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Prevalence and Factors Associated with High Blood Pressure in Mining Workers in Franceville, Gabon in the Year 2023

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Abstract

Aim of Study: To determine the prevalence and the factors associated with arterial hypertension (AH) among workers in the mines of Franceville, Gabon, in the year 2023. **Patients and Methods**: We conducted a cross-sectional, analytical study at the Polyclinique du Haut Ogooué (PHO) in Franceville, Gabon, between 1 January and 31 December 2023. Employees of a mining company were selected by purposive sampling. Socioprofessional, clinical and biological data were collected using an anonymous questionnaire. The statistical study was performed using Epi Info 7.2.6 software. Factors associated with the occurrence of hypertension were determined by logistic regression at the α = 7% level and at the p < 5% significance level. **Results**: We included 288 participants, with a male predominance (86.46%). The median age was 39 years [22 - 93 years]. Most participants were blue-collar workers (49.31%), and the majority worked night shifts (71.18%). More than half of the participants were overweight or obese (60.42%). The prevalence of hypertension was 44.79%. Multivariate logistic regression identified two factors associated with incident hypertension: a history of diabetes (OR 36.42 [4.07 - 325.89], p = 0.00) and

alcohol consumption (OR 1.99 [1.21 - 3.31], p = 0.007). **Conclusion**: The study revealed a high prevalence of hypertension and two associated predictive factors in this mining company. It is therefore necessary to set up an occupational health department within the company. This will contribute to better screening, prevention and health promotion strategies.

Keywords

Arterial Hypertension, Mine, Franceville, Prevalence, Gabon

1. Introduction

The fight against non-communicable diseases is an important issue in the general population and in the workplace. Studies have highlighted the occupational risks that can influence the onset of cardiovascular disease, with hypertension being the most common pathology [1]. It remains a public health problem in sub-Saharan Africa because of its prevalence and its association with cardiovascular and renal disease [2] [3]. In 2010, it affected 1.39 billion adults worldwide, three-quarters of whom lived in developing countries [4]. As a result of its morbidity and mortality, hypertension leads to an increase in sickness absence, permanent disability, occupational accidents, unemployment and a significant loss of productivity for the company and, most importantly, for the employee [5]. Studies of hypertension in the workplace have shown high prevalence rates [3] [6]. Other studies conducted in Africa, Europe, Canada and the United States have also confirmed the high prevalence of hypertension among workers, suggesting a relationship between the onset of hypertension and work [7]-[12]. This association is all the more pronounced as studies have highlighted the impact of work activities and the work environment on the development of hypertension, particularly occupational stress [13] [14], shift work [15] and occupational noise [16]. Studies have also highlighted the link between socio-demographic characteristics (such as age) and workers' habits and lifestyles (such as obesity, excessive salt consumption, alcohol consumption and smoking) and the onset of hypertension [15] [17] [18]. This research confirms the need to pay special attention to this pathology in the workplace. This condition also affects the occupational environment in Gabon to varying degrees depending on the field of activity. Studies on the prevalence of hypertension in the workplace have found the following rates: 45.2% in hospitals [19]; between 13.48% and 37% in the oil industry [20] [21]; 39.9% in mining [6]; and 35.2% in construction [22]. These studies report an association between the onset of hypertension and age, sex, alcohol consumption, smoking, and body mass index [6] [22]. Understanding these risk factors is essential for developing effective preventive strategies and combatting hypertension. However, very few studies have been carried out in the mining sector, despite it being a fairly important area of activity in the country. To strengthen the prevention and medical surveillance of workers in this sector,

we investigated whether other risk factors might be associated with the onset of hypertension, such as diabetes, exposure to noise and night shift work. The present study was conducted for this purpose. It aimed to estimate the prevalence of hypertension and identify the associated factors in mine workers in Franceville, Gabon.

2. Patients and Methods

2.1. Type, Duration and Place of Study

The study was cross-sectional and analytical. It took place over 12 months, from 1 January to 31 December 2023, at the Polyclinic du Haut Ogooué (PHO) in Franceville. It was conducted during the periodic medical check-ups of workers at a mining company located three kilometres from Franceville, the capital of the Haut-Ogooué province in south-eastern Gabon. The company mines manganese in open pits and operates continuously. Eight-hour shifts (morning, evening and night) are standard at the sites. The company employed 321 workers to carry out various activities. The PHO Occupational Health Service was responsible for conducting the workers' periodic medical examinations.

2.2. Study Population and Sample Size

The study population consisted of all employees of the mining company who underwent a periodic medical examination at the PHO in 2023.

The minimum sample size for the study was calculated using Cochran's formula [23].

$$n = \left(\left[Z^2 \times P(1-P)\right]\right) / m^2$$

A flat prevalence of 50% and an error threshold of $\alpha = 7\%$.

Assuming a non-response rate of 10%.

Where ns = sample size to adjust for non-response

0.90 = the expected response rate is assumed to be 90%.

ns = n/0.90

ns = 196/0.90

ns = 217.77, *i.e.*, approximately 218 workers for the minimum sample size required for our study.

We used an exhaustive sample in our study.

All voluntary workers from the mining company who agreed to participate in the study and gave their consent were included. Absent workers and those who had not completed their medical examinations at the PHO in 2023 were excluded from the study.

2.3. Study Variables

The dependent variable of the study was arterial hypertension and the independent variables were as follows:

- Socio-professional factors: age, sex, department, professional category, length

of service, night shift, exposure to high noise levels;
- Clinical factors: medical history (Arterial hypertension, diabetes, renal abnormalities), weight, height, blood pressure, heart rate, clinical examination, body mass index (BMI) and biology (fasting blood glucose, creatinine, urea and urine dipstick);
- Lifestyle factors: physical activity, alcohol consumption, smoking.

2.4. Collecting Data

Data was collected using an anonymous questionnaire that included socio-professional, clinical, biological and environmental data. The questionnaire has been validated by the Haut Ogooué Provincial Ethics Committee. It was inspired by the STEPS questionnaire developed by the World Health Organization (WHO).

On the day of the medical examination, the workers arrived at the PHO on an empty stomach in the morning, as scheduled by the human resources department of the mining company. At the reception desk, they provided their identity and telephone number, after which the computer automatically assigned them an identifier. They were then taken to the room for medical examinations. Each worker was informed about the survey, their anonymity, the confidentiality of the data, and their right to refuse to participate in the study. After the parameters had been taken, the research team administered the questionnaire to all workers who had given verbal consent. The workers then underwent clinical examinations, imaging tests and biological testing.

In the sampling room, an experienced biologist took blood samples using elbow venipuncture. The samples were collected in tubes containing:
- Ethylenediaminetetraacetic acid (EDTA) for a complete blood count (CBC);
- Sodium fluoride for blood sugar levels;
- Dry tubes for other biochemical parameters, particularly urea and creatinine. The samples were taken after an 11-hour fast, between 8:00 and 10:00 in the morning, and after 24 hours of intense physical inactivity. The samples were taken immediately to the laboratory for analysis. The following day, each worker deposited their urine in a sterile pot at the PHO, after being informed of the conditions under which the urine had been collected.

2.5. Instruments Used to Measure the Study

- Blood pressure (BP) was measured using a Cooper Torm electronic sphygmomanometer. Each subject had three BP readings taken systematically at five-minute intervals on both arms after resting for ten to fifteen minutes in a seated position in a quiet environment, away from food and tobacco. The average of these readings was used;
- Weight was measured using a well-calibrated KINLEE scale placed on a stable, flat surface with a lightly dressed, unshod person standing on it. The result was expressed in kilograms (kg). Height in centimetres (cm) was measured using a portable height meter on individuals without shoes or hats. Body mass index

(BMI) was calculated by dividing weight (in kg) by the square of height (in metres);
- Biological tests (fasting blood glucose, urea, and creatinine) were performed using a HUMASTAR100;
- A urine dipstick test was carried out using the Reactif kit (lot URS2040084, ref. 4110-L), which includes tests for the presence of various substances, such as leucocytes, nitrites, proteins, glucose and blood;
- The company's health and safety department conducted noise mapping using a Testo 815 sound level meter. This revealed high levels of noise pollution, ranging from 85 to 102 Decibel, particularly in the factories. Elsewhere in the company, noise levels were below 80 Decibel. The individual exposure of workers was assessed based on actual noise measurements taken at each workstation.

2.6. Operational Definitions

- According to the criteria of the World Health Organization (WHO) and the Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC7), a worker was considered to have hypertension (AH+) if their systolic blood pressure (SBP) was greater than or equal to 140 mmHg and/or their diastolic blood pressure (DBP) was greater than or equal to 90 mmHg. Subjects with normal blood pressure who were taking antihypertensive medication were also considered hypertensive;
- Individuals were categorised as follows: lean (BMI less than 18 kg/m^2); normal weight (BMI greater than or equal to 18 and less than 25 kg/m^2); overweight (BMI between 25 and 30 kg/m^2); and obese (BMI greater than or equal to 30 kg/m^2);
- Alcohol dependence was defined as drinking more than 3 glasses of beer per day in men and 2 glasses of beer per day in women;
- Hyperglycaemia was defined as having two fasting blood glucose levels of 1.26 g/dL or more. It was also identified in workers with a history of hyperglycaemia;
- Renal impairment was considered in workers with elevated creatinine levels (0.70 - 1.20 mg/dL in men and 0.50 - 0.90 mg/dL in women) and/or elevated urea levels (16.6 - 48.0 mg/dL in both men and women). It was also considered in people with a history of kidney damage;
- A sedentary lifestyle was defined as having no daily physical activity or engaging in less than 150 minutes of physical activity per week;
- Active smoking was considered a risk factor if the individual was a current smoker or had recently quit.

2.7. Data Analysis

The data was analysed using Epi Info 7.2.6 software. The results were presented in descriptive and analytical form according to the type of variable. Analysis was

performed using Fisher's exact test (qualitative variables) and the non-parametric Kruskal-Wallis test (qualitative variables), which allowed comparisons between groups at the threshold of $\alpha = 7\%$, $p < 5\%$. Logistic regression was used to search for associations between arterial hypertension and other variables. This was performed at an inclusion threshold of 0.2.

2.8. Ethical Approval

An anonymous questionnaire was used. Participants gave their consent before taking part in the study. The work described does not involve experiments on patients, human subjects or animals. All the tenets of the Declaration of Helsinki concerning human subjects in research were followed during data collection. Ethical approval was obtained from the Regional Ethics Committee of the Province of Haut-Ogooué (PROT N˚14/2023/MSAS/DRSSEF).

3. Results

3.1. Socio-Professional Characteristics of the Participants

Of the 295 workers who underwent a medical examination at the PHO in 2023, a total of 288 were included in the study (97.63%), of whom 249 (86.46%) were men. The sex ratio was 6.38 (M/F). The mean age was 39 years [Range 22 - 93 years]. Half of the respondents were blue-collar workers (49.31%) and the vast majority had been with the company for less than 10 years (93.4%). (Table 1).

Table 1. Socio-professional characteristics of the subjects surveyed.

Variables	n = 288
Age (Years)	
Median age (IIQ)	39 (22 - 93)
<=30 (n = 31)	10.6%
>30 - 50 (n = 236)	81.94%
>50 (n = 21)	7.30%
Sex	
Woman (n = 39)	13.54%
Man (n = 249)	86.46%
Job category	
Foreman (n = 39)	13.54%
Framework (n = 27)	9.38%
Management (n = 4)	1.39%
Worker (n = 142)	49.30%
Intern (n = 28)	9.72%
Technician (n = 48)	16.67%

Continued

Seniority (Years)	
<=5 (n = 137)	47.57%
>5 - 10 (n = 132)	45.83%
>10 (n = 19)	6.60%
Quarter night	
Yes (n = 205)	71.18%
No (n = 83)	28.82%
Exposure to loud noise	
Yes (n = 36)	12.5%
No (n = 252)	87.5%

IIQ: Interquartile II.

3.2. Clinical and Biological Characteristics of the Participants

The majority of respondents (85.42%) had no history of cardiovascular disease, and around one-eighth (12.16%) had a history of hypertension. Over half of the respondents were overweight or obese (60.42%) and drank alcohol (54.17%). Hypertension was prevalent in 44.79% of respondents, 42% of whom had renal abnormalities. Five of these individuals received an emergency nephrological consultation (Table 2).

Table 2. Clinical and biological of the subjects surveyed.

Variables	n = 288
Medical history	
Diabetes (n = 7)	2.42%
AH (n = 35)	12.16%
None (n = 246)	85.42%
Alcohol	
Yes (n = 156)	54.17%
No (n = 132)	45.83%
Tabacco	
Yes (n = 45)	15.62%
No (n = 243)	84.38%
BMI	
BMI median (IIQ)	26 (15 - 54)
Under-nutrition (n = 3)	1.04%
Normal (n = 111)	38.54%
Overweight (n = 111)	38.54%
Obesity (n = 63)	21.88%
Pratising sport	
Yes (n = 16)	5.56%
No (n = 272)	94.44%
Median heart rate (IIQ)	78 (40 - 112)

Continued	
AH	
Yes (n = 129)	44.79%
No (n = 159)	55.21%
Kidney damage	
Yes (n = 121)	42%
No (n = 167)	58%
DBP median (IIQ)	86 (52 - 118)
SBP median (IIQ)	134 (94 - 191)
Hyperglycaemia	
Yes (n = 15)	5.21%
No (n = 273)	94.79%

DBP: Diastolic blood pressure; SBP: Systolic blood pressure; BMI: Body Mass Index; AH: Arterial Hypertension.

3.3. Associated Factors

According to the results of the univariate analysis, the occurrence of arterial hypertension was associated with age (OR 0.32 [0.13 - 0.77], p = 0.00), occupational category (OR 0.37 [0.15 - 0.91], p = 0.02), seniority (OR 0.46 [0.28 - 0.74], p = 0.00), history of diabetes (OR 7.71 [0.91 - 64.86], p = 0.03) and alcohol consumption (OR 2.25 [1.39 - 3.63], p = 0.00) (Table 3 and Table 4).

Multivariate analysis identified two factors associated with incident arterial hypertension: a history of diabetes (OR = 36.42 [4.07 - 325.89], p = 0.00) and alcohol consumption (OR = 1.99 [1.21 - 3.31], p = 0.007) (Table 5).

Table 3. Univariate analysis, association between risk factors and the AH.

	AH (+)	AH (−)	P value	Univariate analysis		
				Odds ratio	Trusted interval at 95%	
Age (Years)						
<=30 (n = 31)	7 (22.58%)	24 (77.42%)	**0.00**	0.32	0.13	0.77
>30 - 50 (n = 236)	107 (45.34%)	129 (54.66%)	0.40	1.13	0.61	2.07
>50 (n = 21)	15 (71.43%)	6 (28.57%)	**0.00**	3.35	1.26	8.91
Sex						
Woman (n = 39)	16 (41.03%)	23 (58.97%)	0.37	0.83	0.42	1.66
Man (n = 249)	113 (45.38%)	136 (54.62%)	0.37	1.19	0.60	2.36
Job category						
Supervisor (n = 39)	22 (56.41%)	17 (43.59%)	0.08	1.71	0.86	3.39
Management (n = 4)	3 (75%)	1 (25%)	0.23	3.76	0.38	36.60
Worker (n = 142)	70 (49.3%)	72 (50.7%)	0.08	1.43	0.89	2.28
Intern (n = 28)	7 (25%)	21 (75%)	**0.02**	0.37	0.15	0.91
Technician (n = 48)	16 (33.33%)	32 (66.67%)	0.05	0.56	0.29	1.07

Continued

Seniority						
<=5 (n = 137)	48 (35.04%)	89 (64.96%)	**0.00**	0.46	0.28	0.74
>5 - 10 (n = 132)	70 (53.03%)	62 (46.97%)	**0.00**	1.85	1.15	2.97
>10 (n = 19)	11 (57.89%)	8 (42.11%)	0.17	1.75	0.68	4.51
Exposure to loud noise						
Yes (n = 36)	15 (41.67%)	21 (58.33%)	0.41	0.86	0.42	1.75
No (n = 252)	114 (45.24%)	138 (54.76%)	0.41	1.15	0.57	2.34
Quarter night						
Yes (n = 205)	89 (43.41%)	116 (56.59%)	0.27	0.82	0.49	1.37
No (n = 83)	40 (48.19%)	43 (51.81%)	0.27	1.21	0.72	2.02

AH: Arterial Hypertension.

Table 4. Univariate analysis, association between risk factors and the AH.

	AH (+)	AH (−)	P-value	Univariate analysis		
				Odds ratio	Truste interval at 95%	
Medical history						
Diabetes (n = 7)	6 (14.29%)	1 (85.71%)	**0.03**	7.71	0.91	64.86
None (n = 246)	88 (35.77%)	158 (64.23%)	**0.00**	0.01	0.00	0.10
Alcohol						
Yes (n = 156)	84 (53.85%)	72 (46.15%)	**0.00**	2.25	1.39	3.63
No (n = 132)	45 (34.09%)	87 (65.91%)	**0.00**	0.44	0.27	0.71
Tabacco						
Yes (n = 45)	24 (53.33%)	21 (46.67%)	0.13	1.50	0.79	2.84
No (n = 243)	105 (43.21%)	138 (56.79%)	0.13	0.66	0.35	1.20
Pratising sport						
Yes (n = 16)	10 (62.5%)	6 (37.5%)	0.11	2.14	0.75	6.06
No (n = 272)	119 (43.75%)	153 (56.25%)	0.11	0.46	0.16	1.32
Kidney damage						
Yes (n = 121)	56 (46.28%)	65 (53.72%)	0.37	1.10	0.69	1.77
No (n = 167)	73 (43.71%)	94 (56.29%)	0.37	0.90	0.56	1.44
Biochemistry						
High urea (n = 6)	4 (66.67%)	2 (33.33%)	0.24	2.51	0.45	13.93
High creatinine (n = 63)	32 (50.79%)	31 (49.21%)	0.17	1.36	0.77	2.38
Hyperglycemia (n = 15)	10 (66.67%)	5 (33.33%)	0.06	2.58	0.86	7.77

AH: Arterial Hypertension.

Table 5. Multivariate analysis, association between risk factors and the AH.

			Univariate analysis			Multivariate analysis			
	AH (+)	AH (−)	P-value	Odds ratio	Truste interval at 95%		P-value	Odds ratio	Truste interval at 95%	
Age										
<=30	7 (22.58%)	24 (77.42%)	0.001	0.32	0.13	0.77	0.58	0.97	0.373	2.55
>30 - 50	107 (45.34%)	129 (54.66%)	0.4	1.13	0.61	2.07	-	-	-	-
>50	15 (71.43%)	6 (28.57%)	0.001	3.35	1.26	8.91	0.59	1.02	0.36	2.89
Job category										
Supervisor	22 (56.41%)	17 (43.59%)	0.08	1.71	0.86	3.39	-	-	-	-
Management	3 (75%)	1 (25%)	0.23	3.76	0.38	36.6	-	-	-	-
Worker	70 (49.3%)	72 (50.7%)	0.08	1.43	0.89	2.28	-	-	-	-
Intern	7 (25%)	21 (75%)	0.02	0.37	0.15	0.91	0.58	1	0.37	2.63
Technician	16 (33.33%)	32 (66.67%)	0.05	0.56	0.29	1.07	-	-	-	-
Seniority										
<=5	48 (35.04%)	89 (64.96%)	0.001	0.46	0.28	0.74	0.55	1	0.58	1.71
>5 - 10	70 (53.03%)	62 (46.97%)	0.001	1.85	1.15	2.97	0.43	0.92	0.55	1.55
>10	11 (57.89%)	8 (42.11%)	0.17	1.75	0.68	4.51	-	-	-	-
Medical history										
Diabetes	6 (14.29%)	1 (85.71%)	0.03	7.71	0.91	64.86	**0.00**	36.42	4.07	325.89
None	88 (35.77%)	158 (64.23%)	0.00	0.01	0	0.1	0.52	1.02	0.62	1.65
Alcohol										
Yes	84 (53.85%)	72 (46.15%)	0.00	2.25	1.39	3.63	**0.007**	1.99	1.21	3.31
No	45 (34.09%)	87 (65.91%)	0.00	0.44	0.27	0.71	0.000	2.55	1.72	3.80
Tabacco										
Yes (n = 45)	24 (53.33%)	21 (46.67%)	0.13	1.50	0.79	2.84	0.21	2.24	1.43	4.52
No (n = 243)	105 (43.21%)	138 (56.79%)	0.13	0.66	0.35	1.20	0.20	1.12	0.61	2.27
Pratising sport										
Yes (n = 16)	10 (62.5%)	6 (37.5%)	0.11	2.14	0.75	6.06	0.19	3.41	0.87	7.83
No (n = 272)	119 (43.75%)	153 (56.25%)	0.11	0.46	0.16	1.32	0.18	3.55	2.53	4.99
Biochemistry										
High urea (n = 6)	4 (66.67%)	2 (33.33%)	0.24	2.51	0.45	13.93	1.20	0.58	0.074	1.12
High creatinine (n = 63)	32 (50.79%)	31 (49.21%)	0.17	1.36	0.77	2.38	0.131	1.61	1.03	2.52
Hyperglycemia (n = 15)	10 (66.67%)	5 (33.33%)	0.06	2.58	0.86	7.77	0.22	0.075	0.031	0.18

AH: Arterial Hypertension.

4. Discussion

The aim of our study was to determine the prevalence of hypertension and its associated factors among mining workers. We found that the prevalence of high

blood pressure was 44.79%. We found that hypertension was associated with a history of diabetes and alcohol consumption.

4.1. Limits of the Study

The study may be weakened by selection and confounding biases related to the type of study and the possibility of essential hypertension. However, the methodology we employed mitigated the impact of these biases. Logistic regression was used to address confounding bias. Selection bias was mitigated by calculating the minimum sample size and accounting for a 10% non-response rate. Nevertheless, our results must be interpreted with great caution, given that the study did not include all workers in the country's mining sector.

4.2. Socio-Professional Characteristics of the Participants

In our study, we found a strong male predominance of 86.46%. This may be related to the nature of the work in the African context in which our study was conducted. In the mining sector, for example, women are more likely to occupy administrative roles, which are generally considered to be less demanding. Several studies in this country and elsewhere support our findings [3] [21] [22] [24]. We also found that the vast majority of participants (71.18%) worked night shifts. This finding may also explain why there are few women working in this company, particularly in an African context where women are generally responsible for raising children at home.

4.3. Clinical and Biological Characteristics of the Participants

The study showed a high prevalence of hypertension (44.79%). Our results were similar to those found in hospitals in Gabon (45.2%), among noise-exposed workers in Taiwan region (43.5%), and in Saudi Arabia, Ethiopia and Thailand (44% and 45%, respectively) [10] [20] [25]-[27]. However, they were lower than the prevalence reported in several studies in the occupational literature [12] [28]. However, our results were higher than those reported in several studies in occupational settings in Gabon (13.48%, 35.2%, 37%, 39.9%), the Democratic Republic of Congo (32.5%) and Senegal (17%) [3] [6] [11] [19] [21] [22]. These differences in the prevalence of hypertension within and between countries could be explained by variations in occupational activities and working conditions within each company [12] [25]. Additionally, changing lifestyles and the increasing prevalence of non-communicable diseases, such as cardiovascular disease, could also explain these differences [29].

4.4. Associated Factors

Univariate/multivariate analysis

In our study, we found that factors such as age, history of diabetes, alcohol consumption, occupational category, and duration of work were associated with the development of hypertension. Our results confirm those reported in the literature

regarding the association of these factors with hypertension development [3] [6] [24] [30] [31]. However, factors such as night shift work and noise exposure were not associated with the development of hypertension in our study. Our results differ from those reported in the literature on this subject [25] [32]. Additionally, obesity was not associated with the development of hypertension in our study. Our results also differed from those reported in the literature on this subject [3] [10] [33]. This difference may be related to the small sample size of our study. The history of diabetes and alcohol consumption were the only two factors that predicted the development of hypertension in our study. High blood pressure results from too much pressure in the arteries. This can be caused by endothelial dysfunction, vascular inflammation, arterial remodelling, atherosclerosis, and many other factors associated with diabetes onset. This justifies the strong link between diabetes and hypertension [34]. Our results are consistent with those reported in the literature [3] [30] [31] [35]. Furthermore, a study conducted by Makosso *et al*. in 2025 at a mining company in Moanda, Gabon, also found that alcohol consumption was a factor associated with the onset of hypertension. Our results were consistent with those reported in this study [6].

5. Conclusion

The study reveals a high prevalence of hypertension, as well as the associated factors of diabetes and alcohol consumption. Setting up an occupational health service would enable close medical monitoring of workers with chronic diseases. This will allow treatment compliance to be monitored, discussions to be held with the attending physician particularly in the case of diabetes and patient appointments to be organised. Depending on the progress of the disease and the worker's job, adjustments or changes to the role can also be proposed. In the case of alcohol addiction among certain workers, this service can offer therapy sessions with specialists. Potential health promotion programs will be based on screening and raising awareness of diabetes and alcohol among workers. In-company counselling units with specialists will be set up, particularly for alcohol addiction. Collective sports activities will be encouraged within and outside the company. Factors such as the distance travelled by workers and the reconciliation of social and professional life should also be considered when developing hypertension. Workplace factors such as noise pollution, shift work, night work, and unfavourable psychosocial aspects of the working environment may be associated with the onset of hypertension. The occupational health service will help implement effective collective and individual measures to safeguard workers' health. Multicentre cohort studies should be carried out in the Gabonese workplace to determine the national prevalence of hypertension, and to develop screening strategies and collective and specific prevention measures for this disease in each sector.

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Authors' Contributions

All authors participated in the preparation of the manuscript. They have read and approved the final version.

Conflicts of Interest

The authors declare no conflicts of interest.

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