International Journal of Community Medicine and Public Health
Pathak N et al. Int J Community Med Public Health. 2023 Jan;10(1):225-230
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20223548

Original Research Article

Identification of risk factors about cardiovascular disease and diabetes mellitus among employees of selected banks in Indore, Madhya Pradesh

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Received: 12 October 2022
Revised: 06 December 2022
Accepted: 07 December 2022

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ABSTRACT

Background: Cardiovascular disease (CVD) remains the highest cause of mortality in India and the majority of the cases are due to risk factor that includes hypertension smoking diabetes mellitus. Sedentary lifestyle and desk job employees are more prone to such diseases. Therefore, present study aimed to assess the risk factors of cardiovascular diseases among bank employees.
Methods: Quantitative exploratory research design was used to conduct the study. A sample of 98 bank employees was selected for the study using non probability convenient sampling technique from different branches of SBI Indore.
Results: Risk score for cardio vascular disease among bank employees expressed in percentage calculated through the structured interview scheduled and Joint British Societies for the prevention of cardiovascular disease (JBS3) risk calculator. 83% participants were at <10% risk (low), 17% participants were at 10-19.9% (mild) risk, 0 participants were at 20-29.9% (moderate) risk and 0 participants were at ≥30% (high) risk. There was significant association between the risk score and selected socio demographic variable among bank employees.
Conclusions: Study concluded that there was a mild to moderate risk of cardiovascular disease among bank employees. Hence, proper awareness regarding various risk factors of cardio vascular diseases can help in reducing such risk among bank employees and personnel with similar working pattern.

Keywords: Bank employees, Cardiovascular disease, Diabetes mellitus, Identification, Risk factors

INTRODUCTION

There are several risk factors for heart disease- age, gender, use of tobacco, physical inactivity, excessive alcohol consumption, unhealthy diet, obesity, family history of cardiovascular disease, raised blood sugar (diabetes mellitus), elevated blood cholesterol, and hypertension and psychosocial factors. The overall contribution of each risk factor is very consistent. Some of these risk factors, such as, age, gender, family history of cardio vascular disease however many important cardiovascular risk factors are modifiable such as lifestyle changes, social changes, early diagnosis and treatment, prevention of hypertension, hyperlipidemia and diabetes.[1]

The 2019 heart disease and stroke statistics update of the American Heart Association (AHA) has recently reported that 116.4 million, or 46% of US adults are estimated to have hypertension.[2] On an average someone dies with cardiovascular disease about 2,303 deaths and about 389.4 deaths from stroke. Approximately 1 of every 13 Americans aged 18 years and older has coronary artery disease. It is the leading cause of death for people of most racial and ethnic groups in the United States.[3]

Sedentary workers are the workers who work in prolonged sitting position and not involving in physical activities. Physical inactivity is also associated with increased risk of morbidity or worsening of many chronic diseases and health conditions including cardiovascular diseases.[4]

Observing the working condition and lifestyles of bank employees and other desk job workers provoked the researcher to select the following topic for the study.

Need of the study

Coronary artery disease (CAD) is a leading cause of death and morbidity in both developed and developing countries.[5] It is a leading cause of death in India, and its role in mortality is increasing. The number of deaths due to coronary artery disease in 1985 is expected to have doubled by 2015.[6] According to AHA statistics from 2018, approximately 92.1 million American adults are living with cardiovascular disease or the aftereffects of a stroke. The total direct and indirect costs of cardiovascular diseases and stroke are estimated to be more than 329.7 billion, which includes both health-care costs and lost productivity. Coronary heart disease is the leading cause (43.8%) of deaths attributable to cardiovascular disease in the US, followed by stroke (16.8%), heart failure (9.0%), high blood pressure (9.4%), diseases of the arteries (3.1%), and other cardiovascular diseases (17.9%).[7]

During the year 2020 to 2021 coronary heart disease alone is anticipated to increase by 120% for women and 137% for men in developing countries. The annual number of deaths from CVD in India is projected to rise from 2.26 million (1990) to 4.77 million (2020). Coronary heart disease prevalence rates in India have been estimated over the past several decades and have ranged from 1.6% to 7.4% in rural populations and from 1% to 13.2% in urban populations. The major risk factors for coronary artery disease are high LDL cholesterol, low HDL cholesterol, high blood pressure, family history, diabetes, smoking, being post-menopausal for women and being older than 45 for men, and obesity may also be a risk factor.[8]

Problem statement

An exploratory study to identify the risk factor of cardiovascular disease and diabetes mellitus among bank employees of selected banks in Indore.

Objective

This study was conducted with the objectives to assess the risk factor of cardiovascular disease (CVD) among bank employees and to find out the association between risk factor of CVD and sociodemographic variables of bank employees.

Hypothesis

All the hypothesis were tested at the level of $p<-0.05$. H_0- there is no significant association between the risk factor of CVD and selected socio demographic variables of bank employees. H_1- there is a significant association between risk factor of CVD and selected socio demographic variables of bank employees.

METHODS

Quantitative exploratory research design was selected for the study. This study was conducted at selected bank branch at Indore with a study population of 98 bank employees.

Convenient sampling technique was used for this study.

Inclusion criteria

Bank employees working in the selected banks of Indore.

Exclusion criteria

Bank employees with chronic illness and retired bank employees were excluded.

Duration of the study

This study took place from March 2020 to June 2020.

Tool

The tool consisted of two sections. Section I: socio demographic variables consisting of 27 items for obtaining information about the selected factors such as age, gender, religion, ethnicity, marital status, educational status, family income, height, weight, BMI, BP, BSR, personal history etc. Section II: JBS3 (Joint British Society3) and ADA- 2nd part dealt with the JBS3 and ADA to assess and identify the risk factors of CVD and DM.

Validity

The developed tool along with objectives was sent to 8 experts including six nursing personnel from the field of medical-surgical nursing, one “cardiologist” and one statistician and their valuable suggestions were incorporated.

Ethical consideration

Ethical clearance was obtained from the institute ethics committee. Written informed consent taken from subjects. The study participants were assured that the obtained findings would be used for the research purpose only.

Procedure for data collection

Written permission was obtained from the administrative authority of the Institution prior to data collection. The investigator collected data from 100 bank employees of selected State Bank of India, Indore. The purpose of study was to assess and identify the risk factors of CVD and DM among bank employees working in SBI, Indore. Confidentiality was assured. A questionnaire method used for assessing and identify the risk factor of CVD and DM among bank employees with socio demographic data, personal history and risk assessment variables of CVD and DM given to the bank employees. The average time taken to assess each bank employee was 10 minutes. The investigator terminated the data collection process by thanking the respondent for their cooperation and participation. Assess the risk factor of cardio vascular disease using the risk calculator according to JBS3 guidelines and complete the documentation.

Frequency, percentage and chi square test was used to test the hypothesis of the study.

RESULTS

According to Table 1, out of 98 bank employees, 30 (30.61%) employees belong to the age group 20-35 years, 61 (62.24%) were male, 86 (87.76%) majority participants belong to Hindu religion, majority of the participants 81 (82.66%) were married, 55 (56.12%) participants were graduate.

Table 1: Distribution of sample according to socio demographic variables (n=98).

Demographic variables	Frequency	%
Age (in years)		
20-35 years	30	30.61
36-50 years	31	31.63
51-60 years	37	37.76
Gender		
Male	61	62.24
Female	37	37.76
Religion		
Hindu	86	87.76
Muslim	02	2.04
Christian	02	2.04
Others	08	8.16
Marital status		
Married	81	82.66
Unmarried	16	16.32
Widow/divorced	01	01.02
Educational status		
Secondary	25	25.51
Undergraduate	55	56.12
Post graduate	18	18.37

Table 2: Distribution of sample according to personal history (n=98).

Use of tobacco	Frequency	%
Consume any form of tobacco (n=98)		
Yes	15	15.31
No	75	76.53
Occasionally	08	8.16
Quit	00	00
Form of tobacco consumption (n=23)		
Smoking	17	17.34
Chewing	06	6.12
Other	-	
Frequency of consuming tobacco (n=23)		
2 times a day	12	12.24
4 times a day	05	5.10
6 times a day	02	2.04
8 times a day	-	-
>8 times a day	04	4.08
Duration of consuming tobacco (n=23)		
<5 years	07	7.14
5-10 years	08	8.16
11-15 years	04	4.08
≥16 years	04	4.08
Exposed to tobacco at home and work place (n=23)		
Yes	09	9.18
No	14	14.28

Table 3: Distribution of sample according to personal history (n=98).

Use of Alcohol	Frequency	%
Consume alcoholic beverage (n=98)		
Yes	11	11.22
No	74	75.51
Occasionally	13	13.26
Quit	00	00
Frequency of consuming alcohol (n=24)		
Daily	03	3.06
Weekly	06	6.12
Monthly	03	3.06
Occasionally	12	12.24
Stress		
Do you feel stress at workplace (n=98)		
Yes	38	38.78
No	60	61.22
Reason for stress (n=38)		
Family issue	05	5.10
Working environment	07	7.14
Work load	26	26.53

Table 2 reveals data about consumption of tobacco, out of 98 participants 15 (15.31%) consume tobacco regularly, 8 (8.16%) consume tobacco occasionally and 75 (76.53%) don't consume tobacco. Total 23 samples were regularly and occasionally consumed tobacco. Out of 23

participants 17 (17.34%) consume tobacco in the form of smoking and 6 (6.12%) consume in the form of chewing. Frequency of consuming tobacco, majority of the participants 12 (12.24%) consumes 2 times a day. 8 (8.16%) participants were consuming tobacco since last 5-10 years, 9 (9.18%) participants were exposed to tobacco at home and workplace.

Table 3 revealed that out of 98 samples 24 (24.48%) participants consume alcohol occasionally and regularly basis. It was seen that out of these 24 participants, 3 (3.06%) participants consuming alcohol daily, 6 (6.12%) weekly and 3 (3.06%) monthly and 12 (12.24%) were consuming alcohol occasionally.

Table 4: Distribution of sample according to personal history (n=98).

Exercise	Frequency	Percent
Do you perform any physical exercise (n=98)		
Yes	55	56.12
No	43	43.88
Type of physical exercise (n=55)		
Jogging	04	4.08
Walking	43	43.88
Meditation	04	4.08
Other	04	4.08
Times spent on exercise a day (n=55)		
<30 minutes	39	39.68
30-59 minutes	13	13.26
1-2 hour	02	2.04
>2 hour	01	1.02
Diet		
Dietary habit (n=98)		
Vegetarian	66	67.35
Non vegetarian	32	32.65
Type of oil used (n=38)		
Groundnut	31	31.63
Sunflower	18	18.37
Coconut	00	00
Soya oil	45	45.92
Mustard oil	04	4.08
Use of ghee		
Yes	84	85.71
No	14	14.29

38 (38.78%) participants feel stressed at work place. Reason of the stress for majority of the participants 26 (25.48%) was due to workload.

According to Table 4, out of 98 participants more than half of the participants 55 (56.12%) do physical exercise. Out of these 55 participants 43 (43.88%) do walking. 39 (39.68%) participants do exercise less than 30 minute a day.

Out of 98 participants 66 (67.35%) were vegetarian, 45 (45.92%) of the participants were using soya oil in cooking and 84 (85.71%) of the participants agreed that they consume ghee in their food items.

Table 5: Distribution of sample according to personal history (n=98).

Fried items and salt	Frequency	%
Use of Dalda (hydrogenated vegetable oil) (n=98)		
Yes	00	00
No	98	100
Use of extra salt	**(n=98)**	
Yes	59	60.20
No	39	39.80
Use of fried items (samosa, kachori, fried papad) (n=98)		
Yes	10	10.20
No	75	76.53
Occasionally	13	13.27
Consumption of fruits and salad (n=98)		
Yes	98	100
No	00	00

Table 5 revealed that all participants don't use Dalda in cooking, 59 (60.20%) of the participants use extra salt while having food, 23 (23.47%) participants consume fried items regularly and occasionally, and all the participants accept that they consume fruits and salad.

Table 6: Frequency and percentage distribution of Risks core among bank employees.

Risk for CVD expressed in percent	Number of people who were at risk (%)
<10% risk (low)	83
10-19.9% (mild) risk	17
20-29.9% (moderate) risk	0
at ≥30% (high) risk	0

Table 6 reveals, risk score for cardio vascular disease among bank employees expressed in percentage and it was calculated through the structured interview scheduled and Joint British Societies for the prevention of cardiovascular disease (JBS3) risk calculator. 83% participants were at <10% risk (low), 17% participants were at 10-19.9% (mild) risk, no participants were at 20-29.9% (moderate) risk and at ≥30% (high) risk as per JBS3 risk calculator.

Association between risk score and selected socio demographic variables

As per chi square calculation we found that there is a significant association found between risk score and age of the employee while gender, religion marital status and educational status were not significantly associated with risk score.

DISCUSSION

The findings of the study were discussed with reference to the objectives and with the findings from other studies. The objectives of the study were, to assess risk factors about cardiovascular disease and to assess the relationship between knowledge and selected variables.

Study found that 15.31% participants were consuming tobacco and 24.48% consume alcohol occasionally and regularly basis. While according to National family health survey (NFHS-4) 45% of men in the sample used tobacco in any form and 30% consumed alcohol.[9] While Sivapuram et al estimated at around 8.7% for alcohol abuse and 7.9% for tobacco abuse.[10]

Our study revealed that 38.78% participants feel stressed at work place, 56.12% participants do physical exercise. Jaswal et al revealed prevalence of workplace stress to be 52%.[11] Sharma et al revealed prevalence of physical inactivity among the study participants as 52.1%.[12]

Our study found that 60.20% of the participants use extra salt while having food. Inamdar et al also revealed that there was more habitual additional sodium consumption among 15-25 years age group.[13]

Our study found that 17% of the bank employees were at moderate risk for cardio vascular diseases (CVD). While Shivaramakrishna et al revealed 55% of the study subjects had at least two of risk factors regarding coronary heart disease which are hypertension, diabetes, high cholesterol, high triglyceride, smoking, sedentary lifestyle, positive family history and obesity.[14]

Study findings revealed that majority of the participants have low risk and unaware of the risk factors like diabetes mellitus, obesity, stress and family history. According to Memis et al 11.8% of the population was unaware of the risk factors.[15] Assiri found that the level of knowledge about risk factors of ACS was low among the population.[16]

Dwivedi et al also found that there was inadequate knowledge regarding prevention of coronary artery disease (CAD) among patients with modifiable risk factors of CAD.[17]

Pais et al interpreted that smoking cessation, treatment of hypertension and reduction in blood glucose and central obesity is important in preventing ischemic heart disease in Asian Indians. Study findings revealed that patients had average level of knowledge regarding risk factors and warning signs of cardiovascular disease.[8]

Dracup et al, Ponti et al also found that there was a lack of good knowledge about ACS symptoms and risk factors among patients.[18]

According to our study findings age was found significantly associated with the CVD risk factors of the employees. Kumar et al revealed that 4th to 6th decade of life, consumption of extra salt and physical activity ≥2 hours per day were associated with hypertension among bank employees.[19]

Study limited to the bank employees only. Standard tool was used and no open-ended questions were asked

CONCLUSION

Study concluded that there was a mild to moderate risk of cardiovascular disease among bank employees. Hence, proper awareness regarding various risk factors of cardio vascular diseases can help in reducing such risk among bank employees and personnel with similar working pattern. Awareness and early identification of risk factor is key in initiation of proper action towards major health issues.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Pathak N, Pattnaik S, Chundawat BS, Chaturvedi D. Identification of risk factors about cardiovascular disease and diabetes mellitus among employees of selected banks in Indore, Madhya Pradesh. Int J Community Med Public Health 2023;10:225-30.