

## Original Research Article

# Hypertension prevalence and associated risk factors among bank employees working in an urban area of Marathwada region, Maharashtra, India

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## ABSTRACT

**Background:** Epidemiologic transition of diseases is occurring in recent times throughout the world. The morbidity, disability and mortality burden is now more because of non-communicable diseases. Cardiovascular diseases are number one killer throughout the world. Hypertension has been found to be an independent and consistent risk factor for cardiovascular diseases. Bank employee's job being sedentary in nature and involving cash management related stress makes bank employees a potential occupational group to develop hypertension. So, this study was planned to assess the prevalence of hypertension in bank employees in the urban area of Latur district, Maharashtra.

**Methods:** A cross-sectional observational study was carried out between January 2016 to December 2016 among all the bank employees working in urban area of Latur, Maharashtra. Approval from institutional ethics committee was obtained beforehand.

**Results:** Total 577 bank employees were surveyed for this study. 32.4% of subjects were found to be hypertensive. Association of higher age group and managerial cadre of employment were found to be statistically significant.

**Conclusions:** Bank employees have a higher prevalence of hypertension as compared to general population. Bank employees are an occupational risk group to develop hypertension.

**Keywords:** Hypertension, Prevalence, Bank employee

## INTRODUCTION

Today we live in a rapidly changing environment. Throughout the world, human health is being shaped by the same powerful forces: demographic aging, rapid urbanization, and the globalization of unhealthy lifestyles. High income, middle income as well as low income countries are facing similar health issues. One of the most striking examples of this shift is the fact that non-communicable diseases such as cardiovascular disease, cancer and chronic lung diseases have overtaken

infectious diseases as the world's leading cause of mortality.<sup>1</sup>

Cardiovascular disease (CVD) will be major cause of morbidity and mortality in developing countries by the year 2020.<sup>2</sup> CVD account for nearly a third of all deaths worldwide.<sup>3</sup> Globally CVD accounts for approximately 17 million deaths a year.<sup>4</sup> One of the key risk factors for cardiovascular disease is hypertension or raised blood pressure. The relationship between blood pressure and

risk of CVD events is continuous, consistent, an independent of other risk factors.<sup>4,5</sup>

Worldwide, prevalence estimates for hypertension is about 1 billion individuals.<sup>6</sup> It causes about 7.1 million deaths per year and 4.4% of the disease burden which translates to 64.3 million Disability Adjusted Life Years.<sup>7</sup> Hypertension is a modern day's epidemic and an emerging public health emergency worldwide especially in the developing countries.<sup>8,9</sup>

According to WHO statistics 2014 the prevalence of hypertension in India is 23% (male 23.1%, female 22.6%).<sup>10</sup> According to office of registrar general of India the prevalence of hypertension in urban population is 25% and 10% in rural population. The prevalence of hypertension in urban India will be 29-45% in men and 25-38% in women by the year 2025.<sup>11</sup> Indian studies revealed that the prevalence of hypertension has increased thirty times among the urban population and ten times among the rural population.<sup>12</sup>

The job of bank employees is both sedentary in nature and involves high levels of mental stress and thus making banking a potential occupational risk group for hypertension.<sup>13-15</sup> Studies on prevalence and risk factors of hypertension are sparse in India and so this study was planned to have insight into the magnitude and the risk factors of the problem among the bank employees.

## METHODS

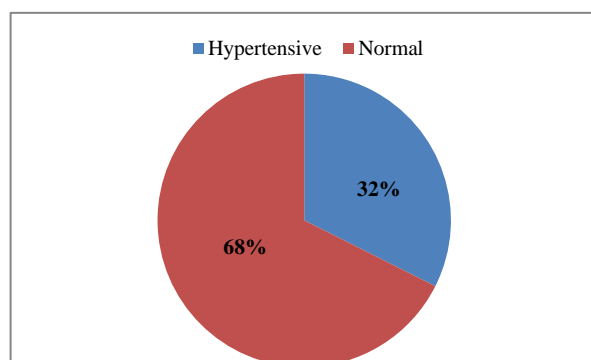
The present study was undertaken at all the banks in the urban area of the city with an aim to find the prevalence of hypertension among bank employees working at urban area of the city. Prior permission from institutional ethics committee was taken before starting the study. A cross-sectional observational study was conducted from January 2016 to December 2016. Employees willing to participate in study were included in the study. Pregnant female employees, employees who could not be contacted in 3 visits and employees working on contractual basis were excluded from the study. To calculate the sample size for the study, the prevalence of hypertension found among bank employees working in urban Puducherry i.e., 44.3% was used with an allowable error of 10% of the prevalence.<sup>15</sup> So, the minimum sample size required to cover the desired objective was 502. There were total 594 bank employees in the area. Bank managers when requested for conducting the study in their branches persuaded to include all the employees in the area. Thus, total bank employees present in the urban area i.e. 594 were considered for the study. The interview technique was used as a tool for data collection. The predesigned and pretested questionnaire included general information and socio-demographic details of study subject. Age, gender, religion, marital status, education and cadre of employment, type of bank (nationalized, private, and cooperative) were recorded for each study subject. Study Subjects were also asked regarding if they were ever told

of raised blood pressure in any previous examination by physician. If answered yes, the individual was asked whether the individual is on any antihypertensive medication. The above mentioned questions were asked to know regarding awareness, treatment of hypertension. History taking was followed by blood pressure measurement of the individual. Operational definition of hypertension was based on JNC VII criteria.<sup>16</sup> Hypertension was defined as systolic blood pressure  $\geq 140$  mm Hg and diastolic pressure  $\geq 90$  mm Hg or already diagnosed case of hypertension by physician or on antihypertensive treatment, as per JNC VII criteria. 3 readings of blood pressure were taken from each individual at 5-5 minute interval. The minimum Blood pressure among the 3 readings was used for blood pressure assessment. Mercury sphygmomanometer used was manufactured by Meditech Industries, Delhi (India) and conformed to requirements of ISI. Stethoscope used was manufactured by Littman, Germany and it also conformed to requirements of ISI.

The data thus collected was entered in MS excel and analyzed with IBM SPSS version 20. Descriptive statistic (percentages) was used to summarize baseline characteristics of the study subject. Association between the categorical variables was analyzed by using chi-square test.

## RESULTS

The current study has been conducted among all bank employees of the urban area of the district. After meeting the inclusion and exclusion criteria, data was collected from 577 bank employees. Out of 577 bank employees, 187 (32.4%) subjects were hypertensive leading to the prevalence of hypertension as 32.4% (Figure 1). Among hypertensive study subjects, 92 (49.2%) were aware of their hypertension status and other 95 (50.8%) were unaware of their hypertensive status (Table 1). Among the aware hypertensive study subjects, 78 (84.2%) had already started antihypertensive medication. Out of 78 hypertensive study subjects who were on antihypertensive medication, 54 (69.2%) had controlled blood pressure.



**Figure 1: Prevalence of hypertension among bank employees.**

Socio-demographic characteristic of bank employees has been summarized in Table 2. Maximum number of employees belonged to public sector banks (48.3%). Age group of 21-30 constituted maximum number of study subjects (32.8%). Males constituted 79% of study population. Majority of study subjects were married (75.9%). Study subjects with education till graduation or post-graduation constituted 41.8% of study population. In cadre of employment, clerical cadre was largest

constituting 36.4% of study population. These socio-demographic factors were assessed for having association with hypertension in study subjects by chi square test. Increasing age and higher cadre of employment were found to have statistically significant relationship with hypertension. However, association with type of bank, gender, religion, marital status and education was not statistically significant.

**Table 1: Distribution of bank employees on the basis of prevalence, awareness, treatment and control of hypertension.**

	Bank employees	
	Number	%
<b>Hypertensive</b>	187	32.4
<b>Non-hypertensive</b>	390	67.6
<b>Total</b>	577	100.0
<b>Awareness about being hypertensive</b>		
Yes	92	49.2
No	95	50.2
Total	187	100.0
<b>Treatment among aware hypertensive</b>		
Yes	78	84.2
No	14	15.8
Total	92	100.0
<b>Controlled status of hypertension being treated</b>		
Yes	54	69.2
No	24	30.8
Total	78	100.0

**Table 2: Socio-demographic characteristics of bank employees.**

Socio-demographic characteristics	Bank employees	
	Number	%
<b>Type of bank</b>		
Public sector	279	48.3
Private	91	15.8
Cooperative	207	35.9
<b>Age-wise distribution (years)</b>		
21-30	189	32.8
31-40	177	30.7
41-50	108	18.7
51-60	103	17.9
<b>Gender wise distribution</b>		
Male	456	79.0
Female	121	21.0
<b>Religion</b>		
Hindu	503	87.2
Muslim	44	07.6
Buddhist	23	4.0
Others	07	1.2
<b>Marital status</b>		
Married	438	75.9
Unmarried	135	23.4
Widowed	02	0.3

Continued.

Socio-demographic characteristics	Bank employees	
	Number	%
Divorced/separated	02	0.3
<b>Educational status</b>		
Secondary	55	9.5
Higher secondary	67	11.6
Graduation/post-graduation	241	41.8
Professional	214	37.1
<b>Cadre of employment</b>		
Manager	138	23.9
Officer	144	25.0
Clerk	210	36.4
Sub staff	85	14.7

Table 3: Important determinants of hypertension among bank employees.

Characteristics	Bank employees	
	Number	%
<b>Family history of hypertension</b>		
Yes	124	21.5
No	453	78.5
<b>Alcohol consumption</b>		
Current	160	27.7
Former	33	05.7
Life time abstainer	384	66.6
<b>Smoking status</b>		
Current	63	10.9
Former	24	4.2
Life time abstainer	490	84.9
<b>Smokeless tobacco use</b>		
Current	78	13.5
Former	19	3.3
Life time abstainer	480	83.2
<b>Level of physical activity adequate</b>		
Inadequate	318	55.1
<b>Type of diet</b>		
Vegetarian	279	48.4
Mixed	298	51.6
<b>Habit of adding extra salt to a readily served food</b>		
Yes	230	39.9
No	347	60.1
<b>Fruit serving per week</b>		
≥7 serving	153	26.5
<7 serving	424	73.5
<b>Known diabetic status</b>		
Yes	60	10.4
No	517	89.6
<b>Body mass index status</b>		
<18.5	51	8.8
18.5-24.99	231	40.0
25-29.99	257	44.5
30-34.99	32	5.5
35-39.99	05	0.9
≥40	01	0.2

Continued.

Characteristics	Bank employees	
	Number	%
<b>Waist hip ratio</b>		
Normal	357	61.9
Raised	220	38.1

**Table 4: Association of hypertension among bank employees with socio-demographic characteristics.**

Socio-demographic characteristics	Hypertension		P value
	Present	Absent	
<b>Type of bank</b>			
Public sector	94	185	0.101
Private sector	36	55	
Cooperative	57	150	
<b>Age group (years)</b>			
21-30	32	157	<0.001
31-40	54	123	
41-50	49	59	
51-60	52	51	
<b>Gender</b>			
Male	148	308	0.963
Female	39	82	
<b>Religion</b>			
Hindu	162	341	0.938
Muslim	16	28	
Buddhist	7	16	
Other	2	5	
<b>Marital status</b>			
Married	153	285	0.129
Unmarried	32	103	
Widowed	1	1	
Divorced/separated	1	1	
<b>Education status</b>			
Secondary	18	37	0.198
Higher secondary	25	42	
Graduate/post graduate	86	155	
Professional	58	156	
<b>Employee cadre</b>			
Managerial	59	79	0.013
Official	48	96	
Clerical	55	155	
Sub staff	25	60	

**Table 5: Association of hypertension among bank employees with life style risk factors and other important characteristics.**

Life style risk factors and other important characteristics	Hypertension		Total
	Present	Absent	
<b>Family history of hypertension</b>			
Present	50	74	0.034
Absent	137	316	
<b>Alcohol consumption status</b>			
Current	101	59	0.365
Former	23	10	
Life time abstainer	266	118	
<b>Smoking status</b>			
Current	30	33	0.023
Former	8	16	
Life time abstainer	149	341	

Continued.

Life style risk factors and other important characteristics	Hypertension		Total
	Present	Absent	
<b>Smokeless tobacco use</b>			
Current	39	39	0.001
Former	8	11	
Life time abstainer	140	340	
<b>Physical activity</b>			
Adequate	91	227	0.031
Inadequate	96	163	
<b>Type of diet</b>			
Vegetarian	91	188	0.918
Mixed	96	202	
<b>Addition of extra salt</b>			
Yes	77	153	0.655
No	110	237	
<b>Number of fruit serving per week</b>			
≥7	39	114	0.033
<7	148	276	
<b>Known diabetic status</b>			
Yes	160	357	0.028
No	27	33	
<b>BMI</b>			
<18.5	11	40	0.003
≥18.5-24.99	61	170	
25-29.99	97	160	
>30	18	20	
<b>Waist hip ratio</b>			
Normal	102	255	0.012
Raised	85	135	

## DISCUSSION

In our study, the prevalence of hypertension among bank employees was found to be 32.4%. Similar findings were reported by the other researchers in the following studies. A cross-sectional study done by Momin et al in 2004-2005 on socio-demographic factors of hypertension among bank employees in Surat city showed a prevalence of hypertension to be 30.4%.<sup>13</sup> A cross-sectional study was done by Shivkrishna et al among bank employees of Belgaum city found the prevalence of hypertension to be 31%.<sup>17</sup> Lokare et al conducted a cross-sectional study in Hubli among 400 bank employees and found the prevalence of hypertension to be 38%.<sup>18</sup> Ismail et al conducted a cross-sectional study among employees of 13 bank located in Sullia.<sup>19</sup> A total of 117 bank employees were studied and they found the prevalence of hypertension to be 39.3% among them. Sumalatha et al conducted a cross-sectional study among bank employees in Bagalkot city and found the prevalence of hypertension to be 49.5%.<sup>20</sup> Brahmankar et al conducted a cross-sectional study among bank employees of Miraj district, Maharashtra.<sup>21</sup> Overall prevalence of hypertension was 39.7% among the study population. According WHO health statistics 2015, the prevalence of hypertension in India among ≥18 years is 25.9% in males and 24.8% in

females.<sup>22</sup> If we compare this national prevalence of hypertension to the finding in our study and similar studies on bank employees in India which is ranging from 30% to 50%; we can clearly suggest that prevalence of hypertension is definitely higher in bank employees compared to general population and bank employees have occupational risk of developing hypertension.

The present study found the age specific prevalence of hypertension among 21-30, 31-40, 41-50, 51-60 years to be 16.9%, 30.5%, 45.4% and 50.5% respectively and this age wise difference in prevalence was found to be highly significant ( $p < 0.001$ ). This result showed that as age increased the prevalence of hypertension also increased. Momin et al.<sup>13</sup> in their study on bank employees of Surat city found the prevalence of hypertension as 8.5%, 34.15, 74.7% and 100% among age groups of 20-29 years, 30-39 years, 40-49 and ≥50 years respectively. The increase in prevalence of hypertension was very highly significant ( $p < 0.001$ ) with increasing age. Similar increasing trend of prevalence of hypertension with age was reported by Maroof et al, Ismail et al, Ganesh Kumar et al.<sup>14,15,19</sup> In the present study, the prevalence of hypertension was more in managerial cadre (42.7%) compared to official cadre (33.3%), clerical cadre (26.2%), sub staff (29.4%) and this difference was found to be statistically significant. Similar finding of higher prevalence of

hypertension in managerial cadre followed by official cadre has also been reported Summalatha et al, Momin et al, Kumar et al in studies done among bank employees in various parts of India.<sup>13,15,20</sup> No significant was seen other sociodemographic factors like gender, type of bank, religion, marital status and education.

In life style risk factors, alcohol consumption more than 7 standard drinks per week, smoking, smokeless tobacco use, physical inactivity, fruit serving less than 7 per week, higher BMI, raised waist hip ratio were significantly associated with hypertension. However, no significant association was seen with type of diet, habit of adding salt to readily served food.

In the present study, only selected risk factors have been studied, all risk factors for hypertension could not be studied because of lack of resources. Since this study is cross-sectional in design it has an inherent weakness in finding temporality in associations. To comment on association it would be always better to do a case control study or a cohort study.

## CONCLUSION

From this study, it can be concluded that bank employees are occupational risk group for hypertension. Since increasing age was found to be significant risk factor for hypertension, regular screening is advisable at individual or at employer level. Higher cadre employees should be given special attention to prevent or control hypertension. High alcohol consumption should be discouraged among bank employees. Bank employees should be encouraged to abstain from smoking as well as smokeless tobacco. Physical activity should be encouraged in the form of either moderate physical activity of minimum 150 minutes/week or vigorous physical activity of minimum 75 minutes/ week among bank employees. Bank employees must be aware of importance of fruit in diet and should be encouraged to eat at least 1 serving of fruit each day. Bank employees who have already been diagnosed with diabetes should be made aware that they carry risk of also developing hypertension so thereby they must be encouraged to adopt a healthier lifestyle. Bank employees should be made aware that raised body mass index as well as raised waist hip ratio carry significant risk of developing hypertension. They should also be educated about various healthy ways by which they can maintain healthy weight and avoid central obesity.

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