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Original Research Article

Assessment of risk factor profile of the non-communicable diseases among bank employees in the Gadag district

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ABSTRACT

Background: Non-communicable disease (NCD) burden is rapidly overtaking communicable disease burden in India, including TB, HIV, water-borne or vector-borne diseases. Bank employees' jobs are physically sedentary and also involve a lot of mental stress. So that the current study was carried out to determine the prevalence of NCD risk factors among Gadag district bank employees.
Methods: A cross sectional study was carried in the Bank employees of Gadag district from both private and Govt. bank, during the period of October 2022 to February 2023, for which ethical clearance was taken from the institutional ethical committee. We have included total study subject 100, subjects was selected by using convenient sampling technique and The study subjects included in the study are who willing to participate and given consent for the study.
Results: In our study it was observed that the prevalence of hypertension, diabetes and other cardiac problems were 21%, 12% and 2% respectively and the prevalence of obesity (BMI) (35%), High waist - hip ratio (24% in females and 47% in males), mixed diet (83%) preferably red meat (47%), tobacco use (24%), alcohol consumption (34%) and physical inactivity (61%). There is significant association between NCD in the study participants and the risk factors like long daily working hours, increased waist - hip ratio, high BMI, alcohol consumption, physical activity (MET) and mixed diet.
Conclusions: There is a high burden of major risk factors for non-communicable diseases among Bank employee. We recommend routine screening for NCD among bank employees and include appropriate preventive interventions like health education on life-style modification.

Keywords: Bank employees, Long working hours, Non - communicable diseases, Physical activity, Risk factors

INTRODUCTION

-communicable disease (NCD) burden is rapidly overtaking communicable disease burden in India, including TB, HIV, water-borne or vector-borne diseases. Statistics show that non-communicable conditions like diabetes, cancer, chronic respiratory illness, and cardiovascular illnesses account for more than 60% of all fatalities. The number of productive years of life considerably decreases due to morbidity from NCDs. Losses from early-onset diabetes, heart disease, and stroke mortality are also expected to increase over time.[1]

The 41 million fatalities per year, or 74% of all deaths worldwide, are caused by non-communicable diseases (NCDs). 86% of the world's 17 million premature fatalities due to NCDs occur in low- and middle-income countries each year. These deaths occur before the age of 70 for 17 million individuals globally. Cardiovascular diseases, which account for 17.9 million NCD deaths annually, are the leading cause of mortality, followed by

chronic respiratory diseases (4.1 million), cancer (9.3 million), and diabetes (1.1 million) (2.0 million including kidney disease deaths caused by diabetes). These four illness categories account for more than 80% of all early NCD mortality.[2]

Tobacco use, physical inactivity, harmful alcohol use, poor diets, and tobacco use all increase the chance of dying from an NCD.[2] In addition to these other risk factors, stress at work is a substantial risk factor for NCDs.[3]

According to the WHO, India has a prevalence of 13.9% and 14% for behavioural risk factors such as smoking and physical inactivity, compared to 32.5%, 10.0%, 11.0%, 1.9%, and 27.1% for metabolic risk factors such as elevated blood pressure, elevated blood glucose, overweight, obesity, and elevated cholesterol.[4]

Researchers are growing more and more interested in the connection between a person's career, work environment, and associated stress and the onset of non-communicable diseases (NCDs). According to studies, the working population has greater rates of diabetes and hypertension than the overall population.[5,6]

According to a research, bank employees are very stressed out. Stress levels and health-related QOL among employees of public banks are correlated.[7]

Bank employees' jobs are physically sedentary and also involve a lot of mental stress. Several studies have been done in India among bank personnel who are at a high risk of developing NCD risk factors. The purpose of the current study was to determine the prevalence of NCD risk factors among Gadag district bank workers.

METHODS

A cross sectional study was carried in the Bank employees of Gadag district from both private and Govt. bank, during the period of October 2022 to February 2023, for which ethical clearance was taken from the institutional ethical committee. The sample size was estimated using the formula Based on finite population formula (Slovin's Formula), with total bank employees in Gadag district of all banks both private and Nationalized. Formula, $n = N/(1+Ne^2)$, where N = 1372 e = 0.1 n = 93.2, so we have included total study subject 100.

The required number of study subjects was selected by using convenient sampling technique. The data was collected by history taking and general health check-up. All banks were visited after working hours i.e. after 4 pm.

The permission was obtained from managers or concerned authorities either in the form of written or verbal consent before conducting health check-up in the bank premises. After explaining the data collection procedure to the subjects an informed verbal consent was obtained from each individual and data was collected using a pre-designed, semi structured questionnaire by Interview method.

The study subjects included in the study are who willing to participate and given consent for the study. Those who are busy in the work at the time of bank visit are excluded from the study.

Statistical analysis: the data was entered in excel sheet and analyzed by descriptive statistic. Chi-square test was used to find out the association between two attributes and $p<0.05$ was considered to be statistically significant. (Statistical analysis software Jamovi version 2.3 used).

RESULTS

Out of total 100 study individuals, 24% were in the age group of 20-29 years, followed by 59% in the age group of 30-39 years and 9%, 8% were in the age group of 40-49 and 50-59 respectively, 70% were males and 30% were females. 57% of them studied up to degree, 26% completed their PG and 5%, 12% completed their PUC and SSLC studies respectively (Table 1).

Table 1: Distribution of bank employees according to age and gender.

Age (in years)	Gender	Number	Percentage
20-29	Male	7	7.0
	Female	17	17.0
30-39	Male	46	46.0
	Female	13	13.0
40-49	Male	9	9.0
	Female	0	0.0
50-59	Male	8	8.0
	Female	0	0.0
Total		100	100

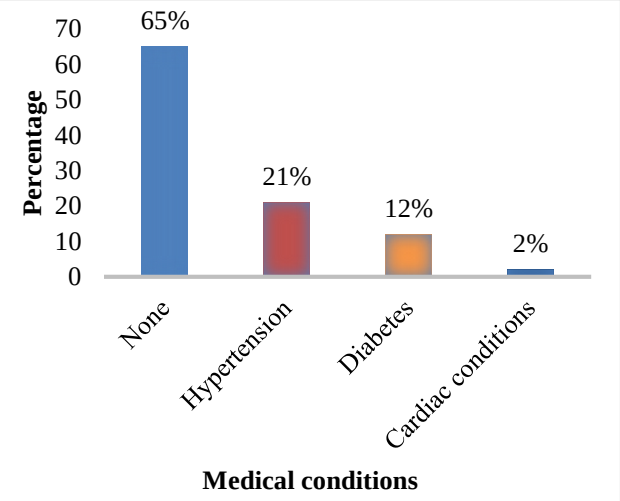

Figure 1: Prevalence of various medical condition among study participants.

Out of all study participants, 21% of them found with history of Hypertension, followed by 12% with history of Diabetes only 2% with other cardiac problems. Of them 16% diagnosed NCDs less than 5 years, 15% between 5 to 10 years and only 4% diagnosed taking treatment for more than 10 years (Figure 1).

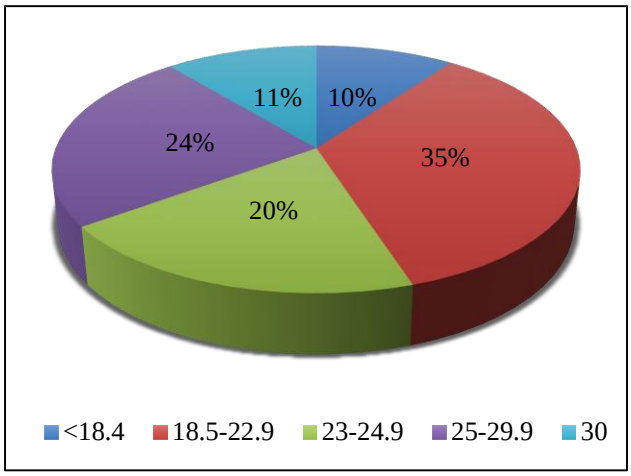

Figure 2: BMI distribution in study participants (according to Asian classification).

Table 2: Association between BMI and daily working hours.

Daily working hours			
BMI	≤ 7 hrs	≥ 7 hrs	Total
Normal	12	33	45
Obesity	0	35	35
Over weight	3	17	20
Total	15	85	100
χ^2 tests			
	Value	df	P value
χ^2	11	2	0.004
N	100		

Table 3: Distribution of study participants according to waist - hip ratio.

Gender	W-H ratio	Number (n=100)	Percentage
Male	>0.9	47	47
Female	>0.85	24	24

According to the BMI (Asian classification), 35% of study participants fell within the healthy range of 18.5 to 22.9, followed by 20% who fell into the category of overweight (23 to 24.9), 24% who fell into the category of Obesity I (25-29.9), and 11% who fall into the category of Obesity II (>30) (Figure 2). The strong correlation between daily working hours and obesity is shown in (Table 2).

Waist - hip ratio of both gender, In which 24% Female employees have waist - hip ratio more than (0.85) and 47% Male with waist - hip ratio more than (0.9), Indicates the abdominal fat accumulation[8] (Table 3).

It was observed that the, 91% employee consume fruits frequently in that 24% consumes daily, 37% consumes 1 to 2 days a week and rest of them consumes 3 to 5 days a week and only 9% consumes vocationally. In total surveyed employee 83% of them are take mixed diet, in that 47% prefers to consume red meat, 23% prefers chicken and only 8% prefers fish and 3% prefers either two items at a time, 55% of all mixed diet study subjects consumes 2 to 3 days a week. 49% of all study subjects eat fast foods more preferably potato chips/banana chips/bakery items/canned soft drinks etc., 19% prefers every day consumption (Table 4).

Table 4: Prevalence of various risk factors of NCD in study participants.

Factors		Number (n=100)	%
Fruits consumption	Frequently	91	91.0
	Vocationally	9	9.0
Type of food consumption	Strictly vegetarian	17	17.0
	Mixed diet (vegetarian + non vegetarian)	83	83.0
Fast food consumption	Yes	49	49.0
	No	51	51.0
Tobacco use	No	76	76.0
	Yes	24	24.0
Alcohol consumption	Yes	34	34.0
	No	66	66.0

Table 5: Distribution of study participants according to daily working hours and hours of sleep.

Factors	Hours	Number (n=100)	Percentage
Daily working hours	7	15	15.0
	8	50	50.0
	9	13	13.0
	10	18	18.0
	12	4	4.0
Hours of sleep each night	05-06	32	32.0
	06-07	8	8.0
	07-08	60	60.0

Prevalence of tobacco use 24%, equally 11% of them consumes tobacco either in the form of cigarette or in the form of ghutka, only 6% of them smokes three times daily, smokes 3 cigarette per day, where as 5% said 4 times daily and smokes 4 cigarette daily and rest of them smokes whenever they get free time from work. 4% of them chews ghutka 3 pockets a day, 2% chews 4 pockets a day and rest of them chews whenever they get free time

from work. 17% of them chewing tobacco less than 5 years, and 5% more than 5 years (Table 4).

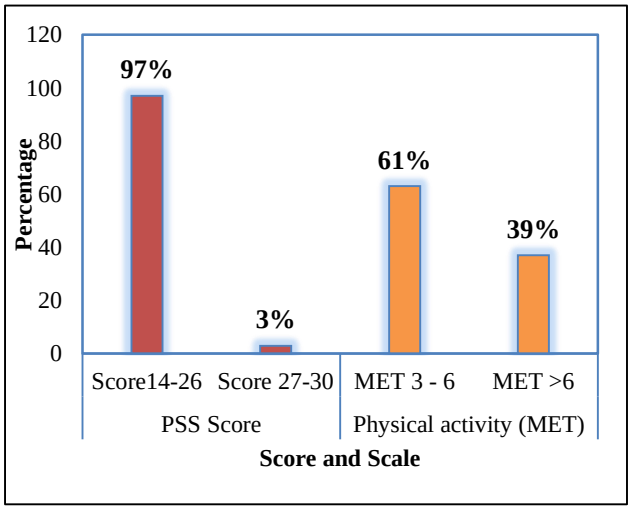

Figure 3: Prevalence of physical activity (MET) and perceived stress scale.

Table 6: Association between medical conditions and various risk factors.

Factors	Medical condition			
		Value	df	P value
Daily working hours	χ^2	24.9	12	0.015
	N	100		
Waist - hip ratio	χ^2	33.2	12	< .001
	N	100		
Alcohol consumption	χ^2	9.96	3	0.019
	N	100		
BMI	χ^2	44.4	12	< .001
	N	100		
Physical activity (MET)	χ^2	53.3	21	< .001
	N	100		
Mixed diet	χ^2	7.84	3	0.049
	N	100		

Prevalence of alcohol consumption is 34% of all study subjects, 25% said they consume alcohol once a week, 8% 2 to 3 times a week and 1% daily. 19% prefers to consume beer, 17% whisky, 3% wine and rest of them prefers other types. 20% of them consuming alcohol less than 10 years and 17% consuming more than 10 years (Table 4).

Above table shows that employees daily working hours and hours of sleep, in which 85% of all study subjects were doing work more than 8 hours every working day, and 60% of them all have adequate sleep 7 to 8 hours and 32% less hours of sleep i.e. between 5 to 6 hours (Table 5).

P activity and perceived stress scale (PSS), PSS score about 97% fall between 14 to 26, Indicates study participants are considered moderate stress, only 3% of the participants are considered high perceived stress. 61% of all study participants do moderate intensity physical activity where as 39% of them do vigorous intensity physical activity (Figure 3).

There is significant association between medical conditions (NCD) of study participants and the risk factors like long daily working hours, increased waist - hip ratio, high BMI, alcohol consumption, Physical activity (MET) and Mixed diet (Table 6).

DISCUSSION

The present study shows that the prevalence of hypertension, diabetes and, other cardiac problems were 21%, 12% and 2% respectively. There is a significant association between NCD and Daily long working hours, waist - hip ratio, BMI, Alcohol consumption, Physical activity (MET) and Mixed diet.

Similar findings were reported by Dhar R et al., the prevalence of hypertension, diabetes and obesity was 30.3%, 2.1% and 31.8% respectively, in bank employees.[9]

In our study it was observed that the prevalence of obesity (BMI) (35 %,), Waist - hip ratio (>0.85 female 24% and >0.9 male 47%), mixed diet (83%) preferably red meat (47%), tobacco use (24%), alcohol consumption (34%) and physical inactivity (61%).

Similar research conducted by Mehan MB et al. in industrial employees revealed that consumption of less than 500 grammes of fruits and vegetables per day was prevalent, followed by prevalence rates of high blood pressure and BMI of 65.9% and 65.5%, respectively. Central obesity was present in 72.7% of subjects (high waist hip ratio) and 32.3% (high waist circumference) respectively. Inactivity, alcohol use, and tobacco use were all common habits in 31.4, 17.3%, and 5% of the study participants, respectively.[10]

In our study the bank employees long working hours i.e. more than 8 hours is 85% and it is significantly associated with NCD, 63% of study participants doing moderate intensity physical activity, 97% of them fall in the category of moderate stress scale these are all risk factors associated with NCD in certain occupational groups.[11]

One of the study done by Idayu BI et al. in the working women, The prevalence of NCD risk factors was as follows: overweight/obesity, 33.8%-77.0%; low physical activity, 51.0%; unhealthy diet, 44.9%-69.9%; dyslipidaemia, 27.8%-44.0%. The factors associated with NCDs were long working hours, double work burden, and stress.[11]

Previous research demonstrated that central/abdominal obesity was a significant risk factor, particularly in Asian

populations, for the development of cardiovascular illnesses.[12,13]

This was confirmed in the present bank study, where it was discovered that central obesity was closely correlated with hypertension.

CONCLUSION

The present study showed that prevalence of hypertension, diabetes and other cardiac conditions are associated with long working hours, BMI, Waist - Hip ratio, physical inactivity, alcohol consumption and mixed diet. There is a high burden of major risk factors for non-communicable diseases among bank employee. We recommend routine screening for NCD among bank employees and include appropriate preventive interventions like health education on life-style modification.

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REFERENCES

1. National Programme for Prevention & Control of cancer, diabetes. NHM. Available at: https://nhm.gov.in/index1.php?lang=1&level=2&sublinkid=1048&lid=604. Accessed on 2 November 2022.
2. Non communicable diseases. World Health Organization. World Health Organization. Available at: https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases. Accessed on 2 November 2022.
3. WHO | world health organization. Available at: https://apps.who.int/iris/bitstream/handle/10665/148114/9789241564854_eng.pdf. Accessed on 2 November 2022.
4. Who | world health organization. Available at: https://apps.who.int/iris/bitstream/handle/10665/128038/9789241507509_eng.pdf. Accessed on 2 November 2022.
5. Momin MH, Kavishwar AB, Desai VK. Study of socio-demographic factors affecting prevalence of hypertension among bank employees of Surat City. Indian Journal of Public Health. 2012;56(1):44.
6. Golmohammadi R, Abdulrahman B.Relationship between occupational stress and non-insulin-dependent diabetes in different occupation in Hamadan (west of Iran). Journal of Medical Sciences. 2006;6(2):241-4.
7. Phadnis S, Malamardi SN, Kamath R, Tiwari R, Nair BVS, Chandrasekaran V. Occupational stress and health-related quality of Life Among Public Sector Bank Employees: A cross-sectional study in Mysore, Karnataka, India. Indian Journal of Occupational and Environmental Medicine. 2015;19(3):134.
8. Waist circumference and waist-hip ratio: Report of a WHO expert consultation [Internet]. World Health Organization. World Health Organization. Available at: https://www.who.int/publications-detail-redirect/9789241501491. Accessed on 2 November 2022.
9. Dhar R, Kashyap R. A cross-sectional study on non-communicable morbidity among bank employees of Davangere City. International Journal Of Community Medicine And Public Health. 2021;8(4):1784.
10. Mehan MB, Srivastava N, Pandya H. Risk factors of non-communicable chronic diseases. Journal of Postgraduate Medicine. 2006;52(3):167-71.
11. Idris Ib, Azit NA, Abdul Ghani SR, Syed Nor SF, Mohammed Nawi A. A systematic review on Noncommunicable Diseases among working women. Industrial Health. 2021;59(3):146–60.
12. Mohan V, Deepa R. Obesity and abdominal obesity in Asian Indians. Indian J Med Res. 2006;123:593-6.
13. Cardiovascular risk in the Asia–pacific region from a nutrition. Available at: http://211.76.170.15/server/APJCN/10/2/85.pdf. Accessed on 18th November 2022.

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