

# Risk Factors, Organic Profile of Polypathology in Elderly Subjects in Lome, Togo

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## Abstract

**Objective:** The objective of this study is to describe the polypathological profile of elderly patients hospitalized at the Sylvanus Olympio University Hospital in Lomé. The study also aims to determine the associations between polypathology and key clinical factors. **Setting and Method:** This is a retrospective and descriptive study conducted among 456 patients aged 65 and older, hospitalized at the Sylvanus Olympio University Hospital between January 2019 and December 2023. Data were collected from patients' medical records, covering sociodemographic and clinical characteristics, and the coexistence of multiple pathologies. Inclusion criteria included all patients aged 65 and older who were hospitalized in the internal medicine department during this period. **Results:** The mean age of patients was 73.2 years, with a female predominance (63.3%). The prevalence of multiple pathologies was 60.1%, with an average of three pathologies per patient. The most affected systems were cardiovascular (61.4%), endocrine and metabolic (28.9%), and hematological (29.8%). Multiple pathologies were statistically associated with overweight, hypertension, and diabetes. Polypharmacy was statistically associated with multiple pathologies and advanced age. **Conclusion:** Multiple pathologies were very common among hospitalized elderly patients. Optimal management of these patients requires a geriatric approach and rigorous prevention of pathological aging.

## Keywords

Elderly, Multiple Pathologies, Togo

## 1. Introduction

The definition of an elderly person refers to a state of functional disability experienced subjectively or objectively, according to the individuals concerned. Cur-

rently, we are witnessing an unprecedented aging of the population due to the increase in life expectancy, a result of the global decline in mortality resulting from increasingly effective health policies, and a decline in fertility [1]. It is estimated that by 2050, there will be two billion elderly people worldwide, nearly 50% of whom will live in low- and middle-income countries [1] [2]. In Togo, the population aged 65 and over has been steadily increasing since 1981 [3] [4]. It is estimated that it will increase by more than 80% in 20 years, while the general population will only increase by 58% [3]. Generally speaking, the health of a proportion of these elderly people is characterized by the effects of aging and the coexistence of chronic diseases, the frequency and number of which increase with advancing age; this situation is at the origin of the polypathology commonly encountered in this population [5] [6].

The challenge for healthcare systems today is therefore to ensure a good quality of life throughout all these years of life gained [7] [8]. At the institutional level, the World Health Organization (WHO) has established the Healthy Aging program to address this reality. This program aims to improve the quality of life of older people by promoting healthy and active aging through the adoption of healthy lifestyles to prevent chronic diseases and to maintain physical and mental health [9].

In Togo and Africa, research on older people has been conducted primarily within organ specialties, exploring epidemiological, clinical, paraclinical, and therapeutic aspects [10] [11].

This study was conducted to address the comprehensive aspects of care for elderly patients with multiple pathologies.

The objective was to identify multiple pathologies, affected organs, and risk factors in elderly patients hospitalized in the Internal Medicine Department of Sylvanus Olympio University Hospital in Lomé.

## 2. Setting and Method

The study was conducted in the Internal Medicine Department of the Sylvanus Olympio University Hospital in Lomé (CHU-SO). It was a descriptive and analytical study with retrospective data collection that took place from March 1 to May 20, 2024, and covered the period from January 1, 2019, to December 31, 2023, a period of 5 years.

The study population consisted of patients aged 65 or older with polypathology (superior or equal to two pathologies) hospitalized in the Internal Medicine department of the CHU-SO between January 1, 2019 and December 31, 2023. Patients whose records were damaged or unusable were excluded from the study.

We conducted a document review by examining hospitalization records and patient medical files. The collected data were recorded on a form and a linear list developed for this study.

The study variables were:

- Sociodemographic variables: age, sex, marital status, level of education, place of residence, socio-professional category;

- Clinical variables: reason for admission, personal history, diagnoses, length of hospitalization, and outcome;

We submitted the study to the Ethics Committee of the Faculty of Health Sciences at the University of Lomé. We received authorization from the management of the Sylvanus Olympio University Hospital for access to the records before starting the study. Patient anonymity and data confidentiality were ensured through file coding.

We used Microsoft Word software for data entry and Microsoft Excel software for compilation. For analysis, we used Python version 3.12 software. The results were presented in tables and graphs with values representing absolute and relative frequencies, means, ratios, and proportions.

### 3. Results

#### 3.1. Sociodemographic Data

During the study period, 4270 patients were hospitalized in the Internal Medicine Department of the SO University Hospital, of whom 456 were aged 65 or older. The mean patient age was  $73.27 \pm 7.67$  years, with a range of 65 to 104 years. The male/female sex ratio was 0.57.

Widowers and married patients represented 46.05% and 44.5% of patients, respectively (**Table 1**).

**Table 1.** Distribution of patients by marital status.

	Number of DE patients (N = 456)	%
<b>Widowed</b>	210	46.05
<b>Married</b>	203	44.52
<b>Not specified</b>	26	5.70
<b>Divorced</b>	9	1.97
<b>Single</b>	8	1.73

#### 3.2. Diagnostic Data

The reason for admission was a deterioration in general condition in 56.58% of cases (**Table 2**).

**Table 2.** Distribution by reason for admission.

	Number of patients	%
Altered general condition	258	56.58
Altered state of consciousness	123	26.97
Respiratory distress $\pm$ cough	70	15.35
Pain	44	9.65
Fever	37	8.11
Gastroenteritis	32	7.02

**Continued**

Renal failure	23	5.04
Lower limb edema ± ascites	20	4.39
Acute urinary retention ± dysuria	19	4.17
Hemicorporeal deficit	18	3.95
Gastrointestinal bleeding	17	3.75
Glycemic disorders	13	2.85
Seizures	12	2.63
Speech disorders	10	2.19
Dizziness	8	1.75
Constipation	7	1.54
Foot sores	7	1.54
Hypertensive episodes	4	0.88
Acute bacterial pneumonia	2	0.44
Paresthesia	2	0.44

**3.3. History and Comorbidities**

Patients had at least one defect in 71.94% of cases (**Table 3**).

**Table 3.** Distribution of patients by number of defects before admission.

	Number of patients	%
<b>0</b>	128	28.06
<b>1</b>	160	35.09
<b>2</b>	132	28.95
<b>3</b>	20	4.39
<b>4</b>	10	2.19
<b>5</b>	6	1.32

Hypertension was found in 29.61% of patients (**Table 4**).

**Table 4.** Distribution of patients by pre-admission defect.

	Number of cases	%
High blood pressure	135	29.61
Diabetes	89	19.52
Strokes	59	12.94
Smoking	11	2.41
HIV infection	8	1.75
Chronic kidney failure	23	5.04
Neoplasias*	14	3.07

**Continued**

Peptic ulcer	16	3.51
Asthma	7	1.54
Heart disease	3	0.66
Prostatic hypertrophy	12	2.63
Others**	12	2.63

Neoplasms\*: prostate cancer, rectal cancer, breast cancer; Others\*\*: gout, common lumbosacral pain, hepatitis B, epilepsy.

**3.4. Patients Selected**

The predominant pathologies were cardiovascular (292 cases; 27.32%), endocrine and metabolic (171 cases; 16.00%), hematological (136 cases; 12.72%), urinary (123 cases; 11.51%), and neurological (113 cases; 10.57%).

Polypathology was found in 85.53% of patients (390/456).

The average number of pathologies per patient was  $3 \pm 1$ , with a range of 1 to 7.

The most common pathological associations were hypertension associated with diabetes and anemia associated with renal failure, representing 20.18% and 14.69% of cases, respectively (**Table 5**).

**Table 5.** Distribution of patients according to the most common pathological associations found in patients.

	Number of cases	%
Hypertension + Diabetes + Dyslipidemia	92	20.18
Anemia + Renal failure	67	14.69
Hypertension + Stroke + Overweight	66	14.47
Hypertension + Renal failure	42	9.21
Diabetes + Anemia + Dilated cardiomyopathy	31	6.80
Diabetes + Hypertension + Renal failure + Stroke	26	5.70
Hypertension + Severe acute malnutrition + Anemia	20	4.39
Diabetes + Stroke	19	4.17
Diabetes + Renal failure + Anemia	19	4.17
Hypertension + Renal failure + Anemia	18	3.95
Severe acute malnutrition + Anemia + HIV	13	2.85
Hypertension + Dilated cardiomyopathy	12	2.63

**3.5. Factors Associated with Multiple Pathologies**

The correlation study noted that multiple pathologies were statistically associated with diabetes, hypertension, and overweight (**Table 6**).

**Table 6.** Factors associated with multiple pathologies.

	Polypathology		P-value
	Yes	No	
Age			
[65; 75[ (n = 297)	255 (85.86)	42 (14.14)	0.25
[75; 85[ (n = 20)	100 (83.33)	20 (16.67)	
≥ 85 (n = 53)	29 (87.88)	4 (12.12)	
Sex			
Female (n = 289)	201 (69.55)	88 (30.45)	0.056
Male (n = 167)	130 (77.85)	37 (22.15)	
Sedentary lifestyle			
Yes (n = 230)	199 (86.52)	31 (13.48)	0.17
No (n = 226)	185 (81.86)	41 (18.41)	
Overweight			
Yes (n = 301)	255 (84.72)	46 (15.28)	< 0.0001
No (n = 165)	108 (65.45)	57 (34.55)	
HT			
Yes (n = 249)	241 (96.79)	8 (3.21)	< 0.0001
No (n = 207)	149 (71.98)	58 (28.02)	
Diabetes			
No (n = 315)	257 (81.59)	58 (18.41)	< 0.0001
Yes (n = 141)	133 (94.33)	8 (5.67)	
HIV			
No (n = 446)	381 (85.43)	65 (14.57)	0.69
Yes (n = 10)	9 (90.00)	1 (10.00)	

### 3.6. Evolutionary Data

The mean length of hospital stay was  $10.18 \pm 8.36$  days, with a range of 1 to 70 days. It was 10.30 days (range of 1 to 70) for women and 10.06 days (range of 1 to 37) for men. Among patients with a favorable outcome, the mean length of hospital stay was 11.01 days (range of 1 to 42 days). The outcome was favorable in 50.66% of patients. However, 34.87% of deaths were recorded and 14.47% were discharged against medical advice.

## 4. Discussion

### Strengths and Limitations of the Study

Our study focused on multiple pathologies in the elderly at the Sylvanus Olympio University Hospital Center (CHU). It analyzed the medical records of 648 patients aged 65 and older. This research complements previous studies conducted on older people in various fields, and focused on patients admitted to the Internal

Medicine Department of the Sylvanus Olympio University Hospital. The majority of patients are hospitalized there before being referred to other medical specialties.

The study described the multiple pathologies, morbidity, and mortality profile of the elderly at the Sylvanus Olympio University Hospital. It also highlighted the impact of aging on the elderly and should allow for the rigorous application of political and social perspectives on the concept of Aging Well.

However, the study presents a selection bias since it only included patients aged 65 and over who were hospitalized in Internal Medicine. The study did not include patients who consulted directly in other departments. This limits the generalizability of the results to all elderly patients treated in the various specialties at the Sylvanus Olympio University Hospital.

#### **4.1. Patient Sex**

Of the 648 patients included in our study, 63.38% were women, with a male to female sex ratio of 0.58. This female predominance has also been observed in other studies conducted in geriatric settings in Togo. In 2019, Apeti *et al.* [12] reported a proportion of 76% females, with a sex ratio of 3.17. Kodjo *et al.* [13] in 2023 found a proportion of 61% and a sex ratio (M/F) of 0.65.

Other studies conducted in various medical specialties in Togo also show female dominance [13] [14].

This female dominance may be explained by the greater longevity of women compared to men, a phenomenon visible in both developing and developed countries [15]. Men's shorter life expectancy could be explained by a set of interconnected factors. In addition to biological predispositions, men are often faced with riskier living conditions. Their involvement in armed conflicts, dangerous occupations (such as national defense or physically demanding work), and a greater propensity to engage in risky behaviors (drug and alcohol use, etc.) are thought to increase their exposure to accidents, illness, and violence. These factors, combined with a culture that may encourage them to neglect their physical and mental health, contribute to higher mortality among men.

#### **4.2. Diagnostic Data**

##### **4.2.1. Patient History**

In our study, patients had at least one defect prior to admission in 71.94% of cases. The most common defects were hypertension (29.61%) and diabetes (19.52%). In Togo in 2016, Tchala *et al.* also identified hypertension and diabetes as the predominant pre-admission defects in 44.14% and 27.30% of cases, respectively. Diouf *et al.* [16] in Senegal in 2004 also identified hypertension as the predominant pre-admission comorbidity, found in 35.22% of patients.

##### **4.2.2. Characteristics of Multiple Pathologies**

The prevalence of multiple pathologies was 60.1%. On average, each patient had 2.59 pathologies. This high prevalence is also found in other studies in Togo: Apéti *et al.* [12] reported 80% in 2019. Bassa *et al.* [17] reported 52.2% in 2021. Dermane

*et al.* [18] had a prevalence of 60.7% with 3.26 pathologies per elderly person in 2024.

The most common pathologies observed in our study were cardiovascular diseases (hypertension), which accounted for 27.32% of cases, followed by metabolic disorders (diabetes, dyslipidemia, overweight), which accounted for 16.00%, hematological disorders (12.72%), and genitourinary disorders (11.51%). These results are consistent with those reported by Apeti *et al.* in 2019, who also observed a predominance of cardiovascular diseases (20%) [12].

In Algeria, a similar study conducted by Hamadouche *et al.* in 2019 revealed a clear predominance of cardiovascular diseases (64%), osteoarticular pathologies (59.7%), as well as endocrine and metabolic disorders (35.1%) among a population studied within Algerian households [19].

These findings may be attributed to the pathophysiological transformations that affect certain body systems with age. Indeed, the cardiovascular system, the musculoskeletal system, as well as the metabolic and endocrine systems, often undergo negative changes over time, contributing to the increased prevalence of diseases affecting these organs.

These similarities may also reflect the impact of shared risk factors, such as aging, a sedentary lifestyle, poor diet, and limited access to preventive care, which promote the occurrence of such conditions. They may also reflect the epidemiological transition with the westernization of dietary habits associated with a boom in cardiovascular and metabolic diseases among both young and old people.

#### 4.2.3. Common Polypathological Associations

Hypertension associated with diabetes and dyslipidemia was the most common association (20.18%), followed by anemia associated with renal failure (14.69%), and hypertension and excess weight associated with stroke (14.47%).

The predominance of metabolic syndrome is striking, with the association of hypertension, diabetes, and dyslipidemia. This alarming figure reflects the growing impact of modern lifestyles, characterized by a sedentary lifestyle and an unbalanced diet high in fats and sugars. The omnipresence of high blood pressure (HBP) in the picture confirms this trend, as HBP is a major risk factor for cardiovascular, renal, and cerebral diseases.

Age also appears to play a significant role in the pathologies observed. Renal failure (RF), often associated with hypertension and diabetes, is common, suggesting a potentially elderly population. Furthermore, the presence of cerebrovascular accidents (CVA) in several associations reinforces this hypothesis, as age is a significant risk factor for this pathology. The association of hypertension, stroke, and excess weight is particularly concerning, because it combines several major risk factors for cardiovascular complications.

Anemia, often linked to nutritional deficiencies or chronic diseases, can worsen overall health and increase the risk of complications. These findings suggest possible socioeconomic vulnerability of the study population, which could partly explain the high prevalence of chronic diseases.

These results confirm the complexity of geriatric care and the importance of

considering the interactions between pathologies. The association between anemia and renal failure highlights the impact of renal failure on erythropoietin production and the need for appropriate management to improve quality of life [20].

The association between hypertension, diabetes, and stroke highlights the major role of high blood pressure and diabetes in the occurrence of stroke [21]. Blood pressure and glycemic control are crucial for preventing strokes and their consequences.

It is therefore important to implement the WHO's "Aging Well" program to address these public health challenges by preventing chronic diseases and strengthening health systems. This program contributes to improving the quality of life of older people and enables them to age in good health and dignity.

#### **4.2.4. Factors Associated with Polypathology**

An upward trend in polypathology is observed with age, although the p-value is greater than 0.05. People aged 65 to 75 have 85.86% polypathology compared to 87.88% for those over 85. The risk of polypathology increases with age due to the accumulation of risk factors and the decrease in the body's reserve capacity [22].

Overweight is strongly associated with polypathology (p-value < 0.0001). Overweight people have a much higher risk of developing several chronic diseases, including diabetes, high blood pressure, and cardiovascular disease [23].

Hypertension is very strongly associated with polypathology (p-value < 0.0001). High blood pressure is a major risk factor for many chronic diseases, including cardiovascular disease, kidney failure, stroke, and eye diseases [24].

Diabetes is also very strongly associated with polypathology (p-value < 0.0001). Diabetes is a chronic disease that increases the risk of developing other diseases, such as cardiovascular disease, kidney failure, and eye problems [24].

There was no significant association between HIV and polypathology in this study (p-value = 0.69). However, it is important to note that the sample of people living with HIV was small (n = 10), which limits the statistical power of the analysis [25].

## **5. Conclusions**

In conclusion, this study on the multiple pathologies of elderly patients hospitalized at the Sylvanus Olympio University Hospital in Lomé has provided an accurate picture of the growing medical complexity that characterizes this population. The results reveal that the majority of elderly patients suffer from several concomitant pathologies, including cardiovascular, endocrine, neurological, and metabolic conditions.

Indeed, the clinical specificities of this population, such as increased frailty and atypical symptom presentations, require adaptation of care protocols.

In short, this study constitutes a call to action to prevent pathological aging and multiple pathologies in the elderly. It clearly demonstrates that multiple pathologies are a public health issue requiring pragmatic, innovative, and sustainable solutions.

## Conflicts of Interest

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

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