average level of knowledge, 21(21%) of participants were having good level of knowledge and only 9(9%) of participant having poor level of knowledge. Whereas maximum number of participants 48(48%) were having average level of practice, 28(28%) of participant having poor level of practice and 24(24%) of participants were having good level of practice regarding blood glucose monitoring.

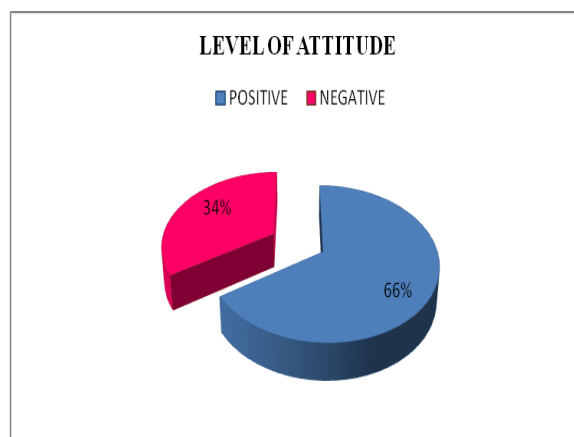


Figure 2: Pie graph showing percentage distribution of patients according to level of attitude regarding blood glucose monitoring.

Figure 2 indicates that most of participants 66(66%) were having positive attitude and 34(34%) of participants were having negative attitude.

Data presented in table 2 reveals that there was significant association between level of knowledge regarding blood glucose monitoring among diabetic patients with demographic variables; Result found that there was significant association between sample characteristics of age, place of residence, level of education, type of occupation, family history of diabetes, duration of therapy for diabetes at the level of  $p < 0.05$ .

Table 2: Association of demographic characteristics of diabetic patients and level of knowledge among diabetic patient at tertiary care hospital.

| Sr no. | Demographic Variables               |                               | Level of Knowledge |         |      | Chi-square | p-value   | Result                |
|--------|-------------------------------------|-------------------------------|--------------------|---------|------|------------|-----------|-----------------------|
|        |                                     |                               | Good               | Average | Poor |            |           |                       |
| 1.     | Age                                 | 31-40                         | 8                  | 23      | 0    | 25.705     | 0.0012*   | Significant <0.05     |
|        |                                     | 41-50                         | 13                 | 14      | 5    |            |           |                       |
|        |                                     | 51-60                         | 0                  | 24      | 3    |            |           |                       |
|        |                                     | 61-70                         | 0                  | 7       | 0    |            |           |                       |
|        |                                     | 71-80                         | 0                  | 3       | 0    |            |           |                       |
| 2.     | Gender                              | Male                          | 14                 | 36      | 2    | 5.016      | 0.0814    | Not Significant >0.05 |
|        |                                     | Female                        | 7                  | 34      | 7    |            |           |                       |
| 3.     | Place of Residence                  | Urban                         | 19                 | 8       | 2    | 49.243     | < 0.0001* | Significant <0.05     |
|        |                                     | Rural                         | 2                  | 62      | 7    |            |           |                       |
| 4.     | Level of Education                  | Illiterate                    | 0                  | 25      | 6    | 70.346     | < 0.0001* | Significant <0.05     |
|        |                                     | SSC                           | 0                  | 38      | 2    |            |           |                       |
|        |                                     | HSC                           | 20                 | 6       | 1    |            |           |                       |
|        |                                     | Graduate                      | 1                  | 1       | 0    |            |           |                       |
|        |                                     |                               |                    |         |      |            |           |                       |
| 5.     | Type of Occupation                  | Sedentary work                | 9                  | 27      | 4    | 28.681     | < 0.0001* | Significant <0.05     |
|        |                                     | Physical hard work            | 3                  | 30      | 3    |            |           |                       |
|        |                                     | Migrant work                  | 9                  | 2       | 1    |            |           |                       |
|        |                                     | Leisure                       | 0                  | 11      | 1    |            |           |                       |
|        |                                     |                               |                    |         |      |            |           |                       |
| 6.     | Family history of diabetes          | Yes                           | 1                  | 30      | 4    | 10.692     | 0.0048*   | Significant <0.05     |
|        |                                     | No                            | 20                 | 40      | 5    |            |           |                       |
| 7.     | Duration of therapy for diabetes    | Less than 1 year              | 2                  | 25      | 3    | 37.212     | < 0.0001* | Significant <0.05     |
|        |                                     | 1-3 years                     | 1                  | 12      | 1    |            |           |                       |
|        |                                     | 3-6 years                     | 17                 | 10      | 2    |            |           |                       |
|        |                                     | 6-9 years                     | 1                  | 3       | 1    |            |           |                       |
|        |                                     | More than 9 years             | 0                  | 20      | 2    |            |           |                       |
| 8.     | Type of treatment taken by patients | Injection Insulin             | 7                  | 26      | 5    | 1.393      | 0.4983    | Not Significant >0.05 |
|        |                                     | Oral Hypoglycaemic medication | 14                 | 44      | 4    |            |           |                       |

Table 3 reveals that association of level of attitude regarding blood glucose monitoring among diabetic patients with demographic variables; Result found that there is significant association between sample characteristics of age, type of occupation and duration of therapy for diabetes at the level of  $p < 0.05$ .

**Table no 3: Association of demographic characteristics of diabetic patients and level of attitude among diabetic patient at tertiary care hospital.**

| Sr no. | Demographic Variables               |                               | Level of Attitude |          | Chi-square | p-value | Result                |
|--------|-------------------------------------|-------------------------------|-------------------|----------|------------|---------|-----------------------|
|        |                                     |                               | Positive          | Negative |            |         |                       |
| 1.     | Age                                 | 31-40                         | 24                | 7        | 11.763     | 0.0192* | Significant <0.05     |
|        |                                     | 41-50                         | 24                | 8        |            |         |                       |
|        |                                     | 51-60                         | 15                | 12       |            |         |                       |
|        |                                     | 61-70                         | 3                 | 4        |            |         |                       |
|        |                                     | 71-80                         | 0                 | 3        |            |         |                       |
| 2.     | Gender                              | Male                          | 37                | 15       | 1.282      | 0.2572  | Not Significant >0.05 |
|        |                                     | Female                        | 29                | 19       |            |         |                       |
| 3.     | Place of Residence                  | Urban                         | 23                | 6        | 3.225      | 0.0725  | Not Significant >0.05 |
|        |                                     | Rural                         | 43                | 28       |            |         |                       |
| 4.     | Level of Education                  | Illiterate                    | 20                | 11       | 6.844      | 0.077   | Not Significant >0.05 |
|        |                                     | SSC                           | 22                | 18       |            |         |                       |
|        |                                     | HSC                           | 23                | 4        |            |         |                       |
|        |                                     | Graduate                      | 1                 | 1        |            |         |                       |
| 5.     | Type of Occupation                  | Secondary work                | 27                | 13       | 11.257     | 0.0104* | Significant <0.05     |
|        |                                     | Physical hard work            | 26                | 10       |            |         |                       |
|        |                                     | Migrant work                  | 10                | 2        |            |         |                       |
|        |                                     | Leisure                       | 3                 | 9        |            |         |                       |
| 6.     | Family history of diabetes          | Yes                           | 22                | 13       | 0.237      | 0.6264  | Not Significant >0.05 |
|        |                                     | No                            | 44                | 21       |            |         |                       |
| 7.     | Duration of therapy for diabetic    | Less than 1 year              | 21                | 9        | 11.735     | 0.0194* | Significant <0.05     |
|        |                                     | 1-3 years                     | 4                 | 10       |            |         |                       |
|        |                                     | 3-6 years                     | 23                | 6        |            |         |                       |
|        |                                     | 6-9 years                     | 4                 | 1        |            |         |                       |
|        |                                     | More than 9 years             | 14                | 8        |            |         |                       |
| 8.     | Type of treatment taken by patients | Injection Insulin             | 22                | 16       | 1.794      | 0.1804  | Not Significant >0.05 |
|        |                                     | Oral Hypoglycaemic medication | 44                | 18       |            |         |                       |

**Table 4: Association of demographic characteristics of diabetic patients and level of practice among diabetic patient at tertiary care hospital.**

| Sr no. | Demographic Variables               |                               | Level of Practice |         |      | Chi-square | p-value   | Result            |
|--------|-------------------------------------|-------------------------------|-------------------|---------|------|------------|-----------|-------------------|
|        |                                     |                               | Good              | Average | Poor |            |           |                   |
| 1.     | Age                                 | 31-40                         | 5                 | 3       | 23   | 55.326     | < 0.0001* | Significant <0.05 |
|        |                                     | 41-50                         | 9                 | 18      | 5    |            |           |                   |
|        |                                     | 51-60                         | 7                 | 20      | 0    |            |           |                   |
|        |                                     | 61-70                         | 1                 | 6       | 0    |            |           |                   |
|        |                                     | 71-80                         | 2                 | 1       | 0    |            |           |                   |
| 2.     | Gender                              | Male                          | 8                 | 25      | 19   | 6.171      | 0.0457*   | Significant <0.05 |
|        |                                     | Female                        | 16                | 23      | 9    |            |           |                   |
| 3.     | Place of Residence                  | Urban                         | 12                | 8       | 9    | 8.821      | 0.0122*   | Significant <0.05 |
|        |                                     | Rural                         | 12                | 40      | 19   |            |           |                   |
| 4.     | Level of Education                  | Illiterate                    | 3                 | 27      | 1    | 43.675     | < 0.0001* | Significant <0.05 |
|        |                                     | SSC                           | 6                 | 15      | 19   |            |           |                   |
|        |                                     | HSC                           | 13                | 6       | 8    |            |           |                   |
|        |                                     | Graduate                      | 2                 | 0       | 0    |            |           |                   |
| 5.     | Type of Occupation                  | Sedentary work                | 15                | 20      | 5    | 25.025     | 0.0003*   | Significant <0.05 |
|        |                                     | Physical hard work            | 4                 | 17      | 15   |            |           |                   |
|        |                                     | Migrant work                  | 1                 | 3       | 8    |            |           |                   |
|        |                                     | Leisure                       | 4                 | 8       | 0    |            |           |                   |
| 6.     | Family history of diabetes          | Yes                           | 5                 | 26      | 4    | 15.149     | 0.0005*   | Significant <0.05 |
|        |                                     | No                            | 19                | 22      | 24   |            |           |                   |
| 7.     | Duration of therapy for diabetes    | Less than 1 year              | 4                 | 8       | 18   | 31.089     | 0.0001*   | Significant <0.05 |
|        |                                     | 1-3 years                     | 4                 | 8       | 2    |            |           |                   |
|        |                                     | 3-6 years                     | 10                | 11      | 8    |            |           |                   |
|        |                                     | 6-9 years                     | 1                 | 4       | 0    |            |           |                   |
|        |                                     | More than 9 years             | 5                 | 17      | 0    |            |           |                   |
| 8.     | Type of treatment taken by patients | Injection Insulin             | 7                 | 28      | 3    | 18.066     | 0.0001*   | Significant <0.05 |
|        |                                     | Oral Hypoglycaemic medication | 17                | 20      | 25   |            |           |                   |

Table 4 reveals that association of level of practice regarding blood glucose monitoring among diabetic patients with demographic variables; Result found that there is significant association between sample characteristics of age, gender, place of residence, level of education, type of occupation, family history of diabetes, duration of therapy for diabetes and type of treatment taken by diabetic patients at the level of  $p < 0.05$ .

## DISCUSSION

A descriptive study has been done to evaluate knowledge, attitude & practices of blood glucose monitoring among diabetic patient. Figure no.1 shows that seventy (70%) study participants had average knowledge regarding blood glucose monitoring. Similar study was conducted in Pakistan [5] as compare to our findings their level of knowledge was poor about blood glucose monitoring of diabetic. This difference might be due to studies used different instruments and/or are carried out among different in religious or age group, differences in educational level of the diabetic patient. Lack of organized diabetic education facilities to the patient. Less denoted time with the patient by physician & also average level of knowledge because lacking of accessibility of information by health educators or organizers. Figure no.2 shows that sixty-six (66%) study participants had positive attitude blood glucose monitoring. Similar study was conducted in Malaysia. In Malaysia it was reported that diabetic patients in a primary care centre had good knowledge & better attitude towards the care of their own disease. This might be due to the proper knowledge regarding diabetes of health education program & this can improve the knowledge of patients and change in their attitude. [8] Figure no.2 shows that majority 48(48%) having average level of practice regarding blood glucose monitoring. This finding was lowered compared to study conducted in Kolkata which reported that (83.8%) of all respondents had poor

practices. This difference might be due to lack of health care access. Another explanation might be poor patient attendance at health clinics with this the patients missed their laboratory test diagnosis. [9]

## CONCLUSION

Health interventions and education programs must be appropriately planned and implemented at a national level to manage risk factors of diabetes, such as sedentary life style, dietary modification and to identify people with diabetes and pre-diabetes regular screening programs should be conduct. In this study we found average knowledge, positive attitude and average level of practice towards blood glucose monitoring among diabetic patients. Result revealed that good attitude but average knowledge & practice towards diabetes. We conclude that there is need for educational programs to improve knowledge regarding diet, exercise, drug regimen and knowledge regarding blood glucose monitoring to prevent from complication related to diabetes. And also good knowledge can improve the patient level of practice towards blood glucose monitoring.

## REFERENCES

1. Manisha C.Gholap and Vaishali R. Mohite. To assess the knowledge and practices regarding foot care among diabetes patients at Krishna hospital, Karad. Indian J.Sci.Res.2013; 4(2):69-75.
2. Adegate E, Schattner P, Dunn E. An Update on the Etiology and Epidemiology of Diabetes Mellitus. Annals of the New York academy of sciences. 2006; 1084:1-29.
3. World Health Day 2016: Diabetes; 7<sup>th</sup> April 2016. www.seoro.who.int
4. Pradeepa R, Mohan V. The changing scenario of the diabetes epidemic: implications for India. Indian J Med Res 2002; 116:121-32.
5. Muhammad Uthman, Zia Ullah, Nasib Ullah Shah. Knowledge, attitude and

- practice (KAP) Survey of type 2 diabetes mellitus. Jan-March 2015; 9(1): 351-355
6. Kennedy L. Self-monitoring of blood glucose in type 2 diabetes: time for evidence of efficacy. *Diabetes Care* 2001; 24: 977-8.
  7. Satish K. Garg and Irl B. Hirsch. Self-Monitoring of Blood Glucose. *Diabetes technology & therapeutics*, 2016; 18(1):3-9.
  8. Ng SH, Chan KH, Lian ZY, Chuah YH, Waseem AN, Kadirvelu A. Reality vs Illusion: Knowledge, Attitude and practice among diabetic patients. *International Journal of Collaborative Research on International Medicine & Public Health* 2012; 4(5):709-718.
  9. Priyanka Mukhopadhyay, Bhaskar Paul, Debasis Das, Nilanjan sen Gupta, Rachana Majumder. Perceptions and practices of type-2 diabetics: A cross-sectional study in tertiary care hospital in Kolkata. *International Journal of Diabetes in Developing Countries*. 2010; 30 (3):143-149

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