



A Study on Assessment of Risk of Type 2 Diabetes Mellitus among Bank Employees Using Indian Diabetic Risk Score

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ABSTRACT

Background: With the changing life style in the recent decade risk of chronic non-communicable diseases like diabetes mellitus has increased globally. The present study was conducted to assess the bank employees for risk factors of type 2 Diabetes mellitus using Indian Diabetic Risk Score (IDRS).

Methods: A cross sectional field based study was carried out over a period of 2 months (June-July 2015) among employees of 8 branches of Bapuji Co-operative bank spread over the city of Davangere, Karnataka. Total 90 employees were available for the study. Data was collected by using a Pre tested and pre designed proforma, Indian Diabetic Risk Score (IDRS) and body measurements were taken.

Results: Out of 90 subjects, 71 (78.8%) were males & 19 (21.1%) were females. Age of subjects ranged from 25-55 yrs. According to IDRS, 15 (16.6%) were in high risk group, 55 (61.1%) of them were in moderate risk group and 20 (22.2%) were in low risk group for type 2 DM.

Conclusion: In our study 16.6% of the bank employees were at high risk of type 2 DM and 61% were at moderate risk of developing type 2 DM.

Keywords - Diabetes mellitus, Type 2, Risk

INTRODUCTION

With the changing life style in the recent decade risk of chronic non-communicable diseases like diabetes has increased globally. WHO projections show that NCDs will be responsible for a significantly increased total number of deaths in the next decade¹. NCD deaths are projected to increase by 15% globally between 2010 and 2020 (to 44 million deaths)². The greatest increases will be in the WHO regions of Africa, South-East Asia and the Eastern Mediterranean, where they will increase by over 20%¹. According to recent data type 2 diabetes mellitus is globally responsible for 1.3 million deaths.³ Apart from death it causes disability which reduces the productivity of a community decreasing the progress of the nation.

According to the Diabetes Atlas 2013 published by the International Diabetes Federation, the number

of people with diabetes in India currently is 65.1 million, which is expected to rise to 142.7 million by 2035 unless urgent preventive steps are taken⁴.

Primordial prevention and diagnosis of patients at risk interferes with progression of diabetes and disability caused by it. The elimination of risk factor, early diagnosis and adequate treatment can reduce the risk of disease. Since bank employees constitute a high risk group for non-communicable diseases, the present study on assessment of risk factors of type 2 DM was selected with the objective to assess the bank employees for risk factors of type 2 Diabetes mellitus using Indian Diabetes Risk Score (IDRS)⁵.

METHODS

A cross sectional field based study was carried out over a period of 2 months (June-July 2015) among

employees of 8 branches of Bapuji Co-operative bank spread over the city of Davangere, Karnataka.

After obtaining the written permission from managers of respective branches subjects were studied individually in their leisure time with informed consent. Employees who were present on the day of visit and who were willing to participate were enrolled for the study. Self reported diabetic subjects were excluded. Total 90 employees were available for the study.

A predesigned and pretested questionnaire and IDRS⁵ were used to collect the relevant information from study subjects. Data regarding age, sex, income, family history of DM and details regarding exercise was obtained. Body measurements like height, weight and waist circumference of all subjects were recorded using standard devices. Socio economic status of subjects was classified using Modified BG Prasad's classification.⁶ Ethical clearance was obtained from institutional ethical committee.

Certain definition used in the study⁷

1. Age : Age was recorded in completed years as revealed by subjects and categorized into 3 groups; age <35 years was given a score of 0, 35- 49 years as 20 and ≥ 50 years as 30.

2. Waist circumference: Males: Individuals with waist circumference <90cm were given a score as 0, $\geq 90 - 99$ cm as 10, and those with ≥ 100 cm as 20. Females: Individuals with waist circumference 80cm were given a score as 0, $\geq 80 - 89$ cm as 10, and those with ≥ 90 cm as 20.

3. Family history of diabetes: Individuals with no family history of diabetes were given score as 0,

those with one diabetic parent as 10 and those with both diabetic parents as 20.

4. Physical activity: Individuals were given a score as 0 if they did leisure time exercise and in addition had physically demanding work in their occupation; individuals who either did exercise or performed physically demanding work were given score as 20 and the individuals who neither did any exercise or who are leading a sedentary lifestyle were given score as 30.

The total scores were added up and the subjects were classified as high risk, moderate risk and low risk, based on the IDRS as follows - up to score 30 as low risk, score 30-50 as moderate risk and score 60 and above as high risk.

Statistics: Data was tabulated and analysed. Results presented as percentages and proportions.

RESULTS

Age of subjects ranged from 25-55yrs. Study subjects were divided into three age groups as suggested by IDRS. Males 71(78.8%) outnumbered females 19(21.1%). Maximum number of males 37(52.11%) and females 10(52.63%) were in the age group of 35-49yrs. Most of the employees were graduates 40(44.44) and belonging to class1 SES 68(75%) according to Modified B G Prasad's classification. (Table 1)

By IDRS, most of the subjects, 55(61.1%) were having moderate risk for type 2 DM. About 20(22.22%) were at high risk and 15(16.6%) were at low risk of developing type 2 DM. (Table 2)

Table 1: Distribution of subjects according to socio demographic characteristics and IDRS:

Socio demographic characteristics	High risk ≥ 60	Moderate risk 30-50	Low risk <30	Total (%) N=90
Literacy level				
Post graduate	9 (10.0)	5(5.55)	19(21.11)	33(36.66)
Graduate	8(8.88)	10(11.11)	22(24.44)	40(44.44)
Pre-university/ diploma	4(4.44)	3(3.33)	3(3.33)	10(11.11)
High school	3(3.33)	1(1.11)	2(2.22)	6(6.66)
Middle /Primary school	0	0	0	0
Illiterate	0	1(1.11)	0	1(1.11)
Socioeconomic status*				
Class1	20(22.22)	16(17.77)	32(35.55)	68(75.55)
Class 2	6(6.66)	4(4.44)	8(8.88)	18(20.0)
Class 3	0	0	2(2.22)	2(2.22)
Class 4	0	1(1.11)	1(1.11)	2(2.22)
Class 5	0	0	0	0

*According to Modified B G Prasad's classification

Table 2 - Distribution of subjects according sex wise IDRS

Variables	Males(%) N=71	Females(%) N=19	Total (%) N=90
Age(Yrs)			
<35	8(8.9)	7(7.8)	15(16.67)
35-49	37(41.10)	10(11.11)	47(52.22)
≥50	26(28.88)	2(2.22)	28(31.11)
Waist circumference(cm)			
M<90, F<80	24(26.65)	4(4.44)	28(31.1)
M(90-99), F(80-89)	35(38.88)	8(8.88)	43(47.77)
M ≥100, F ≥ 90	12(13.33)	7(7.77)	19(21.11)
Physical activity			
Vigorous	37(41.1)	7(7.77)	44(48.88)
Moderate	16(17.77)	8(8.88)	24(26.66)
Mild	15(16.66)	4(4.44)	19(21.11)
No exercise	3(3.33)	0	3(3.33)
Family history			
No	45(50)	13(14.44)	58(64.44)
One parent diabetic	21(23.32)	5(5.55)	26(28.88)
Both parents are diabetic	5(5.55)	1(1.1)	6(6.66)
Total IDRS Score			
High risk ≥60	15(16.67)	0	15(16.67)
Moderate (30-50)	41(45.55)	14(15.55)	55(61.11)
Low risk (<30)	15(16.66)	5(5.55)	20(22.22)

DISCUSSION

There is a clear association between increasing age and greater diabetes prevalence. In our study about 47(52.2%) were in the age group of 35-49yrs and about 28(31.1%) were aged >50yrs. The National Institute for Health and Care Excellence (NICE) state that being older than 40 years, or older than 25 years for some black and minority ethnic groups, is an important risk factor for developing type 2 diabetes.⁸

A large waist circumference is associated with increased likelihood of developing type 2 diabetes. Men are at higher risk of type 2 DM if they have a waist circumference of 94 - 102 cm and at very high risk if it is more than 102cm. Women are at higher risk if they have a waist circumference of 80 - 88cm and at very higher risk if it is more than 88cm.⁹

In our study, according to IDRS waist circumference was divided into 3 groups. In that majority of females 8 (8.8%) and males 35(38.8%) were seen in group 2 ie, males(90-99cm) and females(80-89cm).

Over the past 4 decades, a huge number of the working population has shifted from manual labour associated with agriculture sector to physically less demanding office jobs. It was observed that the prevalence of diabetes was almost 3 times higher in individuals with light physical activity compared to those having heavy physical activity.¹⁰

In our study, according to IDRS, physical activity of subjects was divided into 4 groups. Majority were doing vigorous exercise 44(48.8%), 24(26.66%) were doing moderate exercise, 19(21.11%) were doing mild exercise and 3(3.33%) were not doing any exercise.

Family history is a well known risk factor for the development of type 2 DM. Having a 1st degree relative with the disease poses a 40% risk of developing diabetes. Family history reflects both inherited genetic susceptibilities and shared environmental exposures that include cultural factors. Thus family history of DM, may be useful tool to identify individuals at increased risk of the disease and target behaviour modifications that could potentially delay disease onset and improve health outcomes.¹¹

In our study, 26(28.8%) subjects had positive family history of type 2 DM in one parent, 6(6.66%) had positive history in both parents and 58(64.44%) did not have any significant family history.

In a similar study by Raja Subramani et al, a total of 505 people were screened by IDRS score in a rural area. They found that 61(12.1%) people had high risk of diabetes and 377 (74.7%) had moderate risk of diabetes and 67 (13.3%) people had low risk of diabetes.¹²

In our study, 15(16.6%) were in high risk group, 55(61.1%) of them were in moderate risk group and 20(22.2%) were in low risk group.

CONCLUSION

Bank employees constitute a high risk group for all non-communicable diseases including type 2 diabetes mellitus. Our study found presence of 16.6% of subjects at high risk and 60% at moderate risk of type 2 DM.

LIMITATIONS OF STUDY

The duration of the study and sample size was small for want of time. Blood Glucose levels of subjects at high risk were not assessed because of cost factor.

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