Journal Menu

ation Guidelines

ssion

View

ssing Charges

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Journal Menu

» Home

» Aims & Scope

» Editorial Board

» Article Preparation Guidelines

» Online submission

» Articles Early View

» Current Issue

» Archive

» Article Processing Charges

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Research Article

Epidemiological Aspects of the High Blood Pressure in Occupational Environment-Case of a Bank in Cotonou (Benin)

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Abstract

Introduction: Due to the heavy burden of morbidity, mortality, and inability to work, hypertension is a major challenge in the workplace. The purpose of this study was to identify the epidemiological characteristics of hypertension among bank employees in Cotonou.

Methodology: This was a descriptive and transversal study of bank workers in Cotonou (Benin). The data were collected using the World Health Organization (WHO) STEPwise questionnaire adapted to our context, as well as blood pressure (BP), weight and abdominal perimeter measurement. Using bivariate and multivariate analysis, we analyzed the risk factor of the HBP.

Results: The average age was 37.9 ± 8.6 years; the predominance was with men (52.0%). The prevalence of hypertension was 25.3%. The multivariate analysis showed a significant relationship between the occurrence of hypertension and age (OR=1.08), lack of knowledge about preventive measures against hypertension (OR=4.15), work under pressure (OR=8.01) and obesity (OR=3.12). There is a significant relationship between hypertension and workstation (p=0.0113).

Conclusion: Our results should help the bank's decision-makers to develop a prevention program against hypertension by risk factors.

Keywords: Blood Pressure; Workplace; Risks Factors; Cotonou; Benin

1. Introduction

High blood pressure is a public health problem. The global prevalence of high blood pressure (defined as systolic and/or diastolic blood pressure ≥ 140/90 mmHg) in adults aged 18 years and older was approximately 22% in 2014 [1]. High blood pressure (HBP) is a major cardiovascular risk factor in cerebral vascular accidents, cardiac insufficiency, renal insufficiency and of coronary diseases (for example, severe coronary syndrome or myocardial infarction), all of which are responsible for the major causes of the death in the world [2-4]. Of the 17 million patients who die each year from cardiovascular disease, an estimated 7 to 8 million suffer from high blood pressure [5]. In 2010, HBP is one of the leading risk factors for mortality in the world and is estimated to have caused 9.4 million deaths and 7% of the disease burden [1]. According to the STEPS study, the prevalence of high blood pressure was significantly higher in urban areas (29.54%) than in rural areas (26.44%) ($p<0.01$). The prevalence of high blood pressure varies by continent and country.

In Africa, an estimated 20 million people are hypertensive [6], with a prevalence rate of 15% in Algeria, 30% in Mauritius, 20 to 35% in Gabon, 9.50% in Gambia [7], 22 to 41.60% in Togo [8.9] and 27.50% in Senegal [10]. The prevalence of high blood pressure in Benin in 2008 was 27.28% [11] and 28% in 2012 among men aged 30 to 64 years [12]. In 2012, 15% of deaths in Benin are due to cardiovascular diseases [12]. High blood pressure is now a major challenge for the entire population, but particularly in occupational areas with regard to the extent of morbidity, mortality, and work disability associated with this disease [13]. Indeed, several studies conducted in the workplace have shown a prevalence rate of 19.6% among employees of industrial enterprises in Tunisia [13], 29.7% among workers of the Port Authority of Abidjan [14], 28.9% among workers of a telecommunications company in Togo [15], 43.7% among workers of a private telecommunication company in Senegal [16], 49.3% among millers in Congo [17] and 32.5% among the employees of the Ministry of Health of Benin in 2012 [18]. The effects of occupational risk factors on the etiology and progression of hypertension are illustrated by numerous studies in countries. Some authors show high prevalence rates of high blood pressure among workers in Africa and industrialized countries [19-22].

A study conducted in Benin in 2012 on the Ministry of Health staff estimated that the prevalence rate of high blood pressure was 32.5% with a threshold of blood pressure (BP) ≥ 140/90 mmHg [18]. But so far, we do not have enough data on the prevalence and associated factors of high blood pressure among workers in financial institutions where they are subject to permanent work stress and a sedentary lifestyle. It is therefore important to know the epidemiological situation of high blood pressure among workers of financial institutions. This justifies the choice of this study whose main objective is to improve the prevention of high blood pressure in the workplace. The general objective of this study is as follows: Study of the epidemiological characteristics of high blood pressure among bank employees.

2. Method

The study was conducted in all branches of one of the banks in Cotonou. This was an observational and descriptive study conducted from August 03 to August 26, 2016. The target populations in our study included all bank workers

working in the urban area for at least 6 months and giving their informed consent.

2.1 Sampling and sample size

By non-probability sampling, we sampled all workers who met our criteria. They were given the World Health Organization (WHO) STEP wise questionnaire for Chronic Disease Risk Factor Surveillance [23] in step 1 and 2, which we adapted to our socio-demographic context and health conditions (STEP 3 for biological measurement was not relevant). In total, of the 234 workers we contacted, 225 were bank employees in Cotonou Municipality.

2.2 Data collection

The study was conducted in accordance with WHO's STEPwise approach: WHO steps 1 and 2 for noncommunicable disease surveillance in developing countries [21, 23]. Additional questions have also been added to better reflect Benin's context.

The variables we studied were:

- Socio-demographic and cultural data: Age, gender, marital status: married, single, divorced, widowed, religion, number of children in charge, ethnic group.
- Behavioral data: Consumption of fruit and vegetables, salt, tea, coffee, infusion, tobacco, alcohol, physical activities.
- Knowledge of High blood pressure (HBP) prevention measures: Personal and family history, blood pressure figures at the time of employment.
- Professional data: Highest degree, workstation, working time in the bank, work under pressure, the satisfaction of working conditions, number of hours of work per day.
- Anthropometric data: Height, weight, body weight index, abdominal perimeters.
- Blood pressure data

The questionnaire was administered to the workers at their place of work and the blood pressure values were measured with the electronic tensiometer "EKS Professional WHO" twice in a sitting position after 5 to 10 minutes of rest. The decision on blood pressure figures is taken based on the mean of the two measurements. The size of the worker is read on his identity card the day of the interview, the weight was taken with a balance "PAZZINI" scales and the abdominal perimeter is measured with a meter ribbon.

The categorization of the variables was done as follows:

- There is high blood pressure: If the worker has a personal history of HBP, or if the mean of the systolic blood pressure (TASm) is ≥ 140 mmHg and/or if the mean of the diastolic blood pressure (TADm) is ≥ 90 mmHg the day of the interview [24].
- Some variables were also recorded to allow logistic regression analysis:
- The level of education is said to be "high" when the highest degree is: a bachelor's degree, a master's degree or a doctorate and the level of education is said to be "low" in other cases.
- The workstation has been grouped into six (6) modalities depending on the risk: cashiers, customer services, administrative staff, including: human resources, archives, secretariat, reception, parcels and the

switchboard operation; control department includes workstations such as credit, general control, litigation, legal control, commissaries, accounting, recovery, treasurer, electronic banking and production, branch manager and finally other jobs including drivers, trainees, and others.

- The Length of service has been defined in two ways: "number of years" ≤ 10 years and "number of years" >10 years.
- There is Obesity if the Body Mass Index (BMI) is ≥ 30 kg/m², there is no Obesity in other cases [21, 25].
- There is abdominal Obesity if the abdominal perimeter is ≥ 102 cm for men, ≥ 88 cm for women, and there is no abdominal obesity in other cases. [21, 25]
- Regular physical activities: for this variable, we first defined a variable that corresponds to the "number of minutes of gymnastics per session" by converting in minutes the number of hours of sports activity by one session multiplied by the number of sessions per week. Physical activity is said to be regular if the number of minutes of sports activities per week is greater than 150 minutes, according to the recommendations of the WHO [26].
- The variable "Numbers of hours of work per day" is redefined in two (2) categories: ≤ 8 hours/day and >8 hours/day.

2.3 Data analysis

The analysis of the data, after verification of the keyboard input and the recording of certain variables, was carried out using the software: EpiInfo version 7.1.4.0 and Excel 2010 (Excel for diagrams in particular). For the description of the qualitative variables, we calculated the frequencies; and for the quantitative variables, we calculated the means as well as their standard deviations.

To identify the factors associated with high blood pressure, we performed bivariate and multivariate analysis. In the bivariate analysis, the association was considered sufficiently significant for a value of $p \leq 0.05$ and in order to appreciate the strength of this association, we calculated the odds ratio (OR) of the exposure and its 95% CI. To perform the multivariate analysis, the independent variables associated with high blood pressure at the 20% threshold ($p \leq 0.2$) in the bivariate analysis were retained first. This wide range ($p \leq 20\%$ instead of the classic 5% threshold) was used as a control for possible confounding factors, and finally, variables with a significant association were identified on the basis of $p \leq 0.05$. In the final model of the multivariate analysis, independent variables with a $p > 5\%$ were eliminated, according to the "step-by-step" elimination procedure.

3. Results

In total, of the 234 workers we contacted, 225 bank employees in the municipality of Cotonou participated in the study. The participation rate was therefore 96.15%.

3.1 Description of the sociodemographic and cultural characteristics

The gender-ratio between male/female was 1.08. The majority of the workers, we interviewed were Christians, which corresponds to 89.3%; 77.3% (n=174) were married and 20.4% were workers aged 18 to 59 with a mean of

37.9 ± 8.6 years. The mean number of children in charge was about 2.2 children ± 1.6, and 18.3% of them had at least 3 children in charge. The mean length of service of a worker was approximately 9.1 years ± 7.2. The mean number of working hours per day is about 9.2 ± 1.2. The weight of the workers interviewed varies between 41 and 191kg, with a mean of 76.2 ± 16.9. The mean abdominal perimeter was approximately 87.9 ± 13.5 and was between 60cm and 134cm in size (Table 1).

Variables	Mean	SD	Min	Q1	Median	Q3	Max
Age (years)	37.9	8.6	18.0	32.0	36.0	43.0	59.0
Weight (kg)	76.2	16.9	41.0	66.0	74.0	82.0	191.0
Abdominal perimeter (cm)	87.9	13.5	60.0	79.0	87.0	96.0	134.0
Seniority (years)	9.1	7.2	0.5	4.0	7.0	12.0	28.0
Hour worked a day	9.2	1.2	8.0	8.0	9.0	10.0	13.0
Dependent children	2.2	1.6	0.0	1.0	2.0	3.0	8.0

Table 1: Distribution of the workers' socio-demographic and cultural variables.

3.2 Description of the occupational characteristics

A total of 145 workers were working at the bank's central office: 64.4%. At least 41.3% (n=93) of workers have a bachelor's degree. 25.8% (n=58) of workers were cashiers and 12% (n=27) were in customer service. Of the 225 workers interviewed, 83.6% (n=188) reported working under pressure and 77.8% (n=175) were not satisfied with their working conditions (Table 2).

Variables	Modalities	Effective	%
Diploma	Low level of education	41	18.2
	High level of education	172	76.4
	Others	12	5.3
Agency	Central	145	64.4
	Others	80	35.6
Position held	Administration	7	3.1
	Archives	3	1.3
	Cashier	58	25.8
	Customers advisor	27	12
	Drivers	8	3.6
	Accounts department	12	5.3
	General control	3	1.3
	Credit	27	12.0
	Dispute	17	7.6

	Agencies managers	14	6.2
	Staff store	4	1.8
	Legal	5	2.2
	Human resources	7	3.1
Feel under pressure in your work?	Yes	188	83.6
	No	37	16.4
Are employees satisfied with the working conditions?	Yes	50	22.2
	No	175	77.8

Table 2: Distribution of the qualitative variables on the occupational features.

3.3 Prevalence of high blood pressure

We noted that 25.3% of the respondents have High blood pressure (Figure 1).

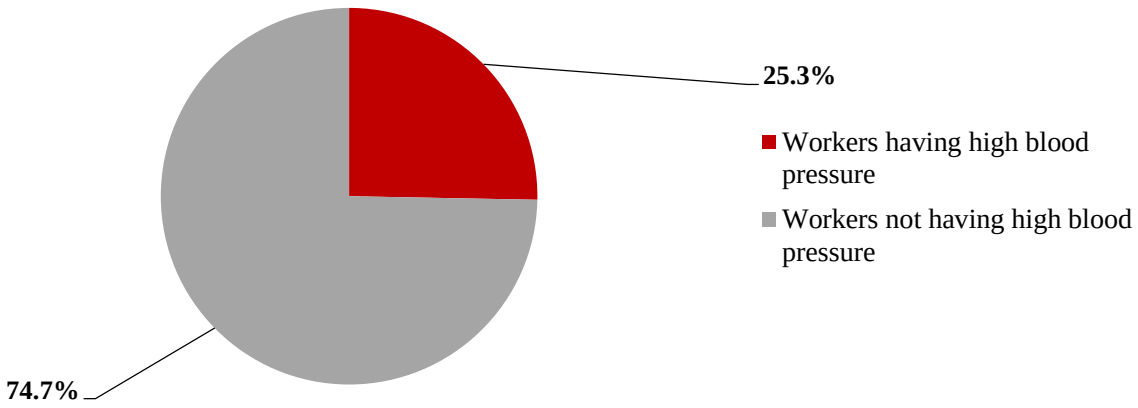

Figure 1: Prevalence of High blood pressure.

3.4 Risk factors of high blood pressure within the study population

In the bivariate analysis, the significant links to the 5% threshold between high blood pressure (HBP) among the workers interviewed relate to: age, number of children in charge, level of education, occupied workstation, length of service, work pressure, lack of awareness of HBP prevention measures, obesity and abdominal obesity (Table 3).

Logistic regression found that high blood pressure increased significantly with age, the number of children in charge, length of service, work under pressure, lack of knowledge about preventive measures for HBP, obesity and abdominal obesity (Table 3). The logistic regression has shown that high blood pressure increases significantly with age, the number of children in charge, length of service, work under pressure, ignorance of HBP prevention measures, obesity and abdominal obesity. On the other hand, it decreases considerably when the level of education is high. In general, the occurrence of high blood pressure is significantly related to a workstation ($p=0.0113$).

Cashiers are less exposed to high blood pressure than customer service managers, branch managers; but the link is not statistically significant (Table 4).

Risk factors		**HBP**		**p**
		Yes	No	
Gender	Male	33	84	0.3035
	Female	24	84	
Class age (years)	≤34	14	82	0.0001
	35-39	8	40	
	40-44	11	20	
	45-49	6	15	
	≥50	18	11	
Diploma	Low	22	31	0.0024
	High	35	137	
Seniority(years)	≤10	28	128	0.0001
	>10	29	40	
Hours worked	≤ 8h	21	78	0.2077
	>8h	36	90	
Feeling under pressure at work	Yes	52	136	0.0705
	No	5	32	
Obesity	Yes	18	20	0.0006
	No	39	148	
Abdominal obesity	Yes	25	36	0.0010
	No	32	132	
Knowledge of HBP prevention measures	Yes	31	137	0.0001
	No	26	31	

Table 3: Distribution of the HBP according to the risk factors.

Variables		**OR**	**$CI_{95\%}$**	**p**
Gender	Female		1	
	Male	1.4	[0.7; 2.5]	0.3035
Age	Years	1.1	[1.1; 1.1]	0.00001
Number of children in responsibility	Children	1.4	[1.2; 1.7]	0.0005
Level of diploma	Low		1	
	High	0.4	[0.2; 0.7]	0.0024

Workstation	Cashier		1	
	Checks	1.9	[0.8; 4.8]	0.1557
	Administration	5	[1.7; 14.5]	0.0030
	Account manager	1.4	[0.4; 4.8]	0.5743
	Branch manager	2.3	[0.6; 8.9]	0.2389
	Others	5.2	[1.7; 16.1]	0.0040
Seniority (years)	≤ 10		1	
	>10	3.3	[1.8; 6.2]	0.0002
Hours worked/day	≤ 8 hours		1	
	>8 hours	1.5	[0.8; 2.8]	0.2091
Pressure at work	No		1	
	Yes	2.4	[1.1;6.6]	0.0478
Satisfy working conditions	Yes		1	
	No	1.2	[0.6; 2.4]	0.6233
The regularity of the physical activity	No		1	
	Yes	0.9	[0.3; 2.3]	0.7786
Knowledge of the prevention measures of the HBP	Yes		1	
	No	3.7	[1.9; 7.1]	0.0001
Obesity	No		1	
	Yes	3.4	[1.6; 7.1]	0.0009
Abdominal obesity	No		1	
	Yes	2.9	[1.5; 5.4]	0.0013

Table 4: Relation between the HBP and the risk factors: logistic regression analysis.

3.5 Importance of the risk factors: a multivariate analysis

When we adjusted the variables by multivariate analysis, five risk factors are significantly related to high blood pressure: age, knowledge of high blood pressure prevention measures, obesity, workstation, and work under pressure (Table 5).

Variables		**OR**	**CI $_{95\%}$**	**p**
Age	Year	1.1	[1.1; 1.2]	0.0004
Knowledge of the prevention measures of the HBP	Yes		1	
	No	4.2	[1.8; 9.4]	0.0006
Feeling under pressure at work	No		1	
	Yes	8	[2.1; 31.2]	0.0027
Obesity	No		1	

	Yes	3.1	[1.3; 7.5]	0.0105
Workstation	Cashier		1	
	Checks	2.8	[0.8; 10]	0.1029
	Administration	1.7	[0.4; 6.4]	0.4377
	Account manager	0.5	[0.1; 2.9]	0.3186
	Branch manager	1.4	[0.5; 4.2]	0.5105
	Others	7.5	[1.9; 30.2]	0.0045

Table 5: Multivariate analysis of the importance of the risk factors identified for HBP.

4. Discussion

This study was conducted from August 3 to 26, 2016 in the bank's 18 branches in Cotonou and 64.4% of the workers were stationed at the central office. This study was carried out on the basis of the workers' declarations during the administration of the face-to-face questionnaire, as well as on the basis of anthropometric measurements taken on the day of the interview. A total of 225 workers participated in this study, which corresponds to a percentage of 96.15%. The limitations of our study can be found in the blood pressure measurement modality in a single visit to workers, even though it was repeated twice with each worker and three times when the values are recorded after 5 minutes of rest. Our study could have been carried out with all bank employees of the office throughout the Benin territory, but for reasons of convenience and for administrative formalities, we had limited it to the workers stationed in Cotonou. The number of 225 workers involved in the study is representative of all bank employees in the Atlantic and Littoral departments. Despite these limitations, our results are very important for the prevention of high blood pressure in the workplace.

4.1 Prevalence of high blood pressure (HBP) with bank workers

The prevalence of HBP in our study was 25.3%. We found that this prevalence was within the range estimated by WHO in sub-Saharan African countries (25-35%) [27]. This proportion is, on the one hand, higher than that obtained by Feliciana Chanana Paquissi et al. (17.93%) in Angola in 2016 [28], Douglas KE et al. (9.6%) among firefighters in the rivers state in Nigeria in 2015 [29]; and on the other hand, close to those obtained in the STEPS 2008 study (27.3%), by Bagarou S et al. in Togo in 2006 (28.9%) among the workers of a telecommunications company [15] and by Koffi et al. in Côte d 'Ivoire (29.7%) among the workers of the Port Authority of Abidjan in 2001 [14]. Moreover, the 25.3% prevalence of HBP recorded in our study is lower than those obtained in India in 2014 (44.3%) [30], Congo (Brazzaville) in 2006 (34.5%) [31], in Nigeria in 2014 (34.4%) among the workers of a bank [32]; in Senegal among the workers of a private telecommunication company (43.7%) [16], in Congo among the millers (49.3%) [17], in South Africa among primary health care professional nurses in Eastern Cape (52%) [33]. William K Bosu found in a systematic study of workers in West Africa that the prevalence ranged from 12.0% among automobile garage workers to 68.9% among traditional chiefs and typically sedentary workers such as

traders, bank workers, civil servants, and chiefs were at high risk [34], and in Benin among the workers of the ministry of health in 2012 (32.5%) [18].

This difference can be explained on the one hand by the target respondents and on the other hand, unlike the size of the sample which proves to be more important in these different studies compared to ours. The use of a special diet to balance blood pressure is adopted by 37.1% of workers with high blood pressure. This poses a problem of dietary and lifestyle measures, as 52.4% of them drink alcohol, 45.3% take herbal tea or other infusions, only 8.0% eat at least five (5) fruits, and vegetables a day, 16.0% have coffee at breakfast or at the break. These results have been reported in other studies [11, 14, 18, 32, 35]. In general, very few workers smoked a cigarette or other tobacco products, which is 1.3%. Regarding the consumption of a too salty meal, we found a proportion of 3.1% of workers. In other studies, larger proportions have been reported [14, 31, 32]. Therefore, Gombet TH et al. Reported 3.4% of bank employees in Brazzaville in 2006 [31] and Salaudeen AG et al. reported 32.2% of smokers among Nigerian bank employees in 2014 [32].

4.2 Factors associated with high blood pressure among bank workers

The male gender was predominant (52%) with a gender ratio of 1.08, and 28.2% of men had high blood pressure compared to 22.2% of women. In the majority of studies, the authors reported the predominance of the male gender in the workplace [14, 15, 16, 17, 18, 31, 32]. This could be explained by the low level of education of girls in developing countries. The prevalence of HBP in men compared to women is reported in many studies, including that obtained by Gombet TH et al. in 2006 (20.7% of men and 13.8% of women) [31] among employees of a bank in Congo and in 15 out of 40 studies concerning workers in West Africa reviewed, William Bosu found that the prevalence exceeded 30%. Sedentary workers such as traders, bank employees, civil servants, and the chiefs were at high risk. The prevalence increased with age and was higher among men and workers with high socioeconomic status [36]. Also in Bangladesh, Ali et al. found a higher prevalence among males (12.1%) than females (3.4%). Age and BMI showed a positive and significant correlation with high blood pressure [37].

However, gender in our study is not significantly associated with the incidence of high blood pressure in bank employees (IC95%=[0.7-2.5]), as reported by Feliciano et al. In Angola in 2016 has been established [28]. This result differs from that of Kpozèhouen A et al. and by Koffi NM et al. who found a significant association between gender and the incidence of high blood pressure in the workers of the Beninese Ministry of Health and in the workers of the Port Authority of Abidjan [14, 18]. William Bosu, in a review of the determinants of mean blood pressure and hypertension among workers in West Africa, found that hypertension was more common in men than in women [34].

The average age of our respondents was 37.9 ± 8.6 years. People over the age of 50 were more affected (62.1%). Those between 40 and 49 years old had a prevalence of about 30%. Therefore, it should be noted that the most experienced age groups were more affected, which could lead to a problem of continuity of work in this company. In the bivariate analysis, there was a significant association between age and onset of hypertension (OR=1.1;

IC95%=[1, 1-1.2]). This result is similar to the result of Ganesh Kumar et al. In India: Life in the 4th (OR: 3.13) or 6th (OR: 3.11) decade of life has been associated with hypertension among bank employees [30], by Bakary M in Bamako [33], by Kpozèhouen A et al. in Benin [18], by Salaudeen et al. in Nigeria [32] and by Feliciano et al. in Angola [28].

The workers had at least three (3) responsible children: 18.3% with an average of 2.2 ± 1.6 children for extreme cases from 0 to 8 children. After the bivariate analysis, there is a significant correlation between the number of responsible children and the occurrence of HBP. The more children there are, the higher the risk that the worker has high blood pressure. Thus, the size of the household is a risk factor for the occurrence of HBP (OR=1.4, IC95%=[1.2-1.7]). Kpozèhouen A, et al. reported the same result in their study (OR=2.5 IC95%=[1.4-4.6]) [18]. Of the workers who said they did not know much about the prevention of HBP, 54.4% had high blood pressure, compared with 18.5% among the workers, who explained the knowledge about the measures. As in other studies [15, 18], the bivariate analysis has a significant correlation between workers' knowledge about the prevention of HBP and the occurrence of hypertension (p=0.0001).

In the bank, 56.0% of the workers are overweight, and among them, 39.1% were severely overweight. 47.4% of obese workers had high blood pressure compared to 20.9% of non-obese workers. As for abdominal obesity, 41.0% of the workers who have abdominal obesity have high blood pressure, compared to 19.5% of the workers who did not have abdominal obesity. In the bivariate analysis, overweight, and abdominal obesity are significantly associated with the onset of high blood pressure. Obese workers have 3.4 times the risk of high blood pressure (IC95%=[1.6-7.1]), and more specifically, those who suffer from abdominal obesity are 2.86 times more likely the risk of hypertension (IC95%=[1.5 -5.4]). This observation has been reported in many studies [14, 17, 18, 28, 31, 35] showing that overweight and abdominal obesity in the abdomen increases the risk of not only HBP but also cardiovascular accidents (CVA) and increase the risk of death. It is therefore important that an occupational health-related intervention is organized and carried out for bank employees. Sporting activities were carried out by bank employees in 53.8% of cases, but only 26 out of 225 employees (11.6%) regularly participated in sports activities.

Regardless of whether these sports activities are regular or not, the proportion of high blood pressure is almost identical (10.5% vs. 11.9%), and there is no significant correlation between the occurrence of high blood pressure and the regularity of physical activity. On the other hand, it is recognized in the literature that regular physical exercises have an influence on the occurrence of hypertension [31, 35, 38]; In India, Ganesh et al. found that physical activity ≥ 2 hours a day (OR: 0.21) was associated with bank hypertension [30]. This difference could be explained by the fact that in our study, the majority of the workers practice a sports activity (53, 8%) and the proportion of high blood pressure workers was similar regardless of whether the sports activity was regular or not. This bivariate analysis showed a significant relationship between the level of education, i.e. the degrees obtained by the workers and the occurrence of high blood pressure: OR=0.4; IC95%=[0.2; 0.7]).

The workers with at least a bachelor's degree are less likely to develop high blood pressure than other less-educated workers (low level of education 41.5% versus a high level of education 20.3%). The level of education seems to have a protective effect on the onset of hypertension. This could be explained by the fact that the higher the level of education, the more likely workers are to better understand the information on HBP prevention, and the more easily they have access to information about health care (74.7% of the workers we interviewed knew about the measures of prevention against HBP). In the bank, 172 of the 225 employees interviewed have at least a bachelor's degree (76.44%); This may also explain the low proportion of people with high blood pressure observed in this study compared to some previous studies. Numerous similar studies have reported the great influence of educational level on the occurrence of high blood pressure [35, 39]. Although, work under pressure was significantly associated with the occurrence of high blood pressure in our bivariate analysis (p=0.0478), satisfaction with working conditions (p=0.6233) and the number of working hours per day (p=0.2091). The opposite is not the case. Out of 188 workers (83.6%) who reported working under pressure, 27.7% had high blood pressure, compared to 13.5% of those with high blood pressure who said they did not work under pressure. “Stress” is described in some studies as a factor contributing to the occurrence of high blood pressure [31, 40, 41]. On the other hand, Kpozèhouen A et al. did not object that the workers of the Ministry of Health had a significant relationship between high blood pressure and occupational stress (16.9%) [18]. In general, we found a significant relationship between the busy workstation and the occurrence of high blood pressure (p=0.0113). Although the cashiers are stressed by the customers, they were less exposed than the other workstations, especially the staff of the bank's administration is exposed to the risk of high blood pressure. With respect to the length of service of bank employees, high blood pressure was significantly higher among those with more than 10 years of service (42.0%) compared to those with less than 10 years of service (17.9%). The risk of HBP occurrence is 3.3 times higher for workers with more than 10 years of service (OR=3.3, p=0.0002). In their studies, Kpozèhouen A in Benin [18] and Koffi NM et al. in Côte d'Ivoire [14] made the same observations.

4.3 Importance of the risk factors

When we adjusted the variables by multivariate analysis, five factors are significantly associated with the occurrence of high blood pressure among bank employees posted in the Cotonou municipality. High blood pressure of 4.15 among workers who did not know much about preventive measures against the HBP compared to workers who were aware of prevention measures (OR=4.2, IC95%=[1.8 9.4]). Regardless of the adjustment carried out based on age, workstation, obesity, and working under pressure, obese workers are 3.12 times more likely to develop high blood pressure than non-obese workers. (OR=3.1, p=0.0105), regardless of the type of obesity adjusted to the other variables. When the age of workers increases by one year, the frequency of high blood pressure increases by 1.08 (OR=1.1, IC95%=[1.1, 1.2], regardless of the adjusted age of other variables, Workers who reported working under pressure were 8.01 times more likely to develop high blood pressure (OR=8, p=0.0027), regardless of adjusted work pressure on the other variables: In general, there is a strong relationship between high blood pressure and workstation. In particular, the occurrence of high blood pressure increases by 7.52 times when the workers occupy a position other than the cashier (OR=7.5, p=0.0045) to the other variables.

5. Conclusion

This study helps us identify in the multivariate analysis five risk factors statistically associated with the occurrence of high blood pressure in bank employees: age of workers, lack of knowledge about high blood pressure prevention measures, obesity, workstation, and working under pressure. Efforts are therefore needed to strengthen the information and education of bank employees on the prevention of high blood pressure, the fight against obesity and the effective management of stress in the workplace. These results are very important for bank decision-makers, and especially for occupational health services, in order to develop a schedule for the prevention of high blood pressure.

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Conflict of Interest

None

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