Prevalence of Diabetes and Hypertension on World Diabetes Day 2022 in Guinea

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Abstract

Introduction: Diabetes mellitus and hypertension are chronic diseases that are on the rise and pose a major public health problem among the priorities of healthcare systems. **Objectives:** Determine the prevalence of diabetes and hypertension and describe the sociodemographic characteristics of those screened. **Materials and Methods:** This was a cross-sectional study organized during a diabetes and hypertension screening campaign that took place in Conakry and five (05) inland regions on November 14, 2022. **Results:** 2050 people were screened, of whom 33.12% were housewives, the average age was 44.78 ± 16.23 years, and 55.27% were women. The screening sites were the city of Conakry 741 (36.15%), the Labé region 424 (20.68%), the N'Zérékoré region 298 (14.54%), the Faranah region 241 (11.75%), the Mamou region 210 (10.24%) and the Boké region 136 (6.63%). The prevalence of diabetes and hypertension were respectively 12.5% and 43.38% for the Boké region; 6.19% and 16.19% for the Mamou region; 3.02% and 21.81% for the N'Zérékoré region; 31.95% and 13.69% for the Faranah region; 9.67% and 20.28% for the Labé region; 2.83% and 20.28% for the city of Conakry. **Conclusion:** Despite the limitations of the study duration, our series highlighted the high prevalence of diabetes and hypertension among people screened on World Diabetes Day 2022. Raising public awareness of a healthy lifestyle is essential for the prevention and control of diabetes and hypertension.

Keywords

Prevalence, Diabetes, Hypertension

1. Introduction

Diabetes mellitus and hypertension are chronic diseases that are on the rise, posing a major public health problem among the priorities of healthcare systems and general populations [1].

In 2021, according to the International Diabetes Federation (IDF), one adult in ten worldwide will be diabetic, representing a total of 537 million people [2]. Diabetes mellitus was responsible for 6.7 million deaths (one death every five seconds) [2]. Unrecognized diabetics account for an estimated 50% of all diabetics [3].

The scale is increasing, particularly in Africa. It was estimated at 16 million in 2017. This figure is expected to rise to 41 million by 2040.

Cardiovascular diseases, including hypertension, are at the forefront of non-communicable diseases (NCDs), and constitute one of the main causes of mortality worldwide [4]. Available data show that almost 80% of deaths from NCDs occur in low- and middle-income countries, with a highly accelerated trend in developing countries [5].

In Guinea, data available from the STEPS 2009 survey showed that the prevalence of diabetes was 5.4% among subjects aged 25 to 64, and that of hypertension was 28.1%. The same survey showed that 74.3% of diabetes cases were undiagnosed [6]. Early diagnosis would enable patients to be taken into care more quickly, thereby limiting the risk of complications that can impair quality of life and increase costs.

The aim of this study was to determine the prevalence of type 2 diabetes and hypertension among those screened, and to describe their socio-demographic characteristics.

2. Material and Methods

This was a descriptive cross-sectional study carried out during World Diabetes Day on diabetes and hypertension in Conakry and five (05) inland regions: Boké, Mamou, Labé, Faranah and Nzérékoré.

We grouped together a total of seventeen (17) screening sites, including fifteen (15) in the interior of the country and two (02) in the city of Conakry. Each of these regions had three (03) screening sites: one main urban site and two satellite rural sites. The choice of satellite sites was based on their participation in NCD data collection. Participation in the screening campaign was voluntary and was aimed at non-diabetic and diabetic, hypertensive and non-hypertensive people, their families, caregivers and authorities aged 40 and over. Sampling was non-random, and included anyone admitted to the study site who met the inclusion criteria. As a prelude to the activity, training meetings were held on the patient circuit, data management using the Kobocollect tool, and planning for the grand launch of the activity. Communication on diabetes and hypertension was carried out through the media (public and private) before and during the activities.

Information on gender, age, profession and personal history was provided during individual interviews. Two blood pressure readings were taken, with each person sitting and at rest for at least 10 minutes, and the average was then taken. Patients were considered hypertensive if they were already being treated for hypertension, or if their systolic blood pressure was greater than or equal to 140 mm Hg and/or their diastolic blood pressure greater than or equal to 90 mm Hg, regardless of gender. A fasting blood glucose level greater than or equal to 1.26 g/l ($\geq$7 mmol/l) after two controls 48 hours apart defined diabetes. Blood glucose was measured with a self-testing device using Hemocue test strips.

Subjects were classified into three groups according to diagnostic standards [7].

Non-diabetic patients with fasting capillary glucose levels below 1.10 g/l;
- Patients with reduced fasting hyperglycemia, *i.e.* capillary glucose levels between 1.10 g/l and 1.26 g/l;
- Patients with diabetes, either because they had previously had diabetes, or because they had fasting capillary glucose levels above 1.26 g/l with the same control results.

Data were collected using the Kobocollect tool and analyzed using SPSS Version 20.0 software.

The study was limited by its short duration.

3. Results
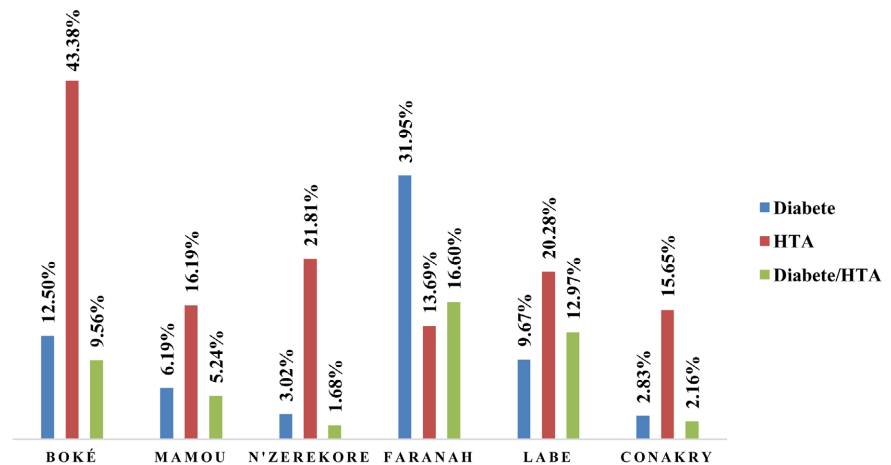
1) Description of the study population
- The mean age was 44.78 ± 16.23 years, 55.27% were female, 33.12% were housewives, 23.31 had a history of diabetes and 30.24% had a history of hypertension. The description of the study population by age, gender, occupation and history is shown in Table 1.

Table 1. Description of the study population according to age, sex, profession and history.

Characteristics	Number (N = 2050)	%
Age	Age Mean = 44.78 ± 16.23	
Sex		
Female	1133	55.27
Male	917	47.73
Profession		
Housewives	679	33.12
Farmers	584	28.49
Civil servants	448	21.85
Tradesmen	339	16.54
Past history		
Diabetes	478	23.31
HTA	620	30.24

Table 2. Description of study population by screening site.

Screening sites	Number (N = 2050)	%
Conakry	741	36.15
Labé	424	20.68
N'Zérékoré	298	14.54
Faranah	241	11.75
Mamou	210	10.24
Boké	136	6.63

Figure 1. Prevalence of diabetes and hypertension by region.

- The screening sites were Conakry 741 (36.15%), Labé 424 (20.68%), N'Zérékoré 298 (14.54%), Faranah 241 (11.75%), Mamou 210 (10.24%) and Boké 136 (6.63%). The description of the study population by screening site is shown in Table 2.

2) Prevalence of diabetes and hypertension by region

The prevalence of diabetes and hypertension was respectively 12.5% and 43.38% for the Boké region; 6.19% and 16.19% for the Mamou region; 3.02% and 21.81% for the N'Zérékoré region; 31.95% and 13.69% for the Faranah region; 9.67% and 20.28% for the Labé region; 2.83% and 20.28% for the city of Conakry. The prevalence of diabetes and hypertension is shown in Figure 1.

4. Discussion

Despite the limitation of the study's duration, this screening campaign mobilized 2050 participants spread across the country's different health regions, with prevalence of diabetes and hypertension ranging respectively from 2.83% to 31.95% for diabetes and from 13.69% to 43.38% for hypertension.

M.T. Ach, S. Ouerdani *et al.* [8] found during a mass screening campaign for diabetes and hypertension in Tunisia a prevalence of diabetes and hypertension in 11.64% and 7.41% of cases respectively. This prevalence of diabetes in our study is higher than that found in the STEPS survey carried out in 2009 (5.4%) [9].

Unrecognized diabetes mellitus exposes patients to the potential complications of this disease, increased by the cardiovascular risk, which is not negligible even in the asymptomatic stage of diabetes [10]. The United Kingdom Prospective Diabetes Study (UKPDS) showed that a third of new diabetic patients had at least one disease-related complication on the day of diagnosis [10]. In this series, the percentage of hypertensives was higher in Boké (43.38%) than in Faranah (13.69%), and diabetes was higher in Faranah (31.81%) than in Conakry (2.83%). This could be explained by a lack of awareness of the existence of diabetes and hypertension in rural areas, due to poor awareness campaigns on NCDs.

We note that the number of discoveries of arterial hypertension was higher during this campaign, at 19.17%, and that of diabetes at 8.68%. Hence the importance of raising public awareness of ways to prevent diabetes and hypertension. The STEP survey carried out in 2009 showed that hypertension affected 28.1% of the population surveyed, including 28.3% of men and 28.0% of women. This percentage was 23.8% in Conakry, 25.1% in urban Basse Guinée and 34.1% in rural Basse Guinée. The average age of those screened was 44.78 ± 16.23 years, with females predominating in 55.27% of cases. The majority of those screened were housewives in 33.12% of cases.

Our results are close to those found by Laila Ennazk *et al.* [11], whose study showed a female predominance in 65.3% of cases, with an average age of 52.73 ± 12.84 years. These results could be explained by the general distribution of the population in which there are more women than men according to the Institut National de la Statistique—RGPH 2014 [12].

Participation by the population of the Conakry area (741) in this diabetes and hypertension awareness and screening campaign was in the majority, *i.e.* 36.15%, compared with 6.63% participation from the Boké region (136). This mobilization could be explained by the fact that Conakry is a densely populated urban region, but also by the strong communication of screening around screening sites and with the media (radio, online networks). This result corroborates that found by the International Diabetes Federation confirming the increase in diabetes prevalence in urban areas compared with that found in rural areas due to global urbanization [13]. Conclusion: Despite limitations in relation to the duration of the study, our series highlighted the high prevalence of diabetes and hypertension among people screened on World Diabetes Day 2022. Raising public awareness of a healthy lifestyle is essential to prevent and curb non-communicable diseases.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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