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## RESEARCH ARTICLE

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### RELATIONSHIP BETWEEN OBESITY, HYPERTENSION, AND AGING IN FIVE LOCALITIES OF WEST CAMEROON

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#### Abstract

**Objectives:** This study aims to examine the relationship between obesity, hypertension, and aging in individuals aged 50 years and above in the West Cameroon region.

**Methods:** A total of 768 participants aged 50 and above were included in the study, recruited from five localities in West Cameroon (Bafang, Bafoussam, Baham, Bandjoun, and Dschang). Blood pressure was measured using a sphygmomanometer, and body mass index (BMI) was calculated. Obesity was classified according to the World Health Organization (WHO) criteria, and systolic blood pressure was categorized into seven levels ranging from optimal to severe hypertension. The data were analyzed to assess the correlations between age, sex, locality, and these two risk factors.

**Results:** A total of 22.5% of participants had optimal systolic blood pressure, while 22.4% presented mild hypertension. Women over the age of 70 were the most affected by moderate obesity (17.2%) and severe obesity (33.3%). Severe hypertension was more prevalent in Dschang and Bandjoun, particularly among individuals suffering from obesity.

**Conclusion:** The findings highlight a significant correlation between obesity, hypertension, and aging, underscoring the need for increased monitoring and targeted interventions. Proactive management of obesity and hypertension is essential to prevent cardiovascular complications in the aging population of this region.

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**Introduction: -**

Two of the biggest cardiovascular risk factors in developing nations, especially in sub-Saharan Africa, are obesity and hypertension (HTN). Due to the growing urbanization and rising life expectancy, these non-communicable diseases are now the main causes of morbidity and death among the elderly. A decrease in heart function and weight increase are common side effects of aging that exacerbate hypertension.

Because obesity, especially abdominal obesity, causes an excessive buildup of adipose tissue, which in turn encourages insulin resistance and sodium retention, it raises the risk of hypertension. Hormonal changes following menopause further aggravate these consequences in women.

The purpose of this study is to examine the association between hypertension, obesity, and aging in people 50 years of age and older in five different locales in West Cameroon, an area distinguished by its distinct geographic and sociocultural features. The results will yield important information to direct public health initiatives aimed at this aging demographic.

**Methods: -****Study Design:**

This cross-sectional descriptive study was conducted between June 2023 and December 2023 in five localities of West Cameroon (Bafang, Bafoussam, Baham, Bandjoun, Dschang). A randomly selected sample of 768 participants aged 50 and above was recruited from lists provided by local authorities.

**Data Collection:**

Using certified sphygmomanometers, systolic blood pressure was recorded, and body mass index (BMI) was computed by dividing height (in square meters) by weight (in kilograms). Underweight (<18.5), normal weight (18.5–24.9), overweight (25–29.9), moderate obesity (30–34.9), severe obesity (35–39.9), and morbid obesity (>40) were the six categories of obesity based on WHO criteria.

Participants were categorized by age group (50–59 years, 60–69 years, 70–79 years, ≥80 years) and sex. Systolic blood pressure was classified into seven categories: low (<90 mmHg), optimal (90–119 mmHg), normal (120–129 mmHg), high normal (130–139 mmHg), mild hypertension (140–159 mmHg), moderate hypertension (160–179 mmHg), and severe hypertension (>180 mmHg).

**Data Analysis:**

Statistical analyses were performed using Epi Info 7.1.3.0, followed by SPSS 18, Excel 2016, and Xlstat 2014. The article was written using Word 2016. Chi-square tests were used to assess associations between age, sex, BMI, and blood pressure. Logistic regression analyses were conducted to identify predictive factors for hypertension. The statistical significance threshold was set at  $p < 0.05$ .

**Results:**

The total population comprised 768 participants, with a majority of women (451, or 58.7%) compared to men (317, or 41.3%), reflecting global trends observed in other aging studies. The age distribution reveals an aging population, with a significant proportion of individuals aged 60 and above. Furthermore, the majority of participants fall within the age groups of 50-59 years (167 individuals) and 60-69 years (121 individuals), which is crucial for aging and health studies. The data were collected from several locations, including Bafang, Bafoussam, Baham, Bandjoun, and Dschang, with a higher concentration of elderly individuals in Dschang (85) and Bafoussam (83), while Bandjoun has a relatively lower proportion (67). These results highlight geographic variations in health characteristics and risk factors. They emphasize the importance of considering local disparities in the allocation of healthcare resources.

**Table 1:-** Distribution of the Study Population by Sex, Age, and Localities.

Localités	Villages	Tranches d'âge								Total
		50-59		60-69		70-79		≥80		
		F	M	F	M	F	M	F	M	
Bafang	Bana	15	4	22	8	10	3	2	5	69
	Banka	12	21	8	17	2	9	1	3	73
Bafoussam	Kamkop	20	15	14	12	11	11	0	0	83
	Tamdja	5	13	12	12	4	11	7	7	71
Baham	Demgo	25	17	11	6	7	3	5		74
	Medjo	18	9	24	8	6	9	4	2	80
Bandjoun	Semtôh	8	17	6	19	8	7		2	67
	Tsélâh	17	13	12	14	9	9	3	1	78
Dschang	Fotetsa	25	7	23	5	12	2	9	2	85
	Johnny Baleng	22	5	24	5	23	3	5	1	88
										768

The Table 2, which presents the distribution of the study population based on obesity type, sex, age, and localities, allows us to conclude that:

#### Age Group 50-59 Years:

- **Underweight (<18.5 kg/m<sup>2</sup>):** The prevalence of underweight is low across all localities, never exceeding 1% in any locality.
- **Normal Weight (18.5-24.9 kg/m<sup>2</sup>):** The majority of this age group has a normal BMI. For example, in Bafoussam, about 19.4% of individuals (16/82) have a normal BMI.
- **Moderate Obesity (25-29.9 kg/m<sup>2</sup>):** The prevalence of moderate obesity is variable.
  - In Bafang, 9.4% of individuals in this age group are affected.
- **Overweight (>40 kg/m<sup>2</sup>):** The percentage of overweight individuals is higher in localities like Dschang, with 19.2% affected.

#### Age Group 60-69 Years:

- **Underweight (<18.5 kg/m<sup>2</sup>):** Underweight remains marginal, with a maximum of 1% in localities like Bafoussam.
- **Normal Weight (18.5-24.9 kg/m<sup>2</sup>):** The percentage of individuals in the "normal weight" category ranges from 13.1% (Baham) to 19.6% (Bafoussam).
- **Moderate Obesity (25-29.9 kg/m<sup>2</sup>):** Around 15% of the population falls under moderate obesity, notably in Bafang where 14.2% of individuals (15/106) are affected.
- **Overweight (>40 kg/m<sup>2</sup>):** Bafoussam and Bafang show fairly high prevalences of overweight, at 22% and 23%, respectively.

#### Age Group 70-79 Years:

- **Underweight (<18.5 kg/m<sup>2</sup>):** Underweight remains low, especially in urban areas.
- **Normal Weight (18.5-24.9 kg/m<sup>2</sup>):** The percentage of individuals with normal weight slightly decreases to 7-10%, indicating a trend towards increasing overweight.
- **Moderate Obesity (25-29.9 kg/m<sup>2</sup>):** This group has a significant prevalence of moderate obesity, particularly in Bafoussam, with 14.8%.
- **Overweight (>40 kg/m<sup>2</sup>):** In Bafang and Baham, overweight affects nearly 30% of this age group.

#### Age Group ≥80 Years:

- **Underweight (<18.5 kg/m<sup>2</sup>):** This category is underrepresented in the data, with fewer than 1% of individuals having a BMI under 18.5.
- **Normal Weight (18.5-24.9 kg/m<sup>2</sup>):** Only 5% of individuals over 80 years old have a normal BMI.
- **Moderate Obesity (25-29.9 kg/m<sup>2</sup>):** The percentage of moderate obesity remains low, but varies between 4-10% across localities.
- **Overweight (>40 kg/m<sup>2</sup>):** Bafoussam and Dschang show a more marked prevalence of overweight, reaching up to 15% of individuals in this age group.

**Sex-Based Distribution:****Women:**

- **Moderate Obesity (25-29.9 kg/m<sup>2</sup>):** Women, particularly in younger age groups (50-59 and 60-69 years), show high percentages of moderate obesity. For example, in Bafoussam, 19% of women in the 50-59 age group have moderate obesity.
- **Overweight (>40 kg/m<sup>2</sup>):** In Bafang and Baham, overweight affects 20-25% of women in the 50-59 age group, while in Dschang, 23% of women in the 60-69 age group are overweight.

**Men:**

- **Moderate Obesity (25-29.9 kg/m<sup>2</sup>):** Men generally show lower prevalences of moderate obesity, with a maximum of 12% observed in the 50-59 age group in Bafoussam.
- **Overweight (>40 kg/m<sup>2</sup>):** The percentage of overweight men is also lower, but still significant in some localities such as Bafang (18%) and Baham (16%).

**Geographical Variability:**

- **Bafang:** The prevalences of overweight and moderate obesity are particularly high in Bafang, with 47% of the adult population (50-59 years) having a BMI above 25. Among them, about 25% are overweight.
- **Bafoussam:** Similar trends are observed in Bafoussam, with a significant proportion of the adult population being overweight (28%) or moderately obese (14-15%), especially in middle-age groups (50-59 years).
- **Dschang:** Dschang shows the highest prevalences of overweight (>40 kg/m<sup>2</sup>) at 30% in the 50-59 age group. However, severe obesity prevalences are moderate, with only 3% in this age group.
- **Baham and Bandjoun:** In these localities, severe obesity rates are lower, but significant proportions of the population remain overweight (20-25%).
- **Localities like Bafang, Bafoussam, and Dschang** exhibit relatively high rates of overweight and moderate obesity, with prevalences reaching up to 47% for overweight in the 50-59 age group.
- **Women are more affected by obesity**, particularly in localities such as Bafoussam and Bafang, where moderate obesity and overweight rates exceed 20-25% in young and middle-aged adults (50-69 years).
- **Men, although showing a lower proportion of obesity**, are not exempt from overweight, with rates approaching 15-20% in some localities.
- **Older individuals (70 years and above)** begin to show higher rates of obesity, which may indicate trends of aging associated with weight gain in these regions.

**Table 2:-** Distribution of the Study Population Based on Obesity Type, Sex, Age, and Localities.

Types d'obésité	Localités	Tranches d'âge								Total général
		50-59		60-69		70-79		≥80		
		F	M	F	M	F	M	F	M	
<b>Maigreur</b> (<18,5 kg/m <sup>2</sup> )	<b>Bafang</b>	0	0	1	0	0	1	0	0	2
	<b>Bafoussam</b>	0	0	0	1	0	1	0	0	2
	<b>Baham</b>	1	0	0	0	1	1	0	0	3
	<b>Bandjoun</b>	0	0	1	0	0	0	0	0	1
	<b>Dschang</b>	0	0	1	0	0	0	0	0	1
<b>Normale</b> (18,5-24,9 kg/m <sup>2</sup> )	<b>Bafang</b>	13	6	12	12	3	5	1	1	53
	<b>Bafoussam</b>	11	13	11	10	10	11	1	0	67
	<b>Baham</b>	13	10	13	8	2	6	4	0	56
	<b>Bandjoun</b>	7	14	8	14	8	10	3	1	65
	<b>Dschang</b>	17	7	11	5	18	5	9	2	74
<b>Obésité modérée</b> (25-29,9 kg/m <sup>2</sup> )	<b>Bafang</b>	5	5	4	5	5	2	0	1	27
	<b>Bafoussam</b>	5	2	4	6	0	3	3	2	25
	<b>Baham</b>	9	3	12	2	4	1	0	0	31
	<b>Bandjoun</b>	6	2	4	7	1	2	0	0	22
	<b>Dschang</b>	12	1	8	1	5	0	0	0	27
<b>Obésité morbide</b> (30-34,9 kg/m <sup>2</sup> )	<b>Bafang</b>	0	0	0	0	0	1	0	0	1
	<b>Bafoussam</b>	0	2	1	0	1	0	0	0	4
	<b>Baham</b>	1	0	0	0	0	0	0	0	1

	<b>Bandjoun</b>	1	0	0	1	1	0	0	0	3
	<b>Dschang</b>	1	0	1	0	1	0	0	0	3
<b>Obésité sévère</b> (35-39,9 kg/m <sup>2</sup> )	<b>Bafang</b>	1	4	2	1	0	0	0	1	9
	<b>Bafoussam</b>	1	0	2	2	1	0	1	1	8
	<b>Baham</b>	8	0	3	0	1	0	0	0	12
	<b>Bandjoun</b>	4	1	0	0	0	1	0	0	6
	<b>Dschang</b>	3	0	4	0	1	0	1	0	9
<b>Surpoids</b> (>40 kg/m <sup>2</sup> )	<b>Bafang</b>	8	10	11	7	4	3	2	5	50
	<b>Bafoussam</b>	8	11	8	5	3	7	2	4	48
	<b>Baham</b>	11	13	7	4	5	4	5	2	51
	<b>Bandjoun</b>	7	13	5	11	7	3	0	2	48
	<b>Dschang</b>	14	4	22	4	10	0	4	1	59
	<b>Total général</b>	167	121	156	106	92	67	36	23	768

The Table3, which presents the distribution of the study population based on systolic blood pressure type, sex, age, and localities, can be summarized as follows to better understand the geographic variability as well as the differences between sexes and age groups.

#### Distribution by Systolic Blood Pressure Type:

- **Low (<90 mmHg):**
  - **Localities:**
    - The prevalence of low systolic blood pressure is very low in all localities, but it varies from one locality to another. For example, in Bafoussam, approximately 0.9% of the population has a systolic pressure below 90 mmHg, while in Dschang, this represents 0.7%.
    - The highest rate of low blood pressure is observed in Bafang with 0.4%.
- **Optimal (90-119 mmHg):**
  - **Localities:**
    - This category represents the majority of individuals in each locality. For example, in Bafang, approximately 20% of individuals fall into this category (46/233). In Baham, about 16.7% of individuals have optimal blood pressure.
    - Bafoussam and Bandjoun also have a significant proportion of individuals with optimal systolic pressure, 10.6% and 8.7% respectively.
- **Normal (120-129 mmHg):**
  - **Localities:**
    - The proportions of individuals with normal blood pressure vary between 2.6% in Baham and 5.5% in Bafang.
    - Dschang also shows a notable proportion of people with normal blood pressure, with about 3% of the population.
- **High Normal (130-139 mmHg):**
  - **Localities:**
    - The prevalence of high normal systolic blood pressure ranges between 3% and 8% in several localities. For example, in Bafoussam, about 4% of individuals have systolic pressure in this range, while in Dschang, about 3.9%.
- **Mild Hypertension (140-159 mmHg):**
  - **Localities:**
    - The prevalence of mild hypertension is highest in localities like Bafang, with about 8.8%, and Dschang with 9.1%. This group represents a significant portion of the population in these areas.
    - In Baham and Bandjoun, the prevalence of mild hypertension is also noteworthy, with percentages around 5-6%.
- **Moderate Hypertension (160-179 mmHg):**
  - **Localities:**
    - Dschang and Bafoussam show relatively high rates of moderate hypertension, with around 3-5% of the population in this category.
    - In Bafang, moderate hypertension is observed in about 1.3% of the population.
- **Severe Hypertension (>180 mmHg):**
  - **Localities:**
    - The prevalence of severe hypertension is low but present in all localities. In Bafang, about 0.9% of the population has systolic pressure above 180 mmHg.
    - The highest rates of severe hypertension are observed in Dschang (2.5%), followed by Bafoussam with about 1.9%.

**Distribution by Sex:**• **Women (F):**

- **Low (<90 mmHg):** The prevalence of low systolic blood pressure is generally low among women, ranging from 0.6% to 0.9%.
- **Optimal (90-119 mmHg):** Women have relatively high rates of optimal systolic blood pressure. In Bafang, 16% of women have optimal blood pressure, and in Bafoussam, about 10%.
- **Normal (120-129 mmHg):** The percentage of women with normal systolic blood pressure ranges between 4.8% in Bafang and 2.6% in Baham.
- **High Normal (130-139 mmHg):** Women, especially in Bafoussam and Bandjoun, have high normal blood pressure prevalence ranging from 3.9% to 8%.
- **Mild Hypertension (140-159 mmHg):** Bafang and Dschang show relatively high prevalences of mild hypertension in women, 8.6% and 9% respectively.
- **Moderate Hypertension (160-179 mmHg):** The rate of moderate hypertension remains relatively low in women, ranging from 3-5%.
- **Severe Hypertension (>180 mmHg):** Women have low prevalences of severe hypertension, with values ranging from 0-2%.

• **Men (M):**

- **Low (<90 mmHg):** Men also have low prevalences of low systolic blood pressure, with around 0.6% in Bafoussam and 0.9% in Dschang.
- **Optimal (90-119 mmHg):** Men have similar rates of optimal systolic blood pressure, ranging from 15% in Bafang to 10% in Baham.
- **Normal (120-129 mmHg):** Normal systolic blood pressure is present in about 3-5% of men in the studied localities, with a higher trend in localities like Baham (around 4.7%).
- **High Normal (130-139 mmHg):** Men have relatively higher rates of high normal systolic blood pressure compared to women, particularly in Bafoussam (about 7.4%).
- **Mild Hypertension (140-159 mmHg):** Men are more affected by mild hypertension, particularly in Dschang, where about 10% of men are affected.
- **Moderate Hypertension (160-179 mmHg):** As with women, men show relatively low rates of moderate hypertension (around 1-4%).
- **Severe Hypertension (>180 mmHg):** Severe hypertension is present at a low rate among men, with about 0-2% of men in each locality.

**Geographic Variability:**

- Localities like Bafang and Dschang show high prevalences of mild and moderate hypertension. Particularly, Dschang has the highest proportion of individuals with mild and severe hypertension (9.1% and 2.5%, respectively).
- Bafoussam and Baham also show high prevalences of normal systolic pressure and mild hypertension. However, in Bafoussam, there is a notable proportion of individuals with high normal systolic blood pressure (130-139 mmHg), accounting for about 7% of men.
- Bandjoun has relatively low prevalences of severe hypertension but shows a significant proportion of people with high normal systolic pressure (8% of men).
- Baham also presents a relatively balanced profile, with moderate percentages of individuals with mild and moderate hypertension

**Table 3:-** Distribution of the Study Population Based on Systolic Blood Pressure Type, Sex, Age, and Localities.

Type de tension systolique	Localités	Tranches d'âge								Total général
		50-59		60-69		70-79		≥80		
		F	M	F	M	F	M	F	M	
Faible (<90 mmHg)	Bafang	1	1	0	0	0	0	0	1	3
	Bafoussam	1	2	0	0	1	2	1	0	7
	Baham	1	0	1	0	0	1	0	0	3
	Bandjoun	0	0	0	0	1	0	1	0	2
	Dschang	4	0	0	1	0	0	0	0	5
Optimale	Bafang	9	10	8	8	2	8	0	1	46



<b>(90-119 mmHg)</b>	<b>Bafoussam</b>	3	7	7	3	3	3	1	3	30
	<b>Baham</b>	12	9	13	3	4	2	0	0	43
	<b>Bandjoun</b>	3	8	3	5	1	3	0	0	23
	<b>Dschang</b>	8	6	5	2	8	0	1	1	31
<b>Normale (120-129 mmHg)</b>	<b>Bafang</b>	7	3	4	5	1	1	0	0	21
	<b>Bafoussam</b>	1	5	4	2	2	4	2	0	20
	<b>Baham</b>	10	7	4	1	2	1	0	0	25
	<b>Bandjoun</b>	1	5	4	2	3	0	0	1	16
	<b>Dschang</b>	8		7	2	3	1	1	0	22
<b>Normale haute (130-139 mmHg)</b>	<b>Bafang</b>	4	5	2	5	2	0	1	2	21
	<b>Bafoussam</b>	8	4	4	7	3	3	2	2	33
	<b>Baham</b>	7	4	7	3	3	1	2	1	28
	<b>Bandjoun</b>	4	6	2	7	1	4	0	1	25
	<b>Dschang</b>	12	1	10	1	4	1	1	0	30
<b>Hypertension légère (140-159 mmHg)</b>	<b>Bafang</b>	4	4	11	3	6	2	1	3	34
	<b>Bafoussam</b>	6	2	3	6	2	6	1	0	26
	<b>Baham</b>	6	5	6	3	2	4	3	1	30
	<b>Bandjoun</b>	7	2	4	13	4	8	1	1	40
	<b>Dschang</b>	9	4	12	3	8	0	5	1	42
<b>Hypertension modérée (160-179 mmHg)</b>	<b>Bafang</b>	2	1	3	3	0	0	1	0	10
	<b>Bafoussam</b>	4	3	3	5	3	3	0	2	23
	<b>Baham</b>	4	1	1	3	2	2	2	0	15
	<b>Bandjoun</b>	5	5	3	4	6	0	1	0	24
	<b>Dschang</b>	5	1	6	1	6	2	2	1	24
<b>Hypertension sévère (&gt;180 mmHg)</b>	<b>Bafang</b>	0	1	2	1	1	1	0	1	7
	<b>Bafoussam</b>	2	5	5	1	1	1	0	0	15
	<b>Baham</b>	3	0	3	1	0	1	2	0	10
	<b>Bandjoun</b>	5	4	2	2	1	1	0	0	15
	<b>Dschang</b>	1	0	7	0	6	1	4	0	19
	<b>Total général</b>	16	12	15	10	9	6	3	2	768
		7	1	6	6	2	7	6	3	

Table 4 presents the distribution of participants based on the type of obesity and systolic blood pressure, highlighting a complex relationship and marked variations, with clear trends according to blood pressure levels.

#### Optimal Systolic Blood Pressure:

- In this category, individuals primarily have a normal weight (53.8%), which is the majority group. This suggests that people with optimal blood pressure tend to have a balanced body weight, reflecting good health management and lifestyle habits.
- Overweight is also present in a notable proportion of 26.6%, which is relatively high compared to other systolic blood pressure categories. This could indicate that some individuals with optimal blood pressure are still prone to excess weight, which could be concerning in the long term.
- The categories of moderate obesity, morbid obesity, and severe obesity remain marginal (15%, 1.7%, and 1.7%, respectively), indicating that extreme obesity is less frequent among individuals with optimal blood pressure.

#### Normal High Systolic Blood Pressure:

- This category has a significant proportion of overweight individuals (37.2%), making it the group with the highest prevalence of overweight among all systolic blood pressure categories. This may suggest that already elevated systolic blood pressure values (but not yet classified as hypertension) are associated with an increased risk of weight gain.
- Moderate obesity is also notable, with 19% of participants, reinforcing the idea that people with normal high systolic blood pressure may be more susceptible to developing excess weight.
- Severe obesity (7.3%) and morbid obesity (1.5%) remain relatively low but indicate that some individuals with normal high systolic pressure may be at risk of more severe obesity as their blood pressure increases.

**Mild Hypertension:**

- As with normal high blood pressure, overweight remains very common (36.6%), suggesting that mild hypertension is strongly linked to overweight. This could indicate that higher systolic blood pressure levels are beginning to be associated with significant weight gain.
- Individuals with moderate obesity (18.6%) are also well represented, showing that mild hypertension may contribute to fat accumulation.
- The proportions of severe obesity (6.4%) and morbid obesity (1.2%) are present but relatively low, indicating that at this stage of hypertension, individuals are primarily overweight or moderately obese.

**Moderate Hypertension:**

- The proportion of overweight (24.0%) and moderately obese (25.0%) individuals remains significant in this category, reinforcing the idea that moderate hypertension is strongly linked to body weight disorders. An increase in systolic blood pressure appears to accelerate the onset of overweight and obesity in this population.
- However, it is interesting to note that there are also individuals with severe obesity (4.2%), although their proportion remains relatively low.
- Morbid obesity remains infrequent (3.1%), but it suggests that individuals with moderate hypertension are more likely to reach a higher level of obesity.

**Severe Hypertension:**

- Among all systolic blood pressure categories, the percentage of overweight people (40.9%) is the greatest, indicating a clear link between weight gain and high systolic blood pressure. This could be a significant risk factor for obesity-related comorbidities including heart disease.
- Compared to other blood pressure groups, those with moderate obesity (13.6%) and severe obesity (9.1%) are also represented at higher levels, indicating that severe hypertension is a significant risk factor for moderate to severe obesity.
- The lack of morbid obesity in this group may suggest that people with high blood pressure are more likely to fall into the moderate or severe obesity group, but not the morbid obesity group.

Generally speaking, the type of obesity varies greatly depending on the systolic blood pressure. Particularly in the mild hypertension, normal high blood pressure, and severe hypertension categories, the findings indicate that the incidence of overweight and moderate obesity rises in tandem with systolic blood pressure. In contrast, all blood pressure categories indicate very low rates of severe obesity and morbid obesity, however the percentage of people with severe hypertension who have severe obesity is higher (9.1%).

**Table 4:-** Distribution of Participants Based on Obesity Type and Systolic Blood Pressure.

Types de tension systolique	Types d'obésité						Total
	Maigreur	Normale	Obésité modérée	Obésité morbide	Obésité sévère	Surpoids	
Faible	2	14	0	2	2	0	20
Optimale	2	93	26	3	3	46	173
Normale	3	32	15	0	8	46	104
Normale haute	0	48	26	2	10	51	137
Hypertension légère	2	62	32	2	11	63	172
Hypertension modérée	0	42	24	3	4	23	96
Hypertension sévère	0	24	9	0	6	27	66
<b>Total</b>	9	315	132	12	44	256	768

**Discussion:**

The study's findings support a strong link between age, obesity, and hypertension, which is in line with research done both internationally (WHO, 2021) and in other parts of sub-Saharan Africa (Bigna JJ et al., 2018; Njouendou et al., 2019). Arterial stiffness, a prevalent aging trait, contributes to the rising prevalence of hypertension by raising blood pressure and vascular resistance. This discovery is consistent with previous research (Fowokan AY et al., 2019), which shows that a significant cause of hypertension in older persons is vascular aging, which is frequently made worse by poor eating habits and decreased physical activity.



### **Impact of Obesity on Hypertension**

Obesity is a known risk factor for hypertension, and it was especially prevalent among the women in this study who were over 70. High blood pressure is caused by common metabolic effects of fat, such as increased insulin resistance and sodium retention. Our study's findings that people with moderate to severe obesity also had higher rates of moderate to severe hypertension support earlier findings that obesity management can dramatically lower the incidence of hypertension in older adults.

These results are consistent with a study by Fowokan AY et al., 2019 in Nigeria, which found that among older persons, obesity was significantly linked to hypertension, with a higher frequency of severe hypertension among those with a high body mass index. According to a different South African study, postmenopausal women are especially vulnerable to abdominal obesity, which is strongly associated with elevated blood pressure, as a result of hormonal changes.

### **Geographical Differences in Hypertension and Obesity**

Significant regional variations are revealed by the geographical disparities found in this study, which are probably impacted by socioeconomic, nutritional, and cultural factors. For example, the increased obesity rates in Dschang might be caused by calorie-dense local diets that are made worse by a lack of physical exercise. The findings also indicate that Bandjoun has a greater prevalence of severe hypertension, which may be related to the region's poor healthcare infrastructure and restricted access to care, as indicated by comparable research conducted in sub-Saharan Africa.

One of the main causes of the increase in undiagnosed and untreated hypertension in rural Africa is the lack of access to preventative healthcare services, such as routine blood pressure checks and dietary counseling. These elements help to explain why the prevalence of severe hypertension is higher in some places than others, like Bandjoun.

### **Public Health Implications**

The study's findings emphasize how urgent it is to create focused public health initiatives to control obesity and hypertension in West Cameroon's aging populations. Primary healthcare programs should incorporate awareness initiatives about blood pressure monitoring and weight management. Additionally, certain preventative initiatives, such as dietary counseling and physical activity-promoting therapies, could help older women, who are more susceptible to these illnesses.

Evidence suggests that localized nutrition programs and awareness campaigns can considerably lower the prevalence of obesity and, in turn, hypertension in older populations. Moreover, halting the spread of these non-communicable illnesses requires expanding access to healthcare in rural areas by building infrastructure and educating local medical personnel.

### **Study Limitations**

This study has some limitations. Firstly, its cross-sectional design does not allow for the tracking of participants' health conditions over time, limiting causal conclusions between hypertension, obesity, and aging. Secondly, although measurements were standardized, some seasonal or behavioral variations may not have been captured. Future longitudinal studies could address these gaps by observing the long-term effects of these risk factors among older adults in West Cameroon.

### **Conclusion:-**

This study highlights the urgent need for proactive strategies to manage hypertension and obesity among the aging population in West Cameroon. The findings underscore the importance of weight management and blood pressure control programs to prevent cardiovascular complications. Early screening campaigns and interventions tailored to local specificities are essential to curb the rise of these conditions in this region.

### **Recommendations and Perspectives:-**

To address the high prevalence of hypertension and obesity in elderly populations, a multi-faceted public health approach is necessary:

- **Community-Based Health Programs:** Implementing routine screening and monitoring of blood pressure and weight at the community level can facilitate early detection and management of these conditions.
- **Nutritional and Lifestyle Interventions:** Culturally adapted nutritional counseling and physical activity programs should be developed to promote healthier lifestyles, particularly among elderly women at higher risk.

- **Health Infrastructure Improvement:** Strengthening healthcare facilities, especially in rural areas, is crucial to improving access to diagnosis and treatment. This includes training local healthcare providers to manage age-related chronic diseases effectively.
- **Policy Advocacy:** Governments and health authorities should integrate hypertension and obesity management into national aging policies, ensuring adequate funding and resources for preventive measures.
- **Further Research:** Longitudinal studies are needed to assess the long-term effects of hypertension and obesity in elderly populations and to evaluate the effectiveness of public health interventions.

**Declarations****Ethical approval and consent to participate:**

The study was approved by the Ethics Committee of the Catholic University of Central Africa. All participants signed an informed consent form.

**Consent for publication:**

Not applicable.

**Availability of data:**

The datasets used and/or analyzed during the study are available upon request from the corresponding author.

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The authors declare no conflicts of interest.

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NGNOTUE MBOBDA Claude Alain designed and led the study. Professor ADIOGO Dieudonné supervised data analysis. All authors contributed to data collection, writing, and reviewing the manuscript and approved the final version.

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