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Original Research Article

Unmasking diabetes risk: screening of bank employees in Belagavi city

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ABSTRACT

Background: Diabetes is rising rapidly. Early identification of high-risk individuals and timely intervention are essential to prevent its onset and complications. This study aimed to screen bank employees in Belagavi using Indian Diabetic Risk Score (IDRS) and identify factors influencing risk levels.
Methods: A cross-sectional study was conducted among employees of nationalized banks in Belagavi city. The estimated sample size was 330, and participants were selected through a simple random sampling technique. Data on demographic characteristics and IDRS scores were systematically recorded for all individuals.
Results: Among the participants, most were male (72.27%) and aged above 50 years (59.39%). The majority were Hindus (96.06%), graduates (83.63%), and belonged to the upper socioeconomic class (87.57%). Regarding diabetes risk assessment, 187 (56.66%) of the bank employees were classified as having a very high risk, while 124 (37.57%) fell into the moderate-risk, and only 19 (5.75%) were identified as low risk. A significant proportion of individuals aged above 50 years (144,73.09%) and those leading a sedentary lifestyle (98, 68.53%) exhibited high IDRS scores.
Conclusions: The study findings underscore that a substantial proportion of bank employees are at a very high risk of developing diabetes. Key factors such as age, physical inactivity, body mass index (BMI), and waist circumference were significantly associated with elevated IDRS scores. These results highlight the need for targeted preventive measures and lifestyle modifications to mitigate the risk of diabetes in this occupational group.

Keywords: Diabetes, Bank employee, IDRS

INTRODUCTION

Diabetes is one among the non-communicable disease which has highest mortality and morbidity. The prevalence of diabetes worldwide was 422 million and it is projected that by 2045, 700 million people worldwide will have diabetes.[1,2] The most recent data from the ICMR–India Diabetes (ICMR–INDIAB) study, published in 2023, reveals a significant increase in diabetes prevalence across the country. The study estimates that approximately 101 million people in India are currently living with diabetes, representing an overall prevalence of 11.4%. Additionally, the prevalence of prediabetes is reported at 15.3%, affecting around 136 million individuals.[3-5] Thus it is clear that both in urban and rural India, prevalence rates of diabetes are increasing rapidly with estimation of 2:1 to 3:1. This disorder along with its complications will cause heavy economic burden. A better understanding about the risk factor is necessary for future planning of health care policy and delivery in order to ensure that the burden of the disease is addressed. Also, there is a lack of knowledge and awareness about diabetes mellitus. Chennai urban rural epidemiology study (CURES) showed that 25% of the population was unaware of the condition called diabetes mellitus. Hence, improving the awareness of the public and providing screening services to unfold the disease is essential.[6] Indian diabetes risk score (IDRS) was developed by

CURES, by Mohan et al based on multiple logistic regression model using 4 simple parameters, namely age, abdominal obesity, physical activity and family history.[7] Government of India has initiated national program for non-communicable disease and is also planning to screen adults to diagnose diabetes. It is important to identify a cost-effective approach to categories the risk of the individuals which increases the yield of the screening program. IDRS is one such method which is easy and requires minimum time and effort.[8] We chose bank employees as they form the important high-risk category due to their nature of profession. They form one of the largest groups of employing personnel of different caste and creed, various age groups subjected to severe stress and strain, sedentary life style. Once they develop diabetes mellitus, they are more prone to develop coronary heart disease and stroke. Hence, the present study was conducted to assess the risk of Diabetes mellitus among bank employees in Belagavi city and to determine the factors associated with it.

METHODS

A cross-sectional study was conducted among bank employees of nationalized banks in Belagavi city. The estimated sample size was 330, considering the prevalence of high risk IDRS score of 31.2% as obtained in the study conducted in rural areas of Tamil Nadu and taking 5% absolute error and 95% confidence.[9] The study was conducted at nationalized banks of Belgaum city. A list of bank staff was obtained from their respective banks with their age and address. There were 1860 bank employees working in various nationalized banks in Belgaum city.

All the bank employees were arranged in alphabetic order and were numbered. The required numbers of bank employees were selected randomly by using 4-digit random number table. Those with pre-existing diabetes were excluded from the study. A pre-tested semi-structured questionnaire was administered to selected bank employees after obtaining the informed consent. The questionnaire had three parts which consisted of socio-demographic profile, information on risk factor and anthropometric measurements.

IDRS was used to grade the individuals. IDRS has 4 parameters like age, physical activity, abdominal obesity and family history of diabetes based on which individual was graded as very high risk, moderate risk and low risk. Ethical clearance was obtained from institutional ethical committee.

Statistical analysis

Data was tabulated and analyzed using Microsoft excel. Summary figures like ratio, percentage were used to analyze the data. Chi-Square test was used to find statistical association.

RESULTS

A total of 330 bank employees participated in our study.

Table 1: Socio-demographic profile of the study participants (n=330).

Socio-demographic character	Frequency (%)
Age	
20-34	69 (20.9)
34-49	65 (19.69)
>=50	196 (59.39)
Gender	
Male	255 (77.27)
Female	75 (16.66)
Religion	
Hindu	317 (96.06)
Muslim	9 (2.72)
Christian	4 (1.21)
Qualification	
Primary-middle	28 (8.48)
High school	8 (2.42)
Higher secondary	18 (5.45)
Graduate and above	276 (83.63)
Socio-economic status	
Upper	289 (87.57)
Upper middle	31 (9.39)
Middle	9 (2.72)
Lower middle	1 (0.3)
Lower	0
Diet	
Vegetarian	138 (41.81)
Mixed	192 (58.18)

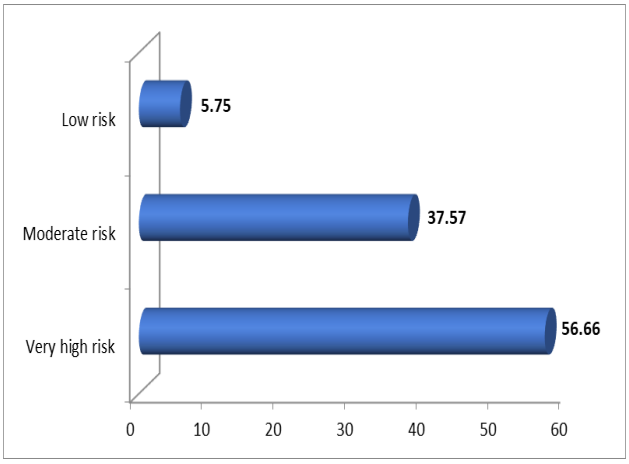

Figure 1: Distribution according to IDRS (n=330).

Majority 255 (72.27%) of them were males, 196 (59.39%) of them were above 50 years of age, 317 (96.06%) of them were Hindus, 276 (83.63%) were graduates, 289 (87.57%) belonged to upper class

according to modified B G Prasad classification (Table 1).

Table 2 shows distribution of risk factors among study participants. Majority 143 (43.33%) of the participants were sedentary, 198 (60%) of them had no significant family history and 162 (49.09%) of them had normal BMI.

IDRS was categorized as very high risk if the score is above or equal to 60, moderate risk if the score is between 30-50 and low risk if the score is below 30. The present study showed majority 187 (56.66%) of bank employees were at very high risk of acquiring diabetes.

Table 3 shows association of IDRS categories with various variables like age, physical activity, BMI and waist circumference. We found significant association between all the factors mentioned above with IDRS grades.

Table 2: Distribution of risk factors among study participants (n=330).

Risk factors	Frequency (%)
Physical activity	
No activity	143 (43.33)
Mild	67 (20.3)
Moderate	114 (34.54)
Vigorous	6 (1.8)
Family history	
None	198 (60)
Either of the parent	114 (34.54)
Both parent	18 (5.45)
BMI	
Underweight	16 (4.84)
Normal	162 (49.09)
Overweight	119 (36.06)
Obese	33 (10)

Table 3: Association of IDRS with demographic variables and risk factors (n=330).

Variables	Diabetes risk as per IDRS			Chi-square	P value
	Low risk	Moderate risk	Very high risk		
Age (in years)					
20-34	19	46	5	131.79	<0.01
34-49	0	28	35		
>=50	0	53	144		
Family history					
None	18	86	94	22.34	<0.01
Either of the parent	1	31	82		
Both parent	0	7	11		
Physical activity					
No activity	0	45	98	69.82	<0.01
Mild	8	12	47		
Moderate	8	64	42		
Vigorous	3	3	0		
BMI					
Underweight	1	9	5	46.96	<0.01
Normal	16	81	66		
Overweight	2	30	87		
Obese	0	5	28		
Waist HIP ratio (men)					
<1	7	97	106	22.43	<0.01
>1	0	5	40		
Waist HIP ratio (women)					
<1	4	10	7	13.22	<0.01
>1	3	9	42		

DISCUSSION

The present study was conducted to find out the risk of diabetes mellitus among bank employees using IDRS developed by Mohan et al and co-relation of the score with different variables like BMI, WHR, age, physical activity, and the family history of diabetes.[7] Majority 255 (72.27%) of them were males, 196 (59.39%) of them were above 50 years of age, 317 (96.06%) of them were Hindus, 276 (83.63%) were graduates, 289 (87.57%) belonged to upper class according to modified B G Prasad classification. 143 (43.33%) of the participants were sedentary, 198 (60%) of them had no significant family history and 162 (49.09%) of them had normal BMI. The present study also showed that the majority 187 (56.66%)

of bank employees were at very high risk of acquiring diabetes. We found significant association between variables like age, physical activity, BMI and waist circumference and IDRS grades. Studies conducted by Gupta SK et al in rural areas of Tamil Nadu and Pondicherry showed 18.66% and 31.22% of their study participants were at higher risk of developing Diabetes respectively.[9,10] The relatively higher proportion in our study can be attributed to the variance in the life style of our study subjects. Another study conducted by Mohan V et al to find out the prevalence of diabetes among urban and rural area found that the prevalence was higher among urban subjects due to their stress and sedentary life style which supports our study finding.[11]

Limitations

The cross-sectional design limits the ability to establish causal relationships between identified risk factors and diabetes risk. Reliance on IDRS and self-reported information (e.g., physical activity) may introduce reporting bias and does not confirm actual glycemic status through biochemical tests.

CONCLUSION

The present study showed that 56.66% of the participants were at very high risk of developing diabetes mellitus according to IDRS. We found significant association between variables like age, physical activity, BMI and waist circumference with IDRS grades.

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