

# Study of awareness about diabetes mellitus among undergraduate medical students

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## Abstract

**Introduction:** Diabetes mellitus (DM) causes significant morbidity and mortality. The importance of proper diagnosis and management of this non communicable disease is being increasingly recognized. This study was conducted to assess the knowledge about DM among medical students who are the future health care providers. **Materials and Methods:** The data was collected from a questionnaire filled by medical students studying in Final year MBBS and internship in Father Muller Medical College Hospital, Mangalore. **Results:** From this study it was found that 81.25% of the interns and 78.75% of the final year students were aware of the classical symptoms of DM. The interns (65.4%) were more knowledgeable than the final year students (48.3%) about the biochemical parameters. The awareness about diabetic ketoacidosis (DKA) and its management was poor. **Conclusion:** There were gaps in knowledge of both the final year students and interns. Education programs teaching in detail about diabetes mellitus, its complications and management are needed to be incorporated more effectively in the medical curriculum.

**Keywords:** Diabetes mellitus, awareness, medical students.

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## INTRODUCTION

Diabetes in all its forms imposes unacceptably high human, social and economic costs on countries at all income levels. Recent estimate suggested that diabetes was the 5<sup>th</sup> leading cause of death worldwide and was responsible for 4 million deaths in 2010. An estimate of 6.8% of deaths was attributed to diabetes worldwide.<sup>1</sup> Population growth, ageing and urbanization with associated lifestyle change is likely to lead to a 54% increase in diabetic population worldwide by 2030.<sup>2</sup> The increasing global prevalence of diabetes is placing enormous demands on health care systems. Health professionals play a critical role in improving access to

and the quality of healthcare for people with diabetes. People with diabetes receive care and education from professionals over a range of healthcare disciplines. Preparing the health workforce to respond to the associated challenges is a crucial issue. Importance has been given to chronic diseases like diabetes mellitus only in the recent times. Hence it is crucial to impart scientific knowledge about diabetes mellitus and incorporate it in the most effective way in the medical education curriculum. More importantly a medical student progresses to be a general practitioner or family physician. He is the first medical professional a patient with symptoms of diabetes will approach to. Effective management of diabetes will reduce the incidence and progression of diabetes related complications. An assessment of existing knowledge about diabetes mellitus through a simple questionnaire among undergraduate medical students is a step towards improving medical education on non communicable diseases like diabetes mellitus. Hence this study was conducted.

## AIMS AND OBJECTIVES

1. To study the awareness of diabetes mellitus among undergraduate medical students.

- To compare the awareness about diabetes mellitus between final year medical students and interns.

## MATERIALS AND METHODS

### Source of Data

The data was collected from a questionnaire filled by medical students studying in Final year MBBS and internship in Father Muller Medical College Hospital.

### Method of collection of Data

### Study Design

The study was a questionnaire based observational study conducted in a tertiary care hospital. The participants were among the final year MBBS students and interns of the college. The participants were assured that the outcome would not be revealed or used for any form of performance appraisal of the students.

### Inclusion Criteria

- Final year MBBS students and interns willing to participate in the study.

## RESULTS

A total of 160 questionnaires were collected and analysed- 80 from each group.

**Table 1:** Responses to the Questions on General Information of Diabetes Mellitus

Questions on general information of Diabetes mellitus	Correct response among final year students	Correct response among interns
Which will be the world capital for Diabetes by 2035?	55 (68.75%)	61 (76.25%)
Which endocrine gland is diabetes mellitus related to?	79 (98.75%)	80 (100%)
What are the Classical symptoms of diabetes?	63 (78.75%)	65 (81.25%)

Most of the responses obtained for the question on the endocrine gland associated with diabetes mellitus were correct. Most of the interns (81.25%) and final year students (78.75%) were aware of the classical symptoms of diabetes mellitus. The difference in knowledge between the final year students and interns regarding basic information of diabetes mellitus was not statistically significant.

**Table 2:** Questions regarding biochemical parameters in Diabetes Mellitu

Questions on biochemical parameters in diabetes mellitus	Correct response among final year students	Correct response among interns
What is the cut off value of Fasting Blood Sugar (FBS) for diagnosing Diabetes Mellitus?	25 (31.25%)	26 (32.25%)
Which is the best indicator of Glycaemic control	57 (71.25%)	77 (96.255%)
What is the meaning of Post Prandial Blood Sugar (PPBS)?	34 (42.5%)	54 (67.5%)

The awareness on cut off value for FBS to diagnose diabetes mellitus was poor. Only 31% of the final year students and 32% of the interns gave correct response.

**Table 3:** Responses to the Questions on Diabetic Ketoacidosis

Questions regarding diabetic ketoacidosis	Correct response among final year students	Correct response among interns
Is DKA an acute complication of DM?	69 (86.25%)	65 (81.25%)
Is DKA commonly seen in Type 1 or Type 2 DM?	26 (32.5%)	44 (55%)
Is decreased blood glucose a component of DKA?	45 (56.25%)	64 (80%)
Which electrolyte is commonly depleted in DKA?	46 (57.5%)	54 (67.5%)
Which fluid should be replaced initially in DKA?	20 (25%)	33 (41.25%)
Is short acting insulin used in DKA?	64 (80%)	65 (81.25%)
What is the mode of insulin administration in DKA?	51 (63.75%)	60 (75%)
Is DKA managed preferably in ICU/Ward/Home?	67 (83.75%)	73 (91.25%)

There was a statistically significant difference in knowledge between the two groups regarding the fluid replacement in diabetic ketoacidosis. The interns had a better knowledge than the final year students.

**Table 4:** Question on Gestational Diabetes Mellitus

	Correct response among Final year students	Correct response among interns
Which initial test is done in evaluation of a suspected GDM?	44 (55%)	47 (58.75%)

The above table shows that knowledge regarding diagnosis of gestational diabetes was not satisfactory among both the groups.

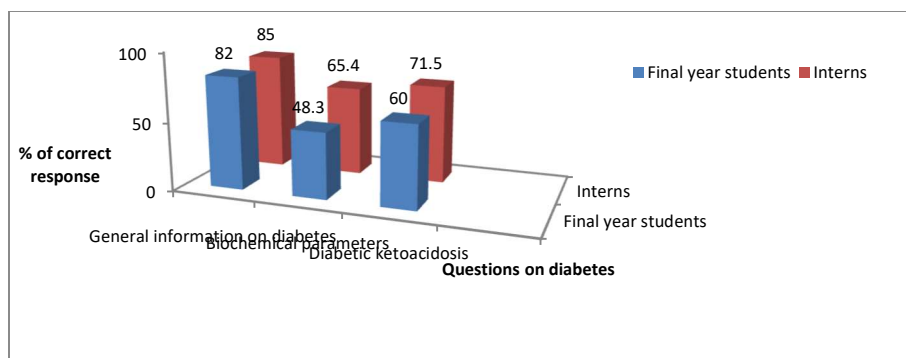


Figure 5: Correct responses of the final year and interns to the questions

## DISCUSSION

To the best of our knowledge there are only a few studies conducted among medical students regarding awareness of diabetes mellitus. Most participants did not anticipate India to be the diabetic capital of the world in 2035. It was observed that students omitted polyphagia as a classical symptom of diabetes mellitus but instead included generalised weakness and fatigue as classical symptoms. Majority of the students mistook the cut of value for fasting blood sugar as 110mg/dl and wrongly identified FBS to be the best indicator of glycemic control in place of HbA1c. Post prandial blood sugar was misconceived as blood sugar levels measured immediately following food intake. A significant number of interns as well as final year students considered diabetic ketoacidosis to be more commonly associated with Type 2 diabetes mellitus. Most of the students mixed up glucose tolerance test to be the initial test for evaluation of a GDM patient instead of glucose challenge test. In a similar study conducted in Tamil Nadu among final year MBBS students, it was found that only 50% were aware about DKA in comparison to our study where 71.5% of the interns and 60% of the final year students were aware about diabetic ketoacidosis.<sup>3</sup> In a study done in King Faisal Medical College in Saudi which focused more on chronic complications of diabetes, students were observed to have poor awareness about epidemiology of diabetes and diabetic practices.<sup>4</sup> In a study conducted in Baltimore it was observed that there was a need for educational initiatives regarding insulin formulations and inpatient management of diabetes for health care professionals.<sup>5</sup> A study conducted in Florida demonstrated the gaps in knowledge about inpatient diabetes that exist before internship and residency.<sup>6</sup> In our study the knowledge and awareness of diabetes was

marginally better among the interns than the final year students.

## CONCLUSION

From this study it was concluded that most of the students from both the groups had basic knowledge about diabetes mellitus. But there was a lack of knowledge regarding the diagnosis of diabetes mellitus and features of diabetic ketoacidosis. Further teaching and awareness has to be encouraged to improve the medical knowledge among the medical students.

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