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WHAT IS PREDIABETES? STUDENT'S PERSPECTIVE

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ABSTRACT

According to the International Diabetes Federation Diabetes Atlas 2019, India stands among the top 10 countries with 77 million diabetes, 43.9 million undiagnosed diabetics and 25.2 million impaired glucose tolerance cases.[1] India has been one of the largest diabetic pools in the world, many of which remain undiagnosed. Early identification of high-risk individuals would help in taking appropriate interventions in the form of dietary changes and an increase in physical activity. Education plays a vital role not only in the management of diabetes but also in the effective prevention of diabetes and its complications. Prediabetes awareness and knowledge are grossly inadequate among students and in public. A considerable amount of prediabetic screening and management programs are needed in India. This study was an initiative to know the knowledge of prediabetic assessment and prevention among medical and dental students. A total of 248 students have participated in the study. A validated questionnaire was used to analyze the knowledge of prediabetes and its prevention among medical and dental students.

KEYWORDS: Prediabetes, Knowledge, Prevention, Management.

INTRODUCTION

Diabetes Mellitus (DM) is a metabolic disorder characterized by the presence of chronic hyperglycemia accompanied by greater or lesser impairment in the metabolism of carbohydrates, lipids, and proteins. Type 2 DM the most common form of DM characterized by hyperglycemia, insulin resistance, and relative insulin deficiency.[2,3] Prediabetes is a condition of impaired blood glucose regulation, that significantly increases the risk of developing type-2 diabetes.[4] Prediabetes or intermediate hyperglycemia, based on glycaemic parameters above normal but below diabetes thresholds is a high-risk state for diabetes with an annualized conversion rate of 5–10%. The prevalence of prediabetes is increasing worldwide and it is projected that > 470 million people will have prediabetes in 2030.[5] The World Health Organization (WHO) has defined Prediabetes as a state of intermediate hyperglycemia using two specific parameters,

i. impaired fasting glucose (IFG) defined as fasting plasma glucose (FPG) of 6.1-6.9 mmol/L (110 to 125 mg/dL) and
ii. impaired glucose tolerance (IGT) defined as 2 h plasma glucose of 7.8-11.0 mmol/L (140-200 mg/dL) after ingestion of 75 g of oral glucose load or a combination of the two based on a 2 h oral glucose tolerance test (OGTT).[6]

The American Diabetes Association (ADA), on the other hand has the same cut-off value for IGT (140-200 mg/dL), IFG (100-125 mg/dL) and in additional Hemoglobin A1c (HbA1c) based criteria of a level of 5.7 to 6.4% for the definition of Prediabetes.[7, 8]

Risk factors for prediabetes include a family history of type-2 diabetes, a history of gestational diabetes, an elevated body mass index (BMI), and a sedentary lifestyle. Individuals with prediabetes have a higher risk than the general population for developing type 2 diabetes, heart disease, stroke, and other serious health problems.[9]

To prevent and treat prediabetes, lifestyle changes including a healthy diet, weight loss, and increased physical activity are recommended for prevention and treatment of prediabetes by the National Diabetes Prevention Program. Some of the research studies showed that the incidence of type-2 diabetes can be reduced with lifestyle changes and metformin treatment compared to placebo. Primary care plays a key role in screening and testing a patient with prediabetes. Questionnaires are one of the most important survey research tools to gathering information about individual perspectives in large cohort studies.

OBJECTIVES

- To explore the knowledge and perceptions about pre-diabetes screening and management among 2nd year Medical and Dental students.

JUSTIFICATION

The purpose of the study is to determine student's awareness and knowledge of prediabetes and diabetes prevention, potential educational needs, and target areas for improvement. As the prevalence of prediabetes is increasing worldwide and the risk of converting of prediabetes to diabetes is around 5- 10% annually.

METHODOLOGY

This cross-sectional study is done as a starting/initial part of Ph.D. work based on a prospective interventional study on prediabetes progression. The study is conducted in Dr. PSIMS & RF, Vijayawada, A.P. For the study, 2nd year medical and dental students are asked to answer the questionnaire by Google Forms or paper version. The study period is around 2020-2021.A brief description on the nature of the study and procedure to complete the questionnaire was explained.

The questionnaire which was designed to assess the basic knowledge on prediabetes was distributed among the medical students. Consent form was obtained before starting the study from students.

Inclusion criteria

Students who are ready to fill the answer for the given questionnaire are included in the study.

Exclusion criteria

Students who are not interested /willing to answer the questionnaire are excluded from the study.

RESULT

A total of 248 students participated in the study of which 57.2% (n=142) are MBBS students and 42.7% (n=106) are BDS students. The mean average age of the respondents was 19-21 years. Among them 73.3% (n=182) are females and 26.6% (n=66) are males students. The demographic details of the students are summarized in Table 1.

Table 1: Demographic details of the students.

	MBBS	BDS
Students	57.2% (142)	42.7% (106)
Male	31.6% (45)	19.8% (21)
Female	68.3% (97)	80.1% (85)
Mean Age (years)	19-21	19-21

In this study more than 80% of students had good knowledge of prediabetes, 78.4% and 76.7% of medical and dental students answered correctly regarding WHO parameters, only 68.8% and 57.1% of students know the risk factors of prediabetes and around 80% of participants know about how to manage and prevent diabetes on average by lifestyle modifications.

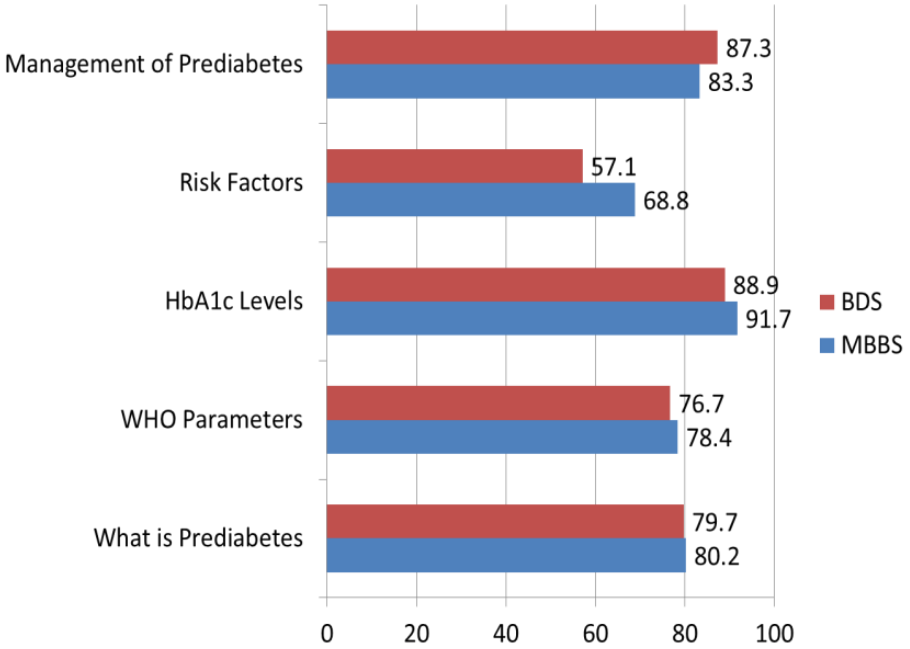

Fig 1: Represents the percentage differences on answers for prediabetes questions.

DISCUSSION

According to the study's findings, medical and dentistry students generally had appropriate preclinical, clinical, and managerial understanding of managing prediabetes and preventing diabetes. But students at different stages lack some understanding regarding screening, diagnosing, and administration. The results indicate that with the exception of a few inquiries, both dental and

medical students have good basic knowledge of prediabetes.

According to the current study, they require more communication and programs to address the issue of learning of prediabetes diagnosis, clinical implications, and management. It also suggests that there is a need to raise awareness of prediabetes screening, management, and the advantages of lifestyle modification programs in colleges.

According to Tamkeen Kahn et al.'s study on medical students understanding, almost 60% and 40% of students, respectively, correctly answer the preclinical question on risk factors while using paper and electronic mobile. [10] Due to the dearth of articles on student's awareness of prediabetes. This study underscores the need for more educational programs to address the problem.

CONCLUSION

The general understanding of the student regarding the preclinical and clinical management of prediabetes is good. According to this study, students at various stages of education have a knowledge gap regarding the detection, diagnosis, and treatment of prediabetes. On the prediabetes questionnaire, the majority of students did well, however there was a modest difference in performance between medical and dentistry students overall, but only on a few questions.

Our finding strongly suggests that there is a great need to create awareness regarding Prediabetes and diabetes prevention amongst medical professionals. In conclusion, the results of the present study demonstrate that an educational intervention can increase awareness of prediabetes and its prevention among the health care professionals and incorporate this gained knowledge into their everyday clinical practice.

It has been advised that the healthcare professionals; especially medical and dental students should be trained properly on the detection, diagnosis, and treatment of prediabetes to improve the current scenario in our country.

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Ethical approval: The study was approved by the Institutional Ethics Committee of Dr. PSIMS and RF.

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