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A Comparative Study on the Pre-Diabetic Score Assessment among the Medical, Dental and Nursing Students in a Tertiary Medical College and Hospital.

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ABSTRACT

Introduction: An intermediate state of hyperglycemia, with glucose levels above normal but below the diagnostic thresholds for diabetes, is known as prediabetes.[1] The most recent figures from the International Diabetes Federation (IDF) Diabetes Atlas, which was released in 2019, there are 463 million diabetics worldwide, meaning that the global prevalence of the disease is 9.3% [2] while the global prevalence of pre diabetes is 7.5% i.e., 374 million people with pre diabetes. Our objective was to assess the medical interns, dental and nursing students' cognition, opinion and exercise towards the pre diabetic risk assessment in their routine practice.

Methods: A cross- sectional questionnaire- based study was conducted among the interns, dental students and nursing students at a tertiary care hospital in an urban city.

Results: Data was analyzed using descriptive statistics and expressed as percentage where the medical students are better than dental and the dental better than nursing students.

Conclusion: The combined contribution of all the health professionals in identifying the pre diabetic risk score would be have great help in preventing the progression of Diabetes.

Keywords: cross- sectional study; dental students; medical students; nursing students; pre diabetic risk score.

INTRODUCTION

Diabetes is linked to ischemic heart disease, chronic renal disease, and stroke.[1- 3] The American Diabetes Association (ADA) has established cut-off values of 140–200 mg/dl for impaired glucose tolerance (IGT) and 100–125 mg/dl for impaired fasting glycemia (IFG). The 5.7% to 6.4% HbA1c-based criterion is used to diagnose prediabetes.[4] They have been linked to pre diabetes because of the elevated risk for type 2 diabetes that is connected to IFG and IGT.[5] Diabetes incidence has also been linked to clusters of metabolic syndrome traits, including high blood pressure, high triglycerides, low high-density lipoprotein, and abdominal obesity.[6]

It is recommended to maintain a healthy weight through exercise and nutritious diet. The Diabetes Prevention Program (DPP) has demonstrated that exercising for at least 150

minutes per week and decreasing around 7% of one's body weight can prevent or postpone the progression to type 2 diabetes.. Many people are eager and motivated to overcome prediabetes.[4] Primary care physicians have the potential to significantly impact patient education on pre-diabetes and behavioral weight loss programmes.[7] Physicians in other affluent nations were also found to ignore the issue of pre diabetes where more than half of physicians polled reported adhering to national diabetes preventive guidelines, and physicians perceive considerable impediments to diabetes prevention.[8] According to Mainous et al., doctors who have a favorable outlook about pre diabetes are more likely to follow national screening criteria and advise patients to take metformin for the condition.[9] Promoting healthy behavior may depend on raising stakeholders' knowledge of the risks and problems associated with diabetes.[10,11] Several studies have shown that rigorous lifestyle adjustments and metformin can help with prediabetes.[10,12,13]

As the burden of diabetes and pre diabetes in Asian country is increasing rapidly, investment in the treatment of pre diabetes can be one part in the management of diabetes epidemic in this poorly resourced country. Hence, this study aimed to assess knowledge, attitudes, and practice of primary care physicians in Sudan toward pre diabetes management.

MATERIALS AND METHODS

This is a cross-sectional survey conducted utilizing a Google questionnaire form. The inclusion criteria included MBBS (medical) students, BDS (dental) students, and nursing students from a tertiary care facility. Students studying physiotherapy, allied health sciences, and pharmacy were excluded. The study involved around 100 students each subject. The students were requested to provide their agreement to participate in the study, which was contained in the Google questionnaire form. The Pre diabetic Risk Score Assessment (PDRSA) was conducted by assessing knowledge, practice, and attitude about prediabetes. The data was analysed statistically utilising software.

Ethical Considerations

The study has received permission from the ethics committee, as shown by the reference number (NO. 1082/2024/IEC/ACSMCHDt.20.02.2024).Permission to begin the study was acquired from the medical college's dean, as well as the principals of the nursing and dentistry colleges.

Informed Consent:

The willingness to engage in the study was the first question on the Google Doc questionnaire form.

The data was imported into Microsoft Excel, and the Statistical Package for the Social Sciences (SPSS) software was utilized for analysis. A point estimate with a 95% confidence interval was computed.

RESULTS

Figure 1 displays the number of students that participated in the research. All demographics, knowledge, attitude, and practice domains were statistically analyzed. There were 100 students in each course. Figure 1 depicts the percentages of students who participated, with 100 (medical), 92 (dental), and 98 (nursing) students contributing 34%, 34%, and 32%, respectively.

Figure 1

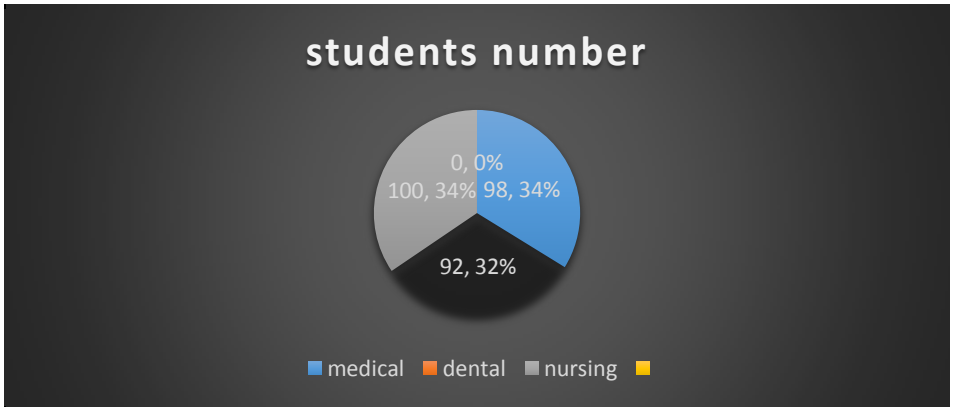


Table 1 displays the percentage of male and female students, as well as their years of study in medical, dentistry, and nursing program. The majority of participants were medical students. The number of female dentistry students was the greatest, with 50 females.

.**Table 1**

	Medical students(in numbers n)	Dental students(in numbers n)	Nursing students(in numbers n)
gender	Male(52) Female(46)	Male(42) Female(50)	Male(54) Female(46)
Qualification	MBBS	BDS	B.Sc
Year of study	I Year (27) II Year(23) III Year(29) Final Year(19)	I Year(25) II Year(22) III Year(27) Final Year(21)	I Year(26) II Year(22) III Year(28) Final Year(20)

The questionnaire for each domain was changed based on the prior study done by Eva Tseng et al. [14].

Table 2 and figure **2** show the reaction to PDRSA. It is obvious that medical students comprehend pre diabetes better than dentistry and nursing students, as evidenced by their higher scores. The ANOVA test revealed a significant p-value of 0.004 among medical students compared to dentistry and nursing students.

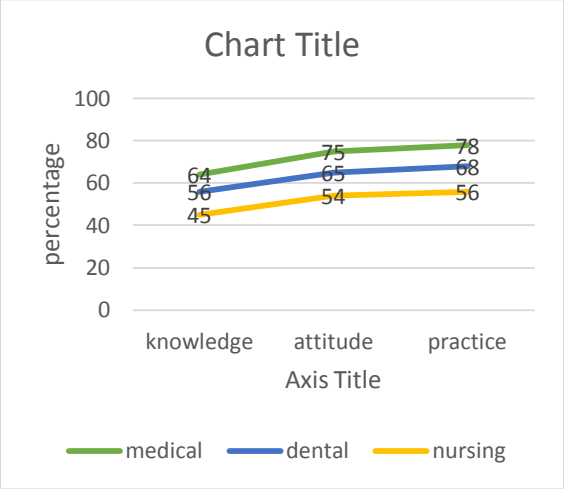
Table 2

	answers	Correct response		
		medical	dental	nursing
Knowledge domain		Mean		
		64	56	45
1. Gold standard pre diabetic lab test	HbA1C	54	58	41
2. Fasting sugar value for pre diabetics	<125mg/dl	68	72	58
3. Postprandial sugar value for pre diabetics	<200 mg/dl	72	69	61
4. HbA1C value for pre diabetics	$\leq$ 6.4 %	62	45	33
5. Physical activity requirement per week	30 min/day	64	48	39
6. Major risk factor for pre diabetes	Family history of diabetes	64	44	38
Attitude domain		Mean		
		75	65	54

1. Diabetic awareness program helps in pre diabetics	yes	71	62	54
2. Family history assessment of pre diabetes plays major role	yes	79	65	60
3. Early diagnosis and treatment of pre diabetes saves lifespan	yes	75	68	49
4. Is there sufficient evidence regarding the importance of pre diabetic screening	yes	70	69	43
5. Does national guidelines helps in screening pre diabetics	yes	80	61	65
Practices domain		Mean		
		78	58	56
1. Metformin prescribed by most of the health professionals to pre diabetics	yes	70	65	56
2. Diabetic nutrition helps in pre diabetics	yes	82	58	50
3. Exercise advised to all pre diabetics by the health	yes	78	51	62

professionals				
4. All the health professionals do pre diabetic screening in patients above 35	yes	71	53	52
5. All health professionals advise on lifestyle modifications for the pre diabetics.	yes	85	61	60

Figure 2



DISCUSSION

The national recommendations and the American Diabetes Association primarily focus on detecting pre-diabetics at an early stage. This would prevent the emergence of new instances of diabetes. A similar study was undertaken in Sudan with health professionals rather than students and yielded good results.[15] It has been noted that a limited focus on pre diabetes screening has resulted in decreased intervention for pre diabetes programmes and rigorous lifestyle adjustments.[16] The increased incidence of diabetic complications can be ascribed to the high prevalence of uncontrolled glycemia.[17-18] When left untreated, it can result in complications such as retinopathy, nephropathy, ischemic heart disease, heart failure, stroke, and diabetic foot.[19-21]

As a result, sensitizing pupils about pre-diabetes through online lessons can help avoid it. If local program are unavailable, resources such as registered dietitians can be used, albeit they may not be reimbursed by all insurers, and at-risk persons can be given instructional materials (for example, through the National Diabetes Education Program).[22] Other strategies, such as clinical decision support technologies, have proven to enhance procedures of care for diabetes and other disorders. [23-24] It may help in the identification and treatment of pre-diabetes. Many studies insist on a 10% body weight decrease for those at risk of developing pre-diabetes, as previously reported.[25-27] Metformin's significance in the treatment of pre-diabetics is yet unclear to students. It should be made aware by teaching the patho-pharmacology to the pupils, since a study reveals that only fewer than 1% of pre diabetics obtain metformin..[28-30]

CONCLUSIONS

The early pre-diabetic risk score evaluation given to medical, dentistry, and nursing students has a significant influence on their future practice and the avoidance of diabetes incidence.

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