



## Research Article

JMR 2020; 6(6): 302-304  
November- December  
ISSN: 2395-7565  
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www.medicinarticle.com  
Received: 29-10-2020  
Accepted: 25-11-2020

## Evidence generation to guide policymaking for effective control of progress of diabetes mellitus

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### Abstract

**Background:** Currently data on awareness and attitude of patients about diabetes in India is scanty which is extremely important to plan public health policies aimed at preventing and controlling diabetes. **Objective:** This study was done to assess the knowledge, attitude and practices related to diabetes amongst patients coming to a rural tertiary care hospital. **Methods:** It was a questionnaire based study. 112 diabetic patients above the age of 18 years were included in the study and were assessed regarding 3 domains - knowledge, attitude and practices (KAP), about diabetes based on a structured, validated questionnaire. Each question was given a score, the maximum possible score being + 36 and minimum possible score being -18. **Results:** The mean age of the subjects was 50.91±8 years with the overall maximum KAP score of the subjects being 24 and minimum being -1, with mean score being 12.4. **Conclusion:** Although patients were knowledgeable and had a positive approach to a certain extent towards their disease, the same was not reflected in their daily practices towards diabetes mellitus. Policies and schemes targeted towards informing patients specifically regarding the complications of diabetes and significance of exercises in controlling diabetes and thus reducing progression to complications may lead to positive practices and aid in reducing morbidity due to type 2 diabetes.

**Keywords:** Type II Diabetes Mellitus, Awareness, Attitude, Practices.

### INTRODUCTION

Diabetes mellitus (DM) is a major public health problem with 4.6 million deaths annually<sup>[1]</sup>. Around 366 million people are affected globally. 80% live in low and middle income countries<sup>[1]</sup> while 50% remain undiagnosed<sup>[2, 3]</sup>.

Most epidemiological studies from India have small sample sizes and varied diagnostic criteria and quality<sup>[4]</sup>. Very few studies have assessed awareness about diabetes<sup>[2, 5-7]</sup>. The Indian Council of Medical Research–India Diabetes (ICMR–INDIAB) is an ongoing study started to directly provide national-level data<sup>[8]</sup>. This study was conducted to assess knowledge, attitude and practices related to diabetes in a rural tertiary care setup.

### METHODS

It was a questionnaire based study. It was conducted in the month of November 2019 in a rural tertiary care hospital. All diabetic patients above the age of 18 years were included in the study and were assessed for knowledge, attitude and practices (KAP) about diabetes based on a structured, validated questionnaire. There were 31 questions in total out of which 13 questions were in the knowledge section. Of these, 3 questions were related to basic knowledge of diabetes mellitus and had more than one correct response while remaining 10 questions were related to understanding of diabetes mellitus. There was 1 point for each correct response while no point was allotted to incorrect responses. Maximum possible score for knowledge section was +18 while minimum possible was zero. Similarly the attitudes and practices section had 9 questions each. There was 1 point added for each positive response and 1 point was deducted for negative response. Thus the maximum possible score in the attitudes and practices section was +9 while the minimum possible was -9 in each section.

Therefore the maximum possible overall KAP score was +36 while minimum possible score was -18.

Approval of the Institutional Ethics Committee was obtained prior to study commencement and written informed consent from patient was obtained in the local language. The questionnaire was translated into

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the local language and administered to the patients. Results are expressed as frequencies (percentages). The data was collected and analyzed using MS Excel software.

## RESULTS

There were 112 subjects who participated in the study. Of the 112 subjects who participated in the study, 60.71% (n= 68) were males and 39.29% (n= 44) were females.

The mean age of the subjects was 50.50±11.78 years with the minimum age being 22 years and maximum age being 80 years. Mean age of males was 49.5±SD 12.13years with minimum age being 22

years and maximum age being 77 years. While for the female subjects mean age was 52.06±SD 11.16years with minimum age being 37 years and maximum age being 80 years.

### Knowledge of diabetes mellitus

Although 80.35% of the overall study population knew what diabetes was and 83.92% of the patients understood the importance of regular follow up with doctors, even then a significant proportion did not know that diabetes could affect multiple organs (49.11%) and could have multiple symptoms (35.75%), that tingling and numbness could be a sign of nerve disease (40.18%), that exercising helps in controlling blood sugars (58.93%). (Table 1)

**Table 1:** Response of patients regarding knowledge of Diabetes mellitus

Questions	Correct response n=112	Incorrect response n=112
What is diabetes?	90 (80.35%)	22 (19.65%)
Can diabetes have multiple symptoms?	72 (64.25%)	40 (35.75%)
Can diabetes involve multiple organs?	57 (50.89%)	55 (49.11%)
Whether tingling and numbness is a sign of nerve disease?	67 (59.82%)	45 (40.18%)
Can exercise help in keeping blood sugars under control?	46 (41.07%)	66 (58.93%)
Can regular follow up with doctor help spot early signs of diabetes and its complications?	94 (83.92%)	18 (16.08%)

The overall mean knowledge score was 8.90 (SD 3.26), with the range of score being 2 to 15.

### Attitude regarding diabetes mellitus

A significant proportion of subjects (38.4%) did not feel that diabetes is

a serious disease. On the other hand, 76.78% subjects believed that diabetes can be controlled and 69.64% subjects believed that regular medications and physical exercises helped prevent complications of diabetes. (Table 2)

**Table 2:** Attitude of subjects towards Diabetes Mellitus (DM)

Question	Positive attitude (n=112)	Negative attitude (n=112)
DM is a serious disease and needs proper medical care.	69 (61.6%)	43 (38.4%)
DM can be controlled.	86 (76.78%)	26 (23.22%)
Keeping blood glucose levels in control is helpful in preventing complications.	83 (74.1%)	29 (25.90%)
Regular medications and physical exercises could help in controlling DM	78 (69.64%)	34 (30.36%)
More consultation time with doctors and better communication skills is beneficial to diabetic patients.	88 (78.57%)	24 (21.43%)

The overall mean attitude score was 4.11± 2.23. The range of obtained scores varied between -1 to +9.

### Practices regarding diabetes mellitus

59.82% subjects checked sugar levels regularly and followed up with their doctors, majority of which (app. 60%) measured sugar every 2-3

months. As many as 41.08% (n=46) had poor compliance to anti diabetic medications, of which major reasons for discontinuing medications were due to financial constraints (45.65%, n=21) and switching to alternative medicines (36.95%, n=17). Only 30.35% subjects exercise regularly while only 35.71% subjects said that they took proper care with regards to diabetes while travelling. (Table 3)

**Table 3:** Practices of patients with respect to Diabetes Mellitus

Question	Positive practices (n=112)	Negative practices (n=112)
Do you get blood sugars measured regularly?	67 (59.82%)	45 (40.18%)
Do you exercise regularly?	34 (30.35%)	78 (69.65%)
Do you take diabetic medications regularly?	66 (58.92%)	46 (41.08%) a) Financial constraints: 21 (45.65%) b) Other practices: 17 (36.95%) c) Other reasons: 8 (17.4%)
Do you keep regular follow up with your doctor?	59 (52.67%)	53 (47.33%)
Do you take extra care while travelling?	40 (35.71%)	72 (64.29%)

The overall mean practice score was  $-0.66 \pm 2.9$  with -7 to +5 being the range of scores obtained.

### Mean scores

The overall maximum KAP score of the subjects was 24 (maximum possible score being 36) and minimum was -1 (minimum possible being -18) with mean score being  $12.33 \pm SD 5.11$ . The mean score for males was  $11.97 \pm SD 5.3$  with 22 being the maximum and -1 being the minimum score. The mean score for females was  $12.86 \pm 4.79$  with 24 being the maximum score and 0 being the minimum score.

### DISCUSSION

Knowledge is a logical prerequisite for the intentional performance of health-related behaviour. As knowledge accumulates, changes in attitudes are initiated and over a period it results in behaviour change<sup>[9]</sup>. This study was undertaken to assess the knowledge of diabetic patients with respect to their disease and to assess their attitudes and practices towards diabetes mellitus to judge whether they applied this knowledge in their daily life for management of diabetes.

In a study conducted in rural population of Kerala, Kurian *et al.* found that educating the community on risk factors is the key strategy for the prevention of diabetes and delaying the onset of disease among high-risk individuals<sup>[10]</sup>.

The results of phase 1 of the ICMR-INDIAB study, in which four regions were studied, showed that the glycaemic control among diabetic subjects is poor in India, with less than a third of subjects exhibiting good glycaemic control. Knowledge and awareness about diabetes in India, particularly in rural areas, is abysmally low. This phase of the study also reports

that nearly half of the population in the four regions studied was inactive, with fewer than 10% engaging in recreational physical activity<sup>[8]</sup>.

In accordance with the above studies we found that a significant disparity exists between the knowledge (overall mean knowledge score: +8.9), attitude (overall mean attitude score: +4.11) and the practices (overall mean practices score: -0.68) of the patients towards diabetes mellitus. 80.35% of patients knew what diabetes is but 40.12% patients did not get their blood sugars measured regularly. The importance of physical exercise was understood by 41.07% patients but 69.65% patients did not indulge in physical activities. 69.64% patients very well understood the importance of anti diabetic medications but on the other hand 41.08% patients had a poor compliance to their medications. The significance of regular follow up with doctors was understood by 83.92% patients and in contrast 47.33% patients did not take regular follow up with doctors. These findings suggest that in spite of there being a positive attitude towards diabetes amongst the study population, they were not following healthy practices, in terms of diet, physical activities, follow ups and medications.

Thus there is need for intensifying diabetes education measures to the community and particularly to diabetic patients. Educating the community will help in the prevention and early detection of the disease and prevention of its complications<sup>[11]</sup>. This is of utmost importance as approximately half of all subjects with diabetes remain undiagnosed, thus many of them would have developed complications by the time they are ultimately diagnosed<sup>[2, 3]</sup>. Also, it is very important to educate the patients with diabetes about the course of the disease with its complications, as over 49% of them were not even aware that diabetes could affect multiple organs, almost 36% were not aware that diabetes could have multiple symptoms, and about 40% were unaware that tingling and numbness could be a sign of nerve involvement. This will help the patients understand the importance of compliance to

antidiabetic medications and also the need for healthy practices (healthy diet, exercise, etc.).

### CONCLUSION

Although patients were knowledgeable and had a positive approach to a certain extent towards their disease, the same was not reflected in their daily practices towards diabetes mellitus due lack of knowledge regarding complications associated with the disease. Policies and schemes targeted towards informing patients more specifically regarding the complications of diabetes and significance of exercises in regressing progression to complications may lead to positive practices and aid in reducing morbidity due to type 2 diabetes.

**Acknowledgement:** None

### REFERENCES

1. Unwin N, Whiting D, Guariguata L, Ghayoor G, Gan D, editors. Diabetes Atlas. 5th ed. Brussels, Belgium: International Diabetes Federation, 2011. p. 11-74.
2. Mohan D, Raj D, Shanthirani CS, Datta M, Unwin NC, Kapur A, Mohan V. Awareness and knowledge of diabetes in Chennai-the Chennai urban rural epidemiology study [CURES-9]. *Japi*. 2005; 53:283-7.
3. Harris MI, Eastman RC. Early detection of undiagnosed diabetes mellitus: a US perspective. *Diabetes/metabolism research and reviews*. 2000; 16(4):230-6.
4. Anjana RM, Ali MK, Pradeepa R, Deepa M, Datta M, Unnikrishnan R, *et al.* The need for obtaining accurate nationwide estimates of diabetes prevalence in India-rationale for a national study on diabetes. *The Indian journal of medical research*. 2011; 133(4):369.
5. Murugesan N, Snehalatha C, Shobhana R, Roglic G, Ramachandran A. Awareness about diabetes and its complications in the general and diabetic population in a city in southern India. *Diabetes research and clinical practice*. 2007; 77(3):433-7.
6. Singh A, Milton PE, Nanaiah A, Samuel P, Thomas N. Awareness and attitude toward diabetes in the rural population of Arunachal Pradesh, Northeast India. *Indian journal of endocrinology and metabolism*. 2012; 16(Suppl1):S83.
7. Muninarayana C, Balachandra G, Hiremath SG, Iyengar K, Anil NS. Prevalence and awareness regarding diabetes mellitus in rural Tamaka, Kolar. *International journal of diabetes in developing countries*. 2010; 30(1):18.
8. Viswanathan Mohan RM, Pradeepa R, Unnikrishnan R, Kaur T, Das AK. The ICMR INDIAB Study-A Compendium of Type 2 Diabetes in India: Lessons Learnt for the Nation.
9. Baranowski T, Cullen KW, Nicklas T, Thompson D, Baranowski J. Are current health behavioral change models helpful in guiding prevention of weight gain efforts?. *Obesity research*. 2003; 11(S10):235-43S.
10. Kurian B, Qurieshi MA, Ganesh R, Leelamoni K. A community-based study on knowledge of diabetes mellitus among adults in a rural population of Kerala. *International Journal of Noncommunicable Diseases*. 2016; 1(2):59.
11. Deshpande AD, Harris-Hayes M, Schootman M. Epidemiology of diabetes and diabetes-related complications. *Physical therapy*. 2008; 88(11):1254-64.