

# Standard of Knowledge about their Disease among Patients with Diabetes in Karachi, Pakistan

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## Abstract

**Objective:** The aim of this study was to determine the standard of knowledge among people with diabetes.

**Method:** Two hundred and thirty patients were randomly chosen from outpatient clinics and a 34-item multiple choice questionnaire administered to them. The questionnaire was structured to assess knowledge about the disease state, diagnostic tests, complications and management.

**Results:** The average score of correct answers for the group was 40%. A significantly higher score correlated with younger age (16-30 years), educational status and regular follow-up with a diabetic clinic. There was no significant difference in the knowledge score between males and females or between those on oral hypoglycemic agents (OHA) and insulin. Fifty percent of the patients could correctly answers questions regarding food and nutrition and only 60% were aware of target blood glucose levels for optimal control. It was alarming to learn that 75% of those on insulin did not know that using U-40 or U-100 insulin does not change the dose required.

**Conclusion:** The study emphasizes the need for diabetes education at all levels, both for the patients as well as the health care providers to counter the pandemic of diabetes-related complications globally (JPMA 51 :216;2001).

## Introduction

Diabetes mellitus with its complications has become a major health problem the world over. Appropriate self-care, seeking treatment early and regular screening can limit diabetic complications but this depends on the person with diabetes having the appropriate knowledge. The UKPDS<sup>1</sup> showed the importance of tight glycaemic control in Type 2 diabetes mellitus. This together with the increasing incidence of diabetes<sup>2,3</sup> and its financial burden on the healthcare system<sup>4</sup> makes appropriate patients' knowledge about their disease an important element in achieving their target. Poor compliance may result from incomplete patient understanding of the importance of regular monitoring, follow-up and complications. The aim of this study was to assess patients' disease-related knowledge and practice.

## Methods

The study was set in three diabetes centres in the city of Karachi. Two hundred and thirty consecutive patients with Type 2 diabetes were administered the questionnaire anonymously on arrival at out-patient diabetes review clinics at each centre. The thirty-four item multiple choice questionnaire was structured to assess knowledge about the disease state, diagnostic tests, complications, and management.

## Results

The characteristics of the study population are summarized in Table.

**Table . Characteristics of the study population.**

| <b>Characteristic</b>         |                       | <b>Population<br/>(n=230)</b> | <b>%</b> |
|-------------------------------|-----------------------|-------------------------------|----------|
| <b>Sex</b>                    |                       |                               |          |
|                               | Male                  | 106                           | 46.3     |
|                               | Female                | 124                           | 53.7     |
| <b>Age</b>                    |                       |                               |          |
|                               | 1-15 years            | 1                             | 0.4      |
|                               | 16-30 years           | 17                            | 7.4      |
|                               | 31-45 years           | 57                            | 24.7     |
|                               | >45 years             | 155                           | 67.5     |
| <b>Duration of diabetes</b>   |                       |                               |          |
|                               | 1-2 years             | 47                            | 20.4     |
|                               | 3-5 years             | 55                            | 24.0     |
|                               | >5 years              | 128                           | 55.6     |
| <b>Education</b>              |                       |                               |          |
|                               | None                  | 76                            | 33.0     |
|                               | Primary               | 43                            | 18.7     |
|                               | Secondary             | 50                            | 21.7     |
|                               | Higher than secondary | 60                            | 26.5     |
| <b>Treatment</b>              |                       |                               |          |
|                               | Diet alone            | 36                            | 15.6     |
| <b>Oral hypoglycemics</b>     |                       | 123                           | 53.5     |
|                               | Insulin               | 61                            | 26.5     |
|                               | OHG and Insulin       | 10                            | 4.3      |
| <b>Regular Follow-up care</b> |                       |                               |          |
|                               | General Practitioner  | 58                            | 25.2     |
|                               | Diabetic Clinic       | 74                            | 32.1     |
|                               | Hospital              | 98                            | 42.6     |

A total of 230 patients were enrolled in the study with a mean age of  $50 \pm 12$  years. The mean duration of the disease was  $7.6 \pm 5.5$  years (range 1-25 years).

Every correct response to a question was scored as one and the total score calculated. The average score for the study group was 40%. The mean score for each sex was nearly the same (M:F 41%:38%),

so the standard of knowledge did not depend on sex of the patients. Young patients in the age group 16-30 years achieved higher scores compared to other age groups (55% vs 41%;  $p < 0.005$ ). Persons with higher educational index had a higher standard of knowledge and there was significant correlation ( $p < 0.005$ ) (mean score 34% for no education, 38% for primary, 41% for secondary and 53% for higher education).

Patients being regularly followed at diabetic clinic scored significantly higher (47%) than those by GP or hospital (40%) ( $p < 0.01$ ). Patients' knowledge was not different between those on insulin and those on oral hypoglycemics.

Forty three percent of the patients believed that diabetes is caused by eating too much sugar and other sweet foods, whereas 70% answered 'do not know' to a question that sulfonylurea tablets work by stimulating pancreas to make and release insulin.

Overall only 50% patients responded correctly to questions regarding nutrition, food and exchanges. Those following at diabetic clinic scored significantly higher ( $p < 0.01$ ) than those followed at hospital or by a GP. Sixty percent were aware of target fasting and random blood glucose for optimal control and here again those attending diabetic clinic scored significantly higher ( $p < 0.01$ ). It was alarming to learn that 75% of those that using U-40 or U-100 insulin does not change the dose required. However, knowledge regarding insulin was significantly higher among those on insulin than others.

## Discussion

Although there are many facets that reflect the successful management of diabetes, including a strong working partnership between the patient and the health professionals, patient's knowledge has been recognized as a necessary ingredient in his ability to lead a normal and productive life.

The DCCT not only confirmed that maintenance of nearly-normal glycemia can reduce the risk of complications of IDDM but also confirmed the belief that achieving and maintaining near normal glycemia entails close, on-going support from the health-care team, ample financial resources and advanced patient knowledge and motivation.<sup>5-8</sup>

This study has highlighted significant deficits in knowledge about their disease amongst patients with diabetes. There was no difference between the two sexes but younger patients' knowledge was better. Literacy and education had significant impact but this highlights the fact that diabetes related education program should be directed towards illiterate or less educated population group.

Patients with regular follow-up at diabetic clinics had much better knowledge overall, as well as about nutrition-related questions and target blood glucose levels for optimal control. It suggests that for mass scale improvement in patients' knowledge, general practitioners and family practitioners, must be involved in imparting health education, as they are the primary health-care providers.

Seventy-five percent of those on insulin did not know the difference between U-40 and u-100 insulin, strongly favoring the consensus of moving towards single strength insulin.

Healthy People 2000,<sup>9</sup> acknowledges the contribution of education in reducing the morbidity and mortality of Incorporation of the need for diabetes education into diabetes. However, our data suggests that majority of individuals with diabetes have never received diabetes education. The critical role of diabetes education in quality diabetes care is clearly defined in the standards of care adopted by the American Diabetes Association<sup>10</sup>. Further, the National Diabetes Advisory Board, stated in its 1993 Annual Report that - in the care of diabetes, an ounce of

education saves a pound of treatment<sup>11</sup>. It has been recommended that health-care professionals both collaboratively and individually develop programs and projects to strive to meet the objective of Healthy People 2000.

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