

A Study to Assess The Prevalence of Pre-diabetic among Adults Residing in Selected Village at Unnamalaikadai, Kanyakumari District, Tamilnadu

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Abstract

This study evaluated the prevalence of pre-diabetes among adults residing in selected villages. Descriptive design and convenient sampling technique was used to select 30 study samples. The tool used in this study has two parts Demographic variables by interview method using questionnaire and Modified Finnish Diabetes Risk Score Questionnaire to the participants to assess the risk and prevalence of Pre-diabetes. It consists of 8 questions related to Age, Body Mass Index (BMI), Waist circumference, Physical activity, Dietary pattern, History regarding Hypertension, Previous Diabetic history and Hereditary. The overall aim of the study gave evidence about the prevalence of Pre-diabetes.

Keywords: cram, hyperglycemia, inhabitants, prevalence, threshold

INTRODUCTION

Diabetes mellitus is one among the most common non communicable disease as like hypertension [7]. Diabetes mellitus is an endocrine disorder that develops either due to inability of the pancreas to produce adequate Insulin or the body cannot utilize the Insulin appropriately. Diabetes mellitus is an unceasing illness, which occurs when the pancreas does not generate adequate quantity of insulin, whilst the body cannot efficiently use the insulin which it produce [4]. This leads to an improved amount of glucose in the blood (hyperglycemia).

Pre-diabetes is an intermediary state of hyperglycemia with glycemic parameter beyond standard but beneath the diabetes doorstep. Pre-diabetes was defined as a fasting blood glucose level of 6.1 mmol/L to 6.9 mmol/L, without medication [3].

Pre-diabetes mellitus (intermediate hyperglycemia) is a high-risk circumstances for diabetes mellitus that is definite by glycemic variables and that are prominent than ordinary, but poorer than diabetes threshold. 5–10% of natives per year with pre-diabetes mellitus will step forward to diabetes, with the similar percentage converting turn around to normoglycemia. Prevalence of pre-diabetes mellitus is increasing globally, and experts have anticipated that more than 470 million community will have pre-diabetes mellitus by 2030.

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NEED FOR THE STUDY

There is a rapid progress of Diabetes epidemic in India of about 74 million people (98.87%) are suffering from Diabetes mellitus, which is almost 15% of Global statistics [2]. It is also expected to increase to 123.5 million by the year 2040. In India, the prevalence of Diabetes is more evident in

urban areas when compared to rural populations, where it is one-quarter that of urban population [5]. China has the larger proportion of Diabetes with 120 million populations and India follows with about 74 million. However in 2045 it is expected India will overtake China in number of Diabetics.

Global Scenario of Pre-diabetes Mellitus

Pre-diabetes is on the rise worldwide. According to International Diabetes Federation, worldwide 425 million people are found to have diabetes in the year 2017, which is proposed to increase 55% to 673 million by 2045 [1].

Diabetes became a serious health issue. According to Dr. Shaulkat Sadikot, President of IDF 2016–17, Diabetes has moved from health crisis status to Global societal catastrophe [10]. Globally, it is considered to have reached epidemic proportions majorly in developing and newly industrialized countries.

It was also stated by world health organization (WHO) that there is an apparent epidemic of diabetes and is strongly associated to lifestyle and economic change. According to International Diabetes Federation, the prevalence of Diabetes were one in 11 adults in the year 2017 and which is above to increase one in 10 adults by the year 2040 [9]. Global prevalence 8.8% (7.2–11.4%) in the year 2015 and 10.4% (8.5–13.5%) in the year 2040.

Nearly 326.5 million people across the Globe of the working age of 20–64 years are suffering with Diabetes and 122.8 million people of the age 65–99 years are Diabetics [5]. This figure is expected to rise to 438.2 million for the working group and 253 in the old age in 2045.

Indian Scenario of Diabetes Mellitus

According to World Health Organization (WHO), India had 69.2 million people living with diabetes in 2015 [6]. Nearly 98 million people in India may have type 2 diabetes by 2030. The prevalence of diabetes increased tenfold, from 1.2% to 12.1%, between 1971 and 2000. It is estimated that 61.3 million people aged 20–79 years live with diabetes in India (2011 estimates). This numeral is predictable to enhance to 101.2 million by 2030. And 77.2 million inhabitants in India are supposed to have pre-diabetes.

International Diabetes federation states, that 9.4 million people in India had diabetes in the year 1995 and this figure will project to 69.9 million by the year 2025 and 8.9 million by the year 2030. Presently 11% urban population above the age group of 15 has diabetes [5]. According to WHO estimation, the total cost for mortality from Diabetes and heart disease in India was about \$335 billion in next 10 years [3].

National urban Diabetes survey (NUDS) has been conducted in major cities of India [7]. The result showed that the prevalence rate was much greater at Hyderabad (16.6%), then at Chennai (13.5%), Bengaluru (12.4%), Kolkata (11.7%), New Delhi (11.6%), and Mumbai (9.3%) respectively. Prevalence of Diabetes in India survey (PODIS) also conducted a study in different regions of India to rule out the difference in prevalence of urban/rural population and found that prevalence was greater in urban region with 4.7% and in rural region 2.0 respectively. According to ADA criteria, it was 5.6% in urban areas and 2.7% in rural areas.

State Scenario

The Indian Council of Medical Research – India Diabetes (2017) states in the general population, prevalence of obesity (BMI>30) was 9.14%; it is almost double in known diabetic cases (17.24%) [8]. Prevalence of waist hip ratio >1 among males in general population was 3.56% and among females (>0.85) 32%. Pegging the predominance of diabetes mellitus as 9.8, the cram also indicated that there was a supplementary 7.1 percent incidence of pre-diabetes in the Tamil Nadu residents. The pervasiveness of abdominal obesity amid men is 22.4 per cent and women, 35.3 per cent. The Tamil

Nadu consequences of the first INDIAB Study supported by the Indian Council of Medical Research point toward that there are in relation to 42 lakh individuals with diabetes mellitus and 30 lakh populace with pre-diabetes [10]. Touted as the “first representative study” of Tamil Nadu, it is fraction of the on a national scale endeavor to study the nationalized occurrence of Type 2 diabetes and pre-diabetes in India, by estimating the State-wide existence of the same. Additionally, the study also expected at studying the prevalence of hypertension and dislipidemia (high cholesterol) in the inhabitants; and the prevalence of coronary artery disease.

STATEMENT OF THE PROBLEM

A study to assess the prevalence of pre-diabetes among adults residing in selected villages at Unnamalakadai Community area, Kanyakumari district.

OBJECTIVES

- To assess the prevalence of pre-diabetes among early adults in selected villages.
- To find out the association between prevalence of Pre- diabetes with selected demographic variables.

HYPOTHESIS

H1: There will be a significant association between prevalence of Pre- diabetes with selected demographic variables among adults.

MATERIAL AND METHODS

Assess

In this study assess refers to finding the prevalence of adults with pre-diabetes using Modified Finnish Diabetes Risk Score Questionnaire.

Prevalence

In this study prevalence refers to the percentage of population newly identified with the risk of developing diabetes mellitus.

Pre-diabetes

In this study pre-diabetes refers to the condition characterized by mild elevation of blood glucose level (fasting blood glucose level from 100 to 125 mg/dl) Adults in this study adults refers to matured or grown person between the age group of 30–60 years of both genders.

Research design selected for this study was Descriptive design. The researcher selected Unnamalakadai village area for data collection. Before conducting the study, formal permission was obtained from the Block Medical Officer. Convenient sampling technique was used to select the subjects. Data was collected within the given period of one month.

During this time, the investigator selected the group and introduced self and obtained oral consent from the adults. The data regarding demographic profile was collected by interview method using questionnaire.

Modified Finnish Diabetes Risk Score Questionnaire was administered to the participants to assess the risk and prevalence of Pre- diabetes. It consists of 8 questions related to Age, Body Mass Index (BMI), Waist circumference, Physical activity, Dietary pattern, History regarding Hypertension, Previous Diabetic history and Hereditary.

Scoring Procedure

Each factor is given individual score and total score is 23. The scoring procedure is as follows:

Score	Interpretation
0–7	Low risk
8–15	Moderate risk
16–23	High risk

FINDINGS

Frequency and Percentage distribution of socio demographic variables

With regarding age 8 (26.6%) were in the age group of 30–40 years were (40%) 41–50 years of age respectively, the remaining 33.3% were 51–60 years. Regarding gender, majority of them 18(60%) were females and males 12 (40%).Regarding religion, majority of them10 (33.3%) were Muslims, and Christian 14 (26.6%), Hindu 14 (26.6%) and 4 (13.3%) in other religion. Regarding the type of family 18(60%) were joint family, and 12 (40%) in nuclear family. regarding education10 (33.3%) were in primary and higher education, were 8 (26.6%) in high school education, were 2 (6.6%) in graduate. Regarding occupation 18 (60%) in sedentary worker, were 10 (33.3%) in moderator worker, and were 2 (6.6%) in heavy worker. Table 1 depicts the frequency and percentage distribution of Finnish Diabetic risk Score that indicates pre-diabetes. It was found that majority, 16 (53.3%) participants fall under high risk group.

Table 1. Frequency and Percentage distribution of risk factor analysis among adults with pre-diabetes

S.N.	Diabetic risk score	Frequency	Percentage
1	Low risk	4	13.3
2.	Moderate risk	10	33.3
3.	High risk	16	53.3

Table 2. Association between the risk factor of prediabetes and selected socio demographic variables among adults with prediabetes.

S.N.	Demographic variables	Low risk	Moderate risk	High risk	Chi square value	P Value
1.	<i>Age</i>				14.99	df=4 p=9.46*
	30–40yrs	4	4	0		
	41–50 yrs	0	6	6		
	51–60 yrs	0	5	0		
2.	<i>Gender</i>				0.18	df=2 p=5.99
	Male	2	5	5		
	Female	2	8	8		
3.	<i>Religion</i>				36.6	df= 6 p=12.59*
	Muslim	3	3	4		
	Christian	1	4	3		
	Hindu	1	3	4		
	Others	0	2	2		
4.	<i>Type of family</i>				0.88	df=2 p=5.99
	Nuclear	3	5	4		
	Joint	4	5	9		
5.	<i>Education</i>				2.18	df=10 p=18.3
	Illiterate	0	0	0		
	Primary school	2	4	4		
	High school	1	3	4		
	Higher	2	4	4		
	Secondary	1	1	0		
	Graduate	0	0	0		

6.	<i>Occupation</i>					
	Sedentary Worker	2	6	10	2.589	df=4 p= 9.45
	Moderatory Worker	1	1	8		
	Heavy Worker	0	1	1		

(*p=0.05)

The Table 2 shows that there is an association between the age and religion. There is no association between gender, type of family, education and occupation.

DISCUSSION

The discussion is discussed under the following:

- Demographic variables of Sample
- Data pertaining to frequency and percentage distribution of socio demographic variables
- Table 1- Data pertaining to frequency and percentage distribution of risk factor analysis among adults with pre-diabetes
- Table 2- Data pertaining to association between the risk factor of pre-diabetes and selected socio demographic variables among adults with pre-diabetes.

Demographic Variables of Adults

- Regarding age majority of them 12 (40%) were in the age group of 30–40 years, 10 (33.3%) were in 41–50 years and 8 (26.6%) were in 51–60 years of age.
- In this study majority of them 18 (60%) were in the gender of females and 12 (40%) were males.
- In this study majority of them were Muslim 10 (33.3%) and Hindu and Christian 8 (26.6%) and others group are 4 (13.3%). It shows that our country is a multi-nature religion area.
- In this study 33.3% were studied up to primary school and higher secondary, 26.6% were studied up to high school and 6.6% were studied up to graduation.
- Most of the peoples 60% were living in joint family and 40% were living in nuclear family
- In this study regarding occupation majority of them were sedentary workers 18 (60%) and moderate workers were 10 (33.3%) and heavy workers were 2 (6.6%).
- Represents the frequency and percentage distribution of Finnish Diabetic risk Score among adult with pre-diabetes.
- The Table 2 shows that there is an association between the age and religion and no association between gender, type of family, education and occupation.

CONCLUSION

In pre assessment the adults are assessed for general and specific information. There is a association between the age and religion. This study will serve a valuable reference material for future investigators. The findings of the study can be effectively utilized by the emerging researchers for expand professional knowledge.

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