Research Square

Preprints are preliminary reports that have not undergone peer review.
They should not be considered conclusive, used to inform clinical practice,
or referenced by the media as validated information.

Prevalence of Cardiovascular Risk Factors and Factors Associated With Hypertension Among Adults in the Municipality of Ngozi (Burundi): A Cross- Sectional Study, 2026

Nsabimana Mick

nmickmuco@yahoo.fr

Université du Burundi

Léon Blaise Savadogo

Senghor University

Niyongabo Théodore

Université du Burundi

Munezero Florence

Université du Burundi

Nahayo Hermenegilde

University of Ngozi

Nsabimana Loic

Institut de Formation et de Recherche Démographique(IFORD)

Research Article

Keywords: Prevalence, cardiovascular risk factors, adults, Ngozi, Burundi

Posted Date: November 24th, 2026

DOI: https://doi.org/10.21203/rs.3.rs-11841317/v1

License: This work is licensed under a Creative Commons Attribution 4.0 International License.
Read Full License

Additional Declarations: No competing interests reported.

PREVALENCE OF CARDIOVASCULAR RISK FACTORS AND FACTORS ASSOCIATED WITH HYPERTENSION AMONG ADULTS IN THE MUNICIPALITY OF NGOZI (BURUNDI): A CROSS-SECTIONAL STUDY, 2026

Nsabimana Mick [a,b], Léon Blaise Savadogo[c,d], Niyongabo Théodore[a] ,Munezero Florence [a], Nahayo Hermenegilde [e,] Nsabimana Loic[f]

[a] Université du Burundi
[b] Université Lumière de Bujumbura, Burundi
[c] Université Nazi Boni, Burkina Faso
[d] Université Senghor, Egypte
e Université de Ngozi

f Institut de Formation et de Recherche Démographique(IFORD), Yaoundé Cameroun

Abstract

Background

A shortage of data on cardiovascular risk factors is observed in Burundi. An analytical cross-sectional study was conducted in May 2026 among households in the commune of Ngozi, with the aim of determining the prevalence of cardiovascular risk factors and identifying the factors associated with high blood pressure.

Results

A total of 415 participants aged 18 years and over were included in the study. The mean age was 43.4±16.0 and the sex ratio was 0.64. Cardiovascular risk behaviours and their prevalence were, respectively: daily smoking 8.43% (6.1; 11.5), consumption of more than two glasses of alcohol per day 30.84% (26.57; 35.47); insufficient physical activity 16.14% (12.90; 20.01), adding salt to every meal 10.12% (7.5; 13.4), frequent consumption of high-salt foods 4.33% (2.7; 6.7), consumption of at least one sugary drink per day 44.33% (39.61; 49.16), inadequate fruit intake 96.3% (94; 97.8), inadequate vegetable intake 97.9% (92.3; 98.2), the use of firewood 63.37%(58.6; 67.8)) and coal 36.14% (36.1; 40.89)) as cooking fuel, and cooking taking place inside the home 70.6 %(66,22;74,98). The metabolic risk factors and their prevalence were fasting hyperglycaemia 5.3%(3.5; 7.9), high blood pressure 18.55% (15.09; 22.60) and obesity 8.67 per cent (6.31; 11.8). In the multivariate analysis, the factors associated with high blood pressure identified were age (61 years and over adjusted OR 8.25 (3.05; 22.28); 46–60 years adjusted OR 5.11 (1.97; 13.26); 31–45 years adjusted OR 2.89 (1.09; 7.67)); alcohol consumption of more than two units of alcohol adjusted OR 1.87 (1.15; 3.27), obesity adjusted OR 2.8 (1.2; 6.51), being overweight: 2.21 (1.15; 4.26), frequent consumption of high-salt foods: 3.09 (1.03; 9.27).

Conclusion

The prevalence of behavioural and metabolic cardiovascular risk factors is quite high in the municipality of Ngozi. This study highlights the need to promote cardiovascular risk prevention initiatives in this municipality.

Keywords: Prevalence, cardiovascular risk factors, adults, Ngozi, Burundi

Introduction

Cardiovascular diseases are a group of diseases affecting the heart and blood vessels, including coronary heart disease, cerebrovascular disease, peripheral arterial disease, rheumatic heart disease, congenital heart defects, deep vein thrombosis and pulmonary embolism (1). It is estimated that 17.9 million people died from cardiovascular diseases in 2019, accounting for 32 per cent of all deaths worldwide. Of these deaths, 85 per cent were due to myocardial infarction or stroke. More than three-quarters of deaths attributable to cardiovascular disease occur in low- and middle-income countries (2). In these countries, the fight against cardiovascular disease must be based on prevention, given that there is a shortage of resources for its management (3). Furthermore, there is a lack of data on cardiovascular risk factors in Burundi (4). This study was carried out in the commune of Ngozi and aimed to determine the prevalence of cardiovascular risk factors and to identify the factors associated with high blood pressure.

Methodology

Study location

Burundi is divided into five administrative provinces: Bujumbura, Butanyerera, Buhumuza, Gitega and Burunga. The commune of Ngozi is situated in northern Burundi and forms part of Butanyerera province. It comprises 12 administrative zones. According to the General Census of Population, Housing, Agriculture and Livestock (RGPHAE), 2024 edition, the population of Ngozi was estimated at 312,366 of whom 37.2 per cent live in urban areas and 62.8 per cent in rural areas. The town of Ngozi, the communal and provincial capital, is the third-largest town after Bujumbura and Gitega and is situated at an altitude of 1,585 metres.

Study design, study population and sampling

An analytical cross-sectional study was carried out in the municipality of Ngozi and focused on the resident population aged 18 and over in that municipality. The sample size was calculated using Schwartz's formula, with a proportion of 50 per cent for a multi-criteria variable, a margin of error of 0.05 and a 95 % confidence interval.

$$N = 1{,}962 \times 0.5 \times 0.5 / 0.05^2 = 384.16$$

The minimum sample size is 385. The population of Ngozi is divided into 62.8 per cent in rural areas and 37.2 per cent in urban areas. Using proportional allocation, 242 respondents should come from the rural stratum and 143 from the urban stratum.

The initial sampling plan involved subdividing the municipality of Ngozi into two strata: urban and rural. In the rural stratum, two-stage random sampling was carried out; first, three administrative areas were selected at random, followed by the random selection of one hill in each area. In the urban stratum, a non-probabilistic selection was made of the two neighbourhoods that differed most along the socio-economic gradient, to ensure better representation of lifestyles. The community was informed by community health workers and hill chiefs of the date of the survey and the screening tests they would undergo.

Respondents were recruited door-to-door and included all fasting individuals aged 18 and over until the desired sample size was reached. No refusals to participate in the survey were observed and there were no missing data.

Inclusion criteria

Individuals included in the study had to be aged 18 years or over, resident in the municipality of Ngozi, and fasting at the time of data collection.

Exclusion criteria

Female participants who reported being pregnant were excluded from the study.

Data collection

Data entry was carried out using the Kobocollect software from 18 May 2026 to 23 May 2026. Data collection was carried out by interviewers during face-to-face interviews conducted in the respondent's language, near their homes, in a space large enough to accommodate the measuring rods. A pre-test was carried out the day before the survey, and the interviewers were trained on the various items in the questionnaire and on how to calibrate the measuring devices.Blood pressure was measured whilst seated using JPD-HA101 electronic blood pressure monitors after a 5-minute rest period. Three consecutive measurements were taken, and the average of the three was used for the analysis. Fasting blood glucose levels were determined from capillary blood samples using Sinocare Safe-Accu glucose metres. Body weight was measured using electronic scales for adults, whilst height was measured using plastic height rods. Waist and hip circumferences were measured using measuring tapes.

Statistical analyses

Statistical analyses were carried out using Stata 15 software; Excel was used to produce the graphs and calculate the prevalence of abdominal obesity by sex. After describing the various variables, a chi-squared test at a significance level of 0.05 was performed to investigate the statistical association between high blood pressure and other variables. Risk factors associated with high blood pressure were identified using multivariate logistic regression. The variables tested were selected on the basis of data from the literature. The Hosmer-Lemeshow test was used to assess the goodness of fit of the final model.

Ethical considerations

Prior to commencing this study, three authorisations were obtained: authorisation from the Ministry of Public Health, authorisation from the Ethics Committee, and authorisation from the local authorities. Ethical approval was obtained from the Institutional Ethics and Bioethics Committee of the Faculty of Medicine-CHUK and bears the reference number 25/10/2025. Administrative authorisations were obtained from the Governor of Butanyerera Province and the Administrator of Ngozi commune. Verbal informed consent was a prerequisite for commencing data collection, and confidentiality was ensured by identifying respondents using anonymous numbers. Subjects with hypertension or hyperglycaemia were referred to the nearest healthcare facility to confirm or rule out the diagnosis

The variables studied

The socio-demographic variables studied were sex, date of birth, educational attainment, neighbourhood and residential area.

The behavioural variables were the use of smoked or non-smoked tobacco, consumption of at least one bottle of sugary drink per day, the location where cooking takes place, the type of fuel used for cooking, duration of sleep, participation in physical activity or sport, the frequency and quantity of alcohol consumed, adequate consumption of fruit and vegetables, the frequency of adding salt before or during meals, and the frequency of consuming high-salt dishes.

Sufficient physical activity was defined as an individual engaging in either high-intensity work or sport for 75 minutes or more per week, or moderate-intensity work or sport for 150 minutes or more per week.

Alcohol consumption was assessed using the number of standard glasses of beer or wine consumed.

Consumption of high-salt foods included stock cubes, cheese, processed meats, crisps and pizza.

Inadequate consumption of fruit or vegetables was defined according to international standards of 5 portions of fruit or vegetables consumed per day.

The clinical and biological variables studied were the presence of hypertension at the time of measurement, the use of antihypertensive medication, fasting hyperglycaemia, the use of antidiabetic medication, body mass index, and abdominal obesity

Hypertension at the time of measurement was defined as a systolic blood pressure of 140 mm Hg or higher and/or a diastolic blood pressure of 90 mm Hg or higher. Height and weight were measured directly using a height rod and a weighing scale. Quételet's body mass index (BMI) was calculated using the following formula: weight in kilograms divided by height in centimetres squared. The BMI classification used the WHO criteria. Abdominal obesity was defined as a waist-to-hip ratio greater than 0.90 for men and 0.85 for women. Fasting hyperglycaemia was defined as a fasting capillary blood glucose level of 7 millimoles per litre or more.

Results

Description of variables

A total of 415 individuals were included, of whom 90 (21.69 %) lived in the Gabiro neighbourhood; 76 (18.31%) on Kabataha Hill; 76 (18.31 %) in the Rubuye neighbourhood; 82 (19.76 %) from Rugori Hill; and 91 (21.93%) from Ruhongore Hill. The sex ratio was 0.64. The mean age was 43.4 ± 16.0, with ages ranging from 18 to 90 years.

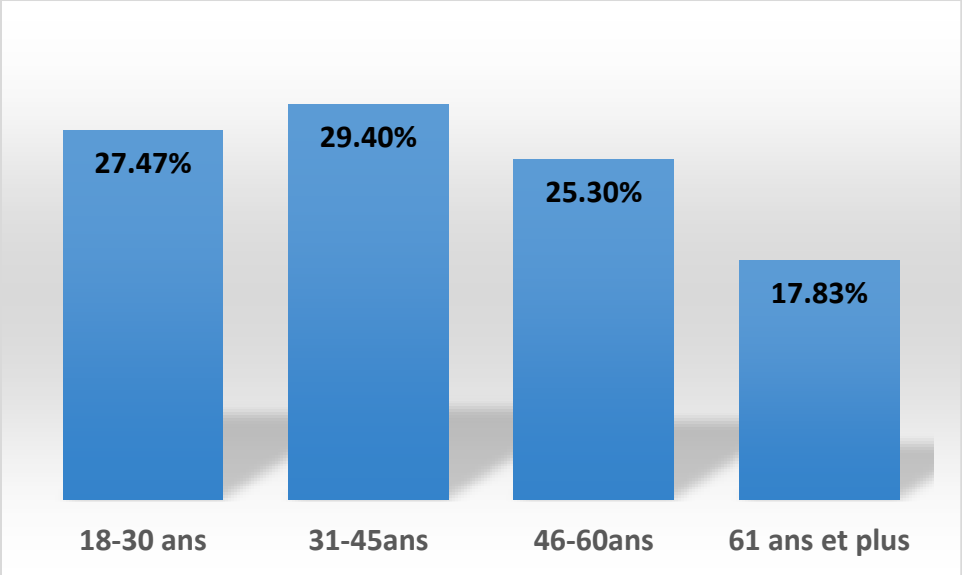


Figure1: distribution of surveys across age groups

Behavioural variables

The prevalence of smoking was estimated at 9.3% (6.9–12.61). Daily smokers accounted for 8.43% (6.1–11.5) of respondents, whilst former daily smokers accounted for 21.44%(17.7–21.67). Among those who smoked daily, 40% were female and 60% were male.

Regarding alcohol consumption, 43.61% of respondents stated that they had never consumed alcohol, whilst 52.77 % (47.94–57.54) reported not having consumed any alcoholic drinks during the 12 months preceding the survey. Furthermore, 16.86% (13.55;20.77) admitted to drinking alcohol at least five days a week, and 30.84% (26.57;35.47) stated that they consumed more than two alcoholic drinks per day; of these, 35.6 %were female and 66.4% were male.

Physical activity was insufficient among 16.14% (12.90; 20.01) of respondents. As for salt intake, 10.12 % (7.5; 13.4) of respondents stated that they always added salt before or during every meal, 4.33 % (2.7; 6.7) reported that they often consumed dishes high in salt, whilst consumption of at least one sugary drink per day was reported by 44.33%(39.61; 49.16). Inadequate fruit intake was identified in 96.38% (94.08; 97.81), whilst inadequate vegetable intake was identified in 97.34% (95.27; 98.52). When cooking, 63.37% (58.6; 67.88) use firewood as fuel and 36.14% (31.64; 40.89) use charcoal.

As regards the location of the kitchen, 50.36 % cook inside the house in a separate room and 20.24 % cook inside the house in a living area. Respondents who estimated their sleep duration as ranging from 7 to 8 hours per 24-hour period accounted for 52.77 %(47.54–57.56) of the respondents. The descriptive statistics for the behavioural variables are presented in Table I

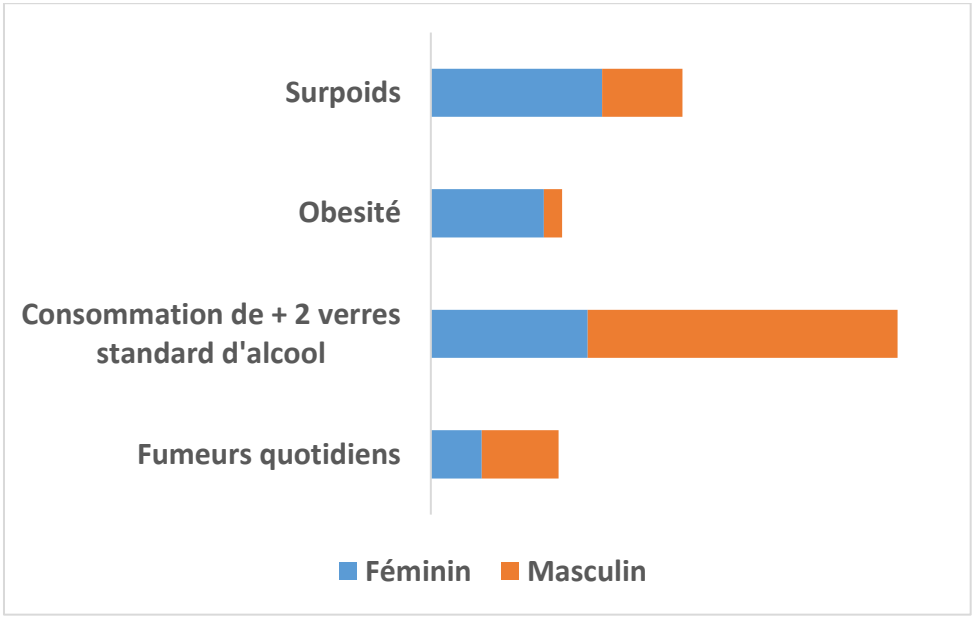


Figure2: distribution of quantity of alcohol, daily smokers and overweight by sex

Clinical and biological characteristics

Fasting hyperglycaemia was observed in 5.3% (5.5; 7.9) of respondents, and hypertension was observed in 18.55% (15.09; 22.60) of individuals. Those who reported being on antidiabetic treatment accounted for 0.96%, and those on antihypertensive treatment for 5.5 %. Calculated body mass index (BMI) indicated that 13.9% (10.9; 17.6) were underweight, 16.63% (13.33; 20.53) were overweight and 8.67 % (6.31; 11.8) were obese. 86.11 % of obese subjects were female, and 68.1% of overweight subjects were female. Abdominal obesity was observed in 61.4 % (56.73; 66.07) of individuals

Figure 2 illustrates the distribution of daily smoking, alcohol consumption, being overweight and obesity by sex.

Table II presents the descriptive results for the clinical and biological variables

Study of the association between high blood pressure and other variables

The statistical association with high blood pressure was significant according to the chi-square test for the following variables: age (0.000), consumption of more than two glasses of alcohol per day (0.002), being overweight or obese (0.0023), the location of the kitchen (0.0024), adding salt at the table (0.007), and the frequency of consumption of high-salt dishes (0.037). The univariate logistic model was used to determine the crude odds ratios and their confidence intervals.

The multivariate logistic model (Table IV) identified variables associated with high blood pressure, such as age (31–45 years: adjusted OR 2.89 (1.09–7.67); 46–60 years: adjusted OR 5.11 (1.97–13.26) 61 years and over, adjusted OR 8.25 (3.05; 22.28); consumption of more than two glasses of alcohol per day, adjusted OR 1.87 (1.07; 3.27), being overweight: adjusted OR 2.21 (1.15; 4.26); obesity: adjusted OR 2.8 (1.20; 6.51); frequent consumption of high-salt foods: adjusted OR 3.09 (1.03; 9.27).

Table I: Description of behavioural variables

Variables	Modalities	Number	Percentage	IC à 95%
Former daily smoker		89	21,44	17,77;25,67
Daily smokers		35	8,43	6,1;11,5
Tobacco use(Non-smoking)		10	2,4	1,2;4,42
Consumption of more than two glasses of alcohol per day		128	30,84	26,57;35,47
Alcohol frequency consumption	Never	219	52,77	47,94;57,54
	less than once a month	12	2,8	1,6;5,02
	1 to 3 days a month	38	9,1	6,72;12,34
	1 to 4 days a week	76	18,31	14,87;22,34
	5 days or more a week	70	16,,86	13,55;20,79
Insufficient physical activity		67	16,14	12,9;20,01
Local of kitchen	house/livin room	84	20,24	(16,1;23,8)
	house/seperate room	209	50,36	(45,2;54.8)
	seperate building	104	25,06	(20,8;29,1)
	outdoors	18	4,34	(3,8;4,7)
main fuel for kitchen	fire wood	263	63,37	58,6;67;88
	coal	150	36,14	31,64;40,89
	gas	2	0,4	0,1;1,19
Sleep duration	5-6hours	63	15,18	12,03;18,97
	7-8 hours	219	52,77	47,94;57,54
	≥ 9 hours	123	29,64	25,42;34,22
	<5 hours	10	2,41	1,2;4,42
Inadequate consumption of fruits		400	96,36	94,08;97,81
Inadequate consumption of vegetables		404	97,35	95,27;98,52
adding salt or savoury sauce at table	never	152	36,63	32,11;41,38
	Sometimes	71	17,11	13,77;21,05
	rarely	89	21,45	17,5;25,6
	often	61	14,7	11,5;18,4
	Always	42	10,12	7,5;13,4
Frequency of consumption of hihg salt dishes	Never	202	48,67	43,87;53,49
	rarely	195	46,98	42,21;51,81
	Often	18	4,33	2,7;6,7
Consumption of sugar drink at least once a day		184	44,33	39,61;49,16

Table II: Description of clinical and biological variables

Variables	Modalities	Number	Percentage(%)	IC 95%
fasting hyperglycemia		22	5,3	3,5;7,9
High blood pressure		77	18,55	15,09;22,60
Abdominal obesity		255	61,4	56,73;66,07
To be under High blood pressure treatment treatement		22	5,3	3,1;5,51
To be under diabetic treatment		4	0,96	0,03;1,8
Body mass index	thinness	58	13,9	10,9;17,6
	Normal	252	60,7	55,9;65,32
	Overweight	69	16,63	13,33;20,53
	Obesity	36	8,67	6,31;11,8

Table III: The univariate logistic model between high blood pressure and other variables

Variables	Modalities	Number	Hypertesion Effectif(%)	OR brut(IC à 95%)	p value
Age groups	18-30	114	6(5,26)	1	
	31-45	122	21(17,21)	3,74(1,45;9,64)	
	46-60	105	27(25,71)	6,23(2,45;15,81)	
	61+	74	23(31,08)	8,11(3,11;21,16)	0,0000
Sex	Female	252	47(18,65)	1	
	Male	163	30(18,40)	0,98(0,59;1,63)	0,94
Alcohol frequency consumption	Never	219	38(17,35)	1	
	less than once a month	12	1(8,33)	0,43(0,54;3,45)	
	1 to 3 days a month	38	3(7,89)	0,4(0,11;1,39)	
	1 to 4 days a week	76	18(23,68)	1,47(0,78;2,78)	
	5 days or more a week	70	17(24,29)	1,52(0,79;2,92)	0,1183
Daily smokers	Yes	35	8(22,86)	1,33(0,58;3,06)	
	No	380	69(18,16)	1	0,5
Consumption of more two standard glasses of alcohol	yes	128	33(25,78)	1,91(1,15;3,19)	
	No	287	44(15,33)	1	0,002
Inadequte consumption of fruits	yes	15	3(20)	0,90(0,24;3,29)	
	No	400	44(18,50)	1	0,88
Inadequate consumption of vegetables	yes	11	1(9,09)	2,31(0,29;18,37	
	No	404	76(18,81)	1	0,37
Local of kitchen	house/livin room	18	6(33,67)	1	
	house/seperate room	104	45(43,27)	1,55(0,3;7,07)	
	seperate building	84	14(16,67)	3,55(0,77;16,38)	
	outdoors	209	60(28,71)	0,96(0,18;4,87)	0,0024
Main fuel for cooking	fire wood	263	43(16,35)	0,19(0,01;3,1)	
	coal	150	33(22)	0,28(0,31;4,63)	
	gas	2	1(50)	1	0,223

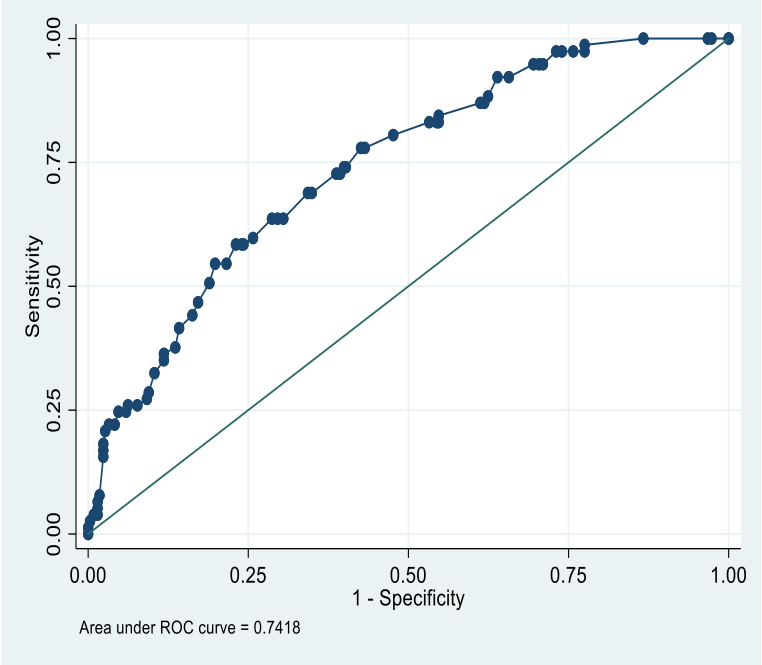
Table III: Continuation

Variables	Modalities	Numbe	Hypertesion Effectif(%)	OR brut(IC à 95%)	p value
adding salt or savoury sauce at table	never	152	36(23,68)	1	
	Sometimes	71	5(7,07)	0,24(0,09;0,65)	
	rarely	89	14(15,73)	0,60(0,3;1,18)	
	often	61	9(14,75)	0,55(0,25;1,24)	
	Always	42	13(30,75)	1,44(0,67;3,06)	0,007
Frequency of consumption of high salt dishes	Never	202	31(15,35)	1	
	rarely	195	39(20)	1,37(0,8;2,31)	
	Often	18	7(38,89)	3,51(1,26;9,75)	0,037
Consumption of sugar drink at least once a day	yes	184	38(20,65)	1,28(0,78;2,10)	
	No	231	39(16,88)	1	0,32
Insufficient physical activity	yes	348	62(17,82)	0,38(0,7;2,51)	
	No	67	15(22,39)	1	0,759
Fasting hyperglycemia	yes	22	5(22,73)	1,31(0,46;3,67)	
	No	393	72(18,32)	1	0,61
Body mass index	thinness	58	7(12,07)	0,79(0,33;1,89)	
	Normal	252	37(14,68)	1	
	Overweight	69	22(31,88)	2,71(1,47;5,03)	
	Obesity	36	11(30,56)	2,55(1,16;5,63)	0,0023
Sleep duration	5-6hours	63	11(17,46)	1,04(0,49;2,18)	
	7-8 hours	219	37(16,89)	1	
	≥ 9 hours	123	28(22,76)	1,44(0,83;2,51)	
	<5 hours	10	1(10)	0,54(0,067;4,44)	0,49
Abdominal obesity	Yes	254	81(31,88)	1,14	>0,05
	No	161	44(27,32)	1	

Table IV: Final logistic model

Modalities	Ajusted OR	IC,95%	p value
Age groups			
18-30	1		
31-45	2,89	1,09;7,67	0,032
46-60	5,11	1,97;13,26	0,001
61 et plus	8,25	3,05;22,28	0,000
consumption of more than two standard glasses of alcohol per day			
No	1		
Yes	1,87	1,07;3,27	0,027
Body mass index			
Normal	1		
Overweight	2,21	1,15;4,26	0,017
Obesity	2,8	1,20;6,51	0,016
consumption of high salt dishes			
Never	1		
Often	3,09	1,03;9,27	0,044

The Hosmer-Lemeshow test concluded that the model is adequate, as the p-value obtained was 0.5869 and the area under the ROC curve was 0.7418



Discussion

The aim of this study was to estimate the prevalence of cardiovascular risk factors among the population aged 18 years and over living in the municipality of Ngozi and to identify the factors associated with high blood pressure. Women who reported being pregnant at the time of the survey were excluded from the study.

The study sample comprised 415 participants; their mean age was 43.4 years ± 16 and the sex ratio was 0.64. The female-biased sex ratio could be explained, on the one hand, by the fact that in Butanyerera Province, where the commune of Ngozi is located, the sex ratio is 0.81 (National Institute of Statistics 2024) and, on the other hand, by the phenomenon of rural exodus, which affects men more than women.

With regard to addictions, the prevalence of smokers was estimated at 9.3% (6.9; 12.61) and the prevalence of daily smokers at 8.43% (6.1; 11.5). In contrast, the prevalence of former daily smokers stood at 21.44% (17.77–25.67). This prevalence is similar to that identified in the commune of Kirundo during the STEPS (5) pilot survey carried out in 2013, where the prevalence of smoking was 20 %.

The proportion of those who had consumed alcohol in the last 12 months was 42.23% in this study, which is lower than the prevalence of alcohol consumption observed in the municipality of Kirundo in 2013. The hypothesis of a downward trend in smoking is supported, as in this study the prevalence of former daily smokers is almost the same as that of former smokers observed in 2013. In Goma (6), a city in the Democratic Republic of the Congo, the prevalence of alcohol consumption was 36.67 % in 2023, a figure almost identical to that recorded in Ngozi

As for physical activity and fruit and vegetable consumption, the findings are similar to those from Kirundo in 2013, where insufficient physical activity stood at 16.7 % and inadequate fruit and vegetable consumption exceeded 90%.

With regard to salt intake, 14.7% (11.5; 18.4) of respondents reported often adding salt at the table and 10.12 % (7.5; 13.4) reported always adding salt at the table. 4.3 % (2.7; 6.7) reported frequently consuming dishes high in salt

According to the World Health Organisation, almost all populations worldwide consume too much sodium. The average intake for adults worldwide was 4,278 mg of sodium, or 11 g of salt, in 2021, which is double the WHO's recommended intake of 2,000 mg of sodium per day for adults, or less than 5 g of salt per day (7).

According to current recommendations (8), to reduce salt intake, salt shakers should be removed from the table and nutritional labelling should be applied to food packaging.

The main fuels used for cooking are firewood 63.37% (58.6–67.8) and coal 31.64% (31.64;40.89), which usually produce harmful pollution (9). 70.60%(66,22;74,98) cook indoors, contributing significantly to indoor air pollution.

The use of clean fuels and technologies to reduce indoor air pollution and protect health should form part of the short- or long-term objectives of the residents of the municipality of Ngozi.

The proportion of people consuming at least one bottle of a sugary drink per day is 44.3% (39.61; 49.10), whilst the WHO recommends less than one 250 ml glass per day (10).

The prevalence of obesity in this study was 8.67%. In Anjouan (11), the obesity rate was 22.2 %; in Goma (6), it was 13 %. The prevalence of being overweight was 16.63 % in the municipality of Ngozi, whilst in Goma it stood at 33.1% in 2023. In Kirundo, the prevalence of obesity and overweight were respectively 0.4% and 3.1%, according to the pilot STEPS survey carried out in 2013.

Women were more affected by being overweight in this study. Indeed, 86.1 % of obese participants were female and 68.1% of overweight participants were female. Abdominal obesity was observed in 61.4 per cent (56.7–66) of respondents. In Goma (6), it stood at 42.7% and in Senegal (12) at 53.7 %.

High blood pressure was observed in 18.5 %(15.09–20.6) of those surveyed, whilst 5.3% (3.1–5.5) reported being on antihypertensive medication. In Kirundo in 2013, the prevalence of high blood pressure was 25.2 %; in Goma in 2023, it was 20%.

The prevalence of fasting hyperglycaemia is 5.3%; in Goma, it was 1.6 %. In Kirundo, it stood at 1% in 2013. As the municipality of Kirundo is situated in the same province as the municipality of Ngozi, and when comparing the findings of this study with those observed in Kirundo in 2013, there was a parallel upward trend in the prevalence of diabetes and overweight, while overweight always being correlated with diabetes

In multivariate logistic regression analysis, age, consumption of more than two glasses of alcohol, obesity, being overweight and consumption of high-salt foods were identified as factors associated with high blood pressure. These factors have also been identified as factors associated with high blood pressure in other studies (12,13,14,15).

In conclusion, this study has shown that cardiovascular risk behaviours are common in the municipality of Ngozi. Metabolic risk factors such as high blood pressure, being overweight, abdominal obesity and fasting hyperglycaemia are also present in this municipality to a considerable extent. The population of this municipality should be made aware of cardiovascular risk behaviours and the need for regular screening for metabolic risk factors. They should make efforts to adopt lifestyle habits that help reduce cardiovascular risk, such as cutting out salt shakers and stock cubes, reducing their consumption of sugary drinks and addictive substances, eating more fruit and vegetables, and considering the use of clean cookstoves in the short or medium term.Health authorities should improve access to screening for high blood pressure, diabetes and overweight

Nevertheless, had it not been for financial constraints, this study should have been carried out in all the provinces of Burundi, and cholesterol levels would have been included amongst the biological variables assessed in the respondents. Looking ahead, we encourage other researchers to follow in our footsteps and extend this study to other province

Références bibliographiques

1) OMS. Maladies cardiovasculaires, principaux faits. 17 Mai 2023.https://www.who.int/fr/news-room/fact-sheets/detail/cardiovascular-diseases-(cvds)#:~:text=Les%20maladies%20cardio%2Dvasculaires%20sont,de%20la%20mortalit%C3%A9%20mondiale%20totale.Consulté le 23 Mars 2024 à 11H

2) Organisation mondiale de la santé. Maladies cardiovasculaires, principaux faits. 11 juin 2021.https://www.who.int/fr/news-room/fact-sheets/detail/cardiovascular-diseases-(cvds). Consulté le 20/3/2025 à 10h29

3) Bulto LN, Hendriks JM. The burden of cardiovascular disease in Africa: prevention challenges and opportunities for mitigation. European Journal of Cardiovascular Nursing. Oxford University Press; 2024. p. e88-90. doi:10.1093/eurjcn/zvad134 PubMed PMID: 38109779.

4) Organisation mondiale de la sante. Suivi des progrès dans la lutte contre les maladies non transmissibles 2022.

https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://iris.who.int/server/api/core/bitstreams/e625c01c-ed97-4334-9b33-4612b69648a8/content&ved=2ahUKEwiZzMbG6cqXAxW-3gIHHWMsKBoQFnoECCgQAQ&usg=AOvVaw2_44mIvH3fnApmB25Od1PQ

5.Ministere de la sante publique et de la lutte contre le SIDA. Résumé analytique du profil sanitaire du Burundi. Mai 2021

6.Chelo HN,Barhwamire TK, Mishika PL et al. Prévalence et facteurs de risque de l'hypertension artérielle chez l'adulte dans la ville de Goma en République démocratique du Congo : une étude transversale communautaire. Journal of Medicine, Public Health and Policy Research.2023 ;3(1):13-24.

7)OMS. Réduction de l'apport en sodium.11 Mai 2026.

https://www.google.com/url?sa=i&source=web&rct=j&url=https://www.who.int/fr/news-room/fact-sheets/detail/sodium-reduction&ved=2ahUKEwjN053124mYAxUDQUEAHe0YApgQy_kOeggIAggBCAsQAg&opi=89978449&cd&psig=AOvVaw2gHm1qysze-sy-f_H0ci0d&ust=1794823287655000

8) OMS. 5 recommandations pour réduire la consommation de sel et ainsi vivre longtemps et en bonne santé.
https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://www.who.int/europe/fr/news/item/14-03-2022-5-recommendations-to-reduce-salt-intake-to-live-longer-and-healthier-lives&ved=2ahUKEwjU6Ziv44mYAxVZV0EAHXVoPRYQFnoECCUQAQ&usg=AOvVaw0gun4h2kUtvZUVmiPorzjY

9)OMS. Pollution de l`air intérieur des habitations 16 décembre 2025. Principaux faits.https://www.google.com/url?sa=i&source=web&rct=j&url=https://www.who.int/fr/news-room/fact-sheets/detail/household-air-pollution-and-health&ved=2ahUKEwiSkKnVormXAxWs_rsIHWR5CscQqYcPeggIAggBCB8QAg&opi=89978449&cd&psig=AOvVaw2TC_20oX7UtRvFJEbqyxfp&ust=1792059140843000

10) OMS. Communique de presse. L'OMS préconise l'application de mesures au niveau mondial pour réduire la consommation de boissons sucrées.https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://www.who.int/fr/news/item/11-10-2016-who-urges-global-action-to-curtail-consumption-and-health-impacts-of-sugary-drinks&ved=2ahUKEwiLg47kk7mXAxXN5QIHHcnjJZQQFnoECDAQAQ&usg=AOvVaw2miskL0fc1zMYxsph1K4gu

11)Ali RA ben, Harraqui K, Hannoun Z, Monir M, Samir M, Anssoufouddine M, et al. Nutrition transition, prevalence of double burden of malnutrition and cardiovascular risk factors in the adult population living in the island of Anjouan, Comoros. Pan African Medical Journal. 2020;35. doi:10.11604/pamj.2020.35.89.19043 PubMed PMID: 32636987

12) Mbaye A, Babaka K, Ngaïde AA, Gazal M, Faye M, Niang K, et al. Prevalence of cardiovascular risk factors in semi-rural area in Senegal. Ann Cardiol Angeiol (Paris). 1 sept 2018;67(4):264-9. doi:10.1016/j.ancard.2018.04.005 PubMed PMID: 30049407.

13)De F, de L'hypertension R, Chez A, Militaires L, De C, Garnison LA, et al. Article original Open Access. Revue Médicale des Grands Lacs Rev. méd. Gd. Lacs [Internet]. 2014. Disponible sur: http://www.grandlacs-med-journal.com/images/stories/3120146.pdf

14)Houinato DS, Gbary AR, Houehanou YC, Djrolo F, Amoussou M, Segnon-Agueh J, et al. Prevalence of hypertension and associated risk factors in Benin. Rev Epidemiol Sante Publique. avr 2012;60(2):95-102. doi:10.1016/j.respe.2011.09.010 PubMed PMID: 22436411

15)Chomistek, A. K., Chiuve, S. E., Eliassen, A. H., Mukamal, K. J., Willett, W. C., & Rimm, E. B. (2015). Healthy lifestyle in the primordial prevention of cardiovascular disease among young women. *Journal of the American College of Cardiology*, *65*(1), 43–51. https://doi.org/10.1016/j.jacc.2014.10.024