IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

PREVALANCE OF PRE-DIABETES AND DIABETES AMONG THE YOUNG ADULTS IN MANGALURU.

Dr Tobin Joseph[1] Dr Saumya P Jose[2]

Professor[1], Assistant professor

[1] Department of Medical surgical nursing, Indira college of Nursing, Mangalore, Karnataka, India

ABSTRACT

Background

The prevalence of diabetes in increasing in both rural and urban areas in India. In India we don't have a proper surveillance system to document the incidence of non communicable diseases like diabetes. So it is essential to carryout population based prevalence studies in various regions of the country.

Objectives

The present study aimed to evaluate the prevalence of both diabetes as well s pre-diabetes among young adults.

Methodology

Study design is a community based cross sectional study. 120 participants were recruited through purposive sampling. Fasting blood sugar and post prandial blood sugar level were taken to identify the diabetic profile.

Conclusion

The study concluded that prevalence of pre- diabetes is more compared to diabetes among the young adults. But the prevalence rate is considerably low compared to other studies.

Introduction

Diabetes mellitus is considered a serious health hazard in the 21st century.it is estimating around 300 million diabetic Mellitus cases in the world by 2025 in which maximum number will be expecting from India because of its highest prevalence. World health organization defines diabetes as a group of heterogeneous disorders characterized by the presence of hyperglycemia. Many etio-pathological factors are underlying the disease such as insufficient insulin production, insulin resistance, defects in the action of insulin, and disturbances of carbohydrate, protein, and fat metabolism. According to the present classification, there are two different types of diabetes: Type 1 (T1DM) and type 2 (T2DM), the classification is based on the onset, age insulin resistance, presence of diabetic associated autoantibodies, and insulin requirement. Moreover, Type 2 diabetes Mellitus accounts for 90 to 95 percent and is commonly seen in adults but children and adolescence are also affected. In the majority of the cases, insulin is not recommended for survival in type 2 diabetes but can be used to maintain the blood glucose level within normal.[1] It is very essential to control the blood glucose level within normal, as uncontrolled diabetes may produce deleterious complications like diabetic induced retinopathy neuropathy, cardiovascular disorder various other systemic effects of peripheral arterial-vascular and reproductive system. In addition to these complications, diabetic people are at increased risk of getting the infectious disease because of the compromised immune system.[2]

Population-based epidemiology studies are necessary to address the prevalence of diabetes as well as pre-diabetes is among the various rural and urban areas in India. Nowadays diabetes mellitus is becoming a major health care challenge for the country. More than 7.1 percentage of the Indian population is affected by diabetes.[3] Prevention as well as delaying the diabetic-associated complications can be achieved by delivering adequate awareness programs and patient education on the importance of physical activity and modifying the dietary intake. Similar to diabetes prevalence estimation the prevalence of pre-diabetic is also important so that with adequate physical activity and lifestyle changes the chances of getting diabetic can be minimized. There have been many population-based epidemiological cross-sectional studies carried out in various parts of the country to find out the prevalence of diabetes. These studies reported that there is a higher prevalence among the male population compared to females.[4] Even though genetic predisposition and familial inheritance

play an important role, the sedentary lifestyle and food habits are the major contributors. The purpose of this present study was to estimate the prevalence of pre diabetes and diabetes among young adults in the rural and urban areas in Mangaluru.

Materials and methods

Objectives

- ✓ To estimate the prevalence of pre-diabetic and diabetic Mellitus among the rural and urban population young interns working in selected companies of Mangaluru.
- ✓ To identify the age and gender-specific prevalence of diabetes.

Study design: Community-based cross sectional study conducted in rural and urban areas of Mangaluru.

Study duration: 2019 March - 2019 July (6 months)

Sampling method: Selected companies in Mangaluru were choosen by simple random sampling and from each company through purposive sampling participants were selected.

Inclusion criteria :

- ✓ Age - 18 to 35
- ✓ Gender - male and female
- ✓ Subjects who are willing to participate in the study.

Exclusion criteria: Subjects who are not willing to participate in the study.

Procedure

The required components of assessment including age gender FBS, PPBS were documented in the data collection sheet. The purpose of the study and the procedure was explained to the participants and an informed consent form was obtained before the commencement of the study from each participant. The participants were asked to remain fasting for at least eight hours or the next day morning for assessing the fasting blood sugar, and postprandial blood sugar estimation was carried out two hours after the meal. Both samples were sent to the regional laboratory diagnostic center for evaluation. After the report, the diabetic people were advised to consult a doctor for treatment and pre-diabetic people were given instructions to maintain adequate physical activity and modify dietary habits and also advised to repeat the test once every three months.

Data Analysis and Results

- ✓ The obtained data was evaluated using SPSS software version 16.0.
- ✓ The demographic details age and gender were analyzed by using Descriptive statistics.
- ✓ The data was normally distributed so mean and standard deviation was used for demographic data.

Table 1: Gender distribution

		Frequency	%
Gender	Male	78	65
	Female	42	35

Table 2: mean and standard deviation of age, FBS, PPBS

	Mean	S.D.
Age	27.38	5.27
FBS	96.78	17.07
PPBS	116.44	17.01

Table 1 & 2 shows the age and gender distribution of the participants. Out of 120 participants 78 were male and 42 were female. Mean age of the participants was 27.38 with a standard deviation of 5.27.

Table 3: Prevalence of diabetes

		Frequency	%
FBS	70-100 (Normal)	87	72.5
	100-125 (Pre diabetes)	26	21.7
	> 126 (Diabetes)	7	5.8
PPBS	< 120 (Normal)	89	74.2
	120-140 (Pre diabetes)	22	18.3
	> 140 (Diabetes)	9	7.5

Table 3 explain about the prevalence of diabetes I comparison to their fasting blood sugar 72.5% are normal, 21.7 % are pre diabetic and only 5.8% of individual are affected with diabetes. For PPBS comparison 74.2 are normal, 18.3 are prediabetic and 7.5 are affected.

Table 4: Age and FBS

		Mean	S.D.	F"	p value
Age	70-100 (Normal)	26.49	5.34	4.76	0.01*
	100-125 (Pre diabetes)	29.54	4.41		
	> 126 (Diabetes)	30.29	4.39		

(* Significant)

The one way ANOVA test was used to compare age and FBS. There was a difference ($p < 0.05$) in age according to FBS.

Table 5: Multiple comparison of Age and FBS

Comparisons		Mean Difference	p value
70-100 (Normal)	100-125 (Pre diabetes)	-3.04	0.024*
	> 126 (Diabetes)	-3.79	0.146
100-125 (Pre diabetes)	> 126 (Diabetes)	-0.75	0.937

(* Significant)

The Tukey test was used for the multiple comparisons of age and FBS. There was a difference ($p < 0.05$) in age between pre diabetes and normal.

Table 6: comparison of age and PPBS

		Mean	S.D.	'"F"	p value
Age	< 120 (Normal)	26.26	5.27	8.969	< 0.001*
	120-140 (Pre diabetes)	30.23	3.56		
	> 140 (Diabetes)	31.44	4.39		

(* Significant)

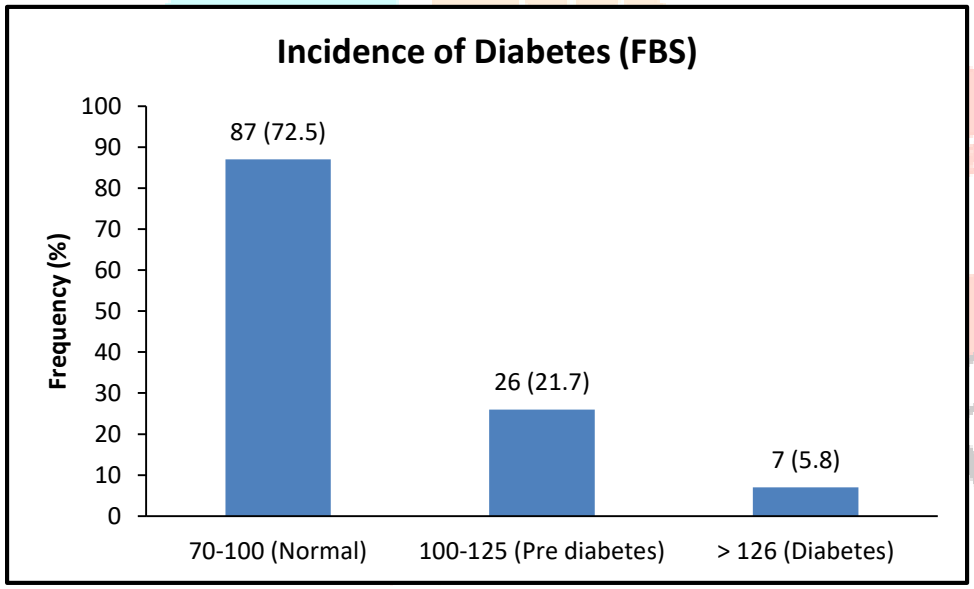
The one way ANOVA test was used to compare age and PPBS. There was a difference ($p < 0.05$) in age according to PPBS.

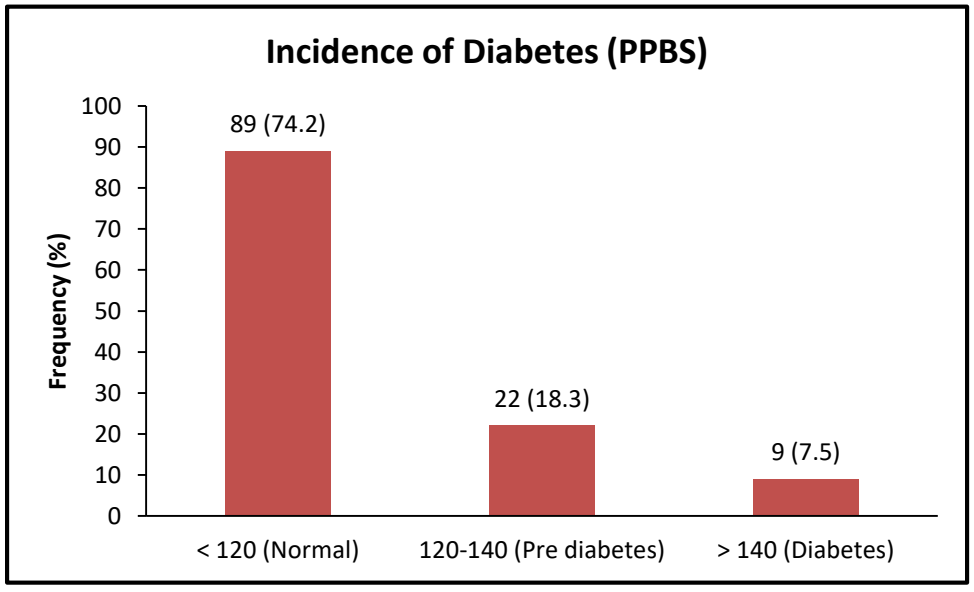
Table 7: comparison of age and PPBS

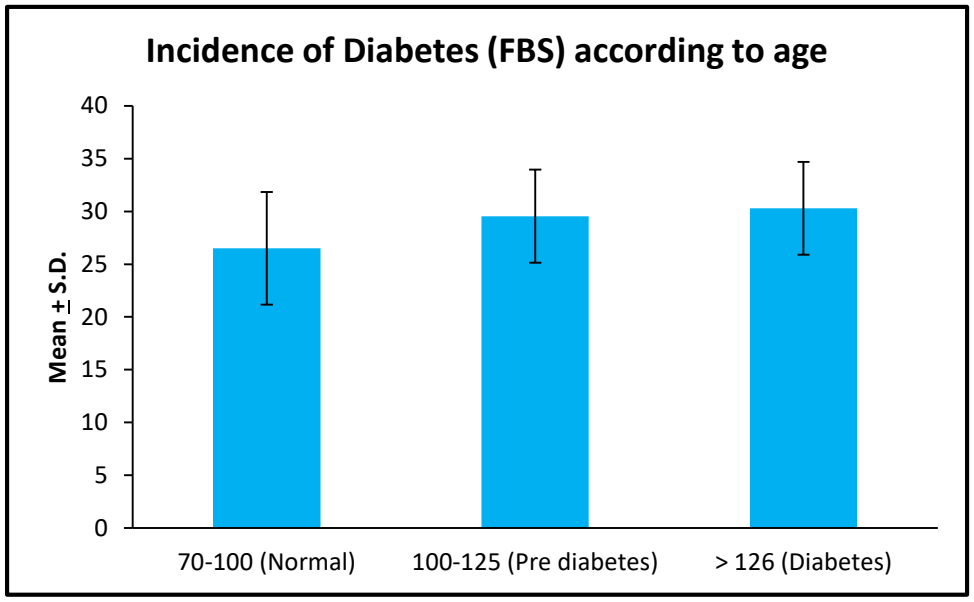
Comparisons		Mean Difference	p value
< 120 (Normal)	120-140 (Pre diabetes)	-3.97	0.003*
	> 140 (Diabetes)	-5.19	0.009*
120-140 (Pre diabetes)	> 140 (Diabetes)	-1.22	0.808

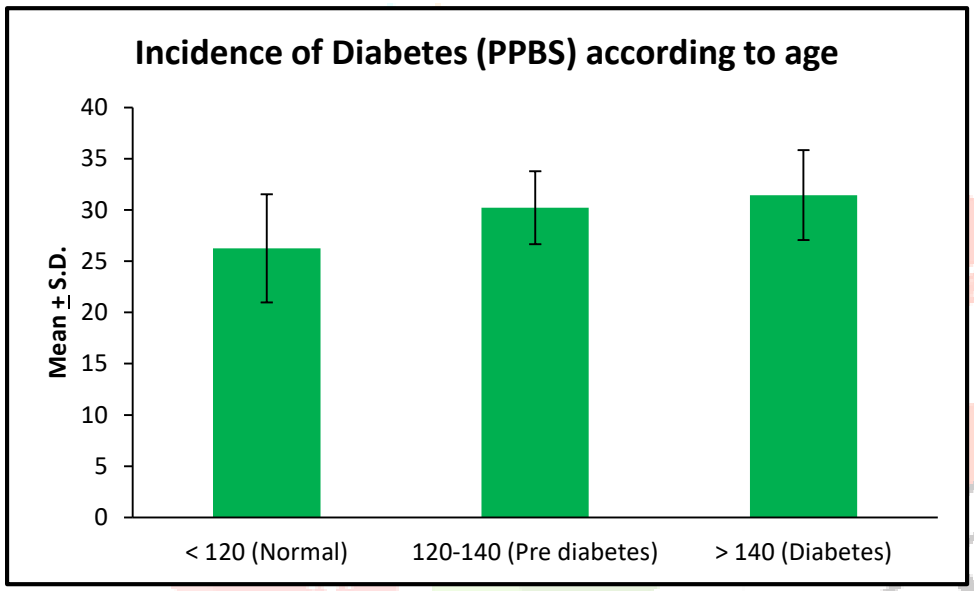
(* Significant)

The Tukey test was used for the multiple comparisons of age and PPBS. There was a difference ($p < 0.05$) in age between pre diabetes and normal; diabetes and normal









Discussion

Diabetes mellitus is considered one of the commonest noncommunicable diseases worldwide. It is a metabolic disorder of multiple etiology and characterized by hyperglycemia. Diabetes mellitus may present symptoms like polyuria, increased thirst, weight loss, blurring vision, in severe cases, it may cause cardiovascular and certain neurological disorders.[2] Considering the mortality, morbidity as well as the highest prevalence of the diseases it is essential to carry out a prevalence based study among the young adults in Mangaluru.

The presented study estimated the prevalence of type 2 diabetes mellitus among young adults in Mangaluru. 120 participants from both rural and urban areas were selected in the study. Participants belong to the age group 18- 35. Fasting blood sugar and postprandial blood sugar were documented in the diabetic profile. The number of male participants was more than the number of female participants. The result showed that the incidence of type 2 diabetes among young adults is comparatively less, but pre diabetes is more than diabetic,

the FBS and PPBS value scored within the normal range for the majority of the participants. People with an age group of 26-30 are pre diabetic and greater than 30 years are found to have diabetes. The result is far less compared to other studies. The reason could be because nowadays most people are well aware of the complications associated with diabetes through social media and other platforms, even though there are not following healthy dietary habits most of them are trying to become physically active.

Compared to the diabetic profile the prevalence of pre diabetic is more. Beta-cell destruction is one of the main factors which progress pre diabetes to diabetes. According to one systematic review, the overall prevalence of pre diabetes across 15 states of India was 10.3%.[5] The limitation of the present study was that there are other valid and reliable diagnostic measures like hba1c count, homo IR which gives more accurate interpretation, since these tests are expensive we could not involve this into our study. In addition to this we have used purposive sampling which is not a true representation of the population. The sample size obtained was also less, so there is a need to conduct a study with larger sample size and with an appropriate sampling technique

Conclusion

The present study concluded that more than diabetes, pre diabetes is seen among the young adult, however, compared to another prevalence study the rate is less. the pre diabetic may progress to diabetes without proper health care measures. So it is advised to carry out a consistent check-up among the pre diabetic individual to avoid further complications.

Reference

1. Alberti, K.G.M.M., and P.Z. Zimmet. 1998. “Definition, Diagnosis and Classification of Diabetes Mellitus and Its Complications. Part 1: Diagnosis and Classification of Diabetes Mellitus. Provisional Report of a WHO Consultation.” *Diabetic Medicine* 15 (7): 539–53. doi:10.1002/(sici)1096-9136(199807)15:7<539::aid-dia668>3.0.co;2-s.
2. Kumar, Tapas, and Adwitiya Das. 2016. “Prevalence And Risk Factors of Pre-Diabetes And Diabetes Mellitus In A Remote Village of Eastern India.” *IOSR Journal of Dental and Medical Sciences* 15 (08): 29–32. doi:10.9790/0853-1508112932.
3. “Prevalence of Diabetes Mellitus and Its Risk Factors in Urban Field Practice Area of Chitradurga.” 2021. *Indian Journal of Public Health Research & Development*. doi:10.37506/ijphrd.v12i2.14134.

4. Wild, S., G. Roglic, A. Green, R. Sicree, and H. King. 2004. "Global Prevalence of Diabetes: Estimates for the Year 2000 and Projections for 2030." *Diabetes Care* 27 (5): 1047–53. doi:10.2337/diacare.27.5.1047.

5. K, Sethuram, Uma M.A., and Srinivasa Rao. 2019. "A Study of Prevalence of Diabetes Mellitus, Prediabetes and Cardio Metabolic Profile among Rural Population in South India." *International Journal of Contemporary Medical Research [IJCMR]* 6 (3). doi:10.21276/ijcmr.2019.6.3.19.