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Research Article

Factors Associated with Knowledge of Hypertension in Rural Guinea, 2023: Case of the Rural Commune of Maferinyah

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Abstract

Introduction: While numerous studies have explored hypertension knowledge across Africa, they have predominantly focused on urban hospital settings and diagnosed patients. This study aimed to evaluate the determinants of hypertension knowledge in rural Guinea, a less-explored demographic. *Methods:* This cross-sectional study was conducted from March 01 to April 2023 within the Maferinyah sub-district and employed multivariate logistic regression to analyze the relationship between hypertension knowledge and various demographic characteristics. *Results:* The study included 701 individuals aged 16–65 years (mean age 38 years), with a predominance of women (68.3%) and those without formal education (62.8%). Key findings revealed that high economic status (aOR= 2.97; 95% CI: 1.91 - 4.64), age brackets of 41-50 years (aOR= 6.30; 95% CI: 3.51 - 11.5), 30-40 years (aOR= 4.74; 95% CI: 2.89 - 7.90), over 50 years (aOR= 4.13; 95% CI: 2.51 - 6.87), and unemployment (aOR= 2.60; 95% CI: 1.75 - 3.89) were significantly associated with higher hypertension awareness. *Conclusion:* Analysis of the collected data highlights a notable deficit in awareness of hypertension and its associated risk factors among the rural population of Guinea, underscoring the urgent need for targeted educational and awareness initiatives, especially among younger populations, to improve the understanding and management of Hypertension and other non-communicable diseases.

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1. Introduction

Hypertension is a leading cause of global mortality, accounting for 9.4 million deaths annually, and is the foremost contributor to morbidity and mortality rates worldwide [1, 2]. and has the highest morbidity and mortality rate in the world [3, 4]. It is increasingly recognized as a significant public health concern in low-income countries, where rapid urbanization and the adoption of unhealthy lifestyles due to globalization exacerbate its prevalence [5]. Specifically, in Guinea, the World Health Organization's 2015 STEPS survey highlighted an overall hypertension prevalence of 29.9%, with rural areas experiencing a notably higher rate of 37.7%, in contrast to 24.9% in urban locales [6].

Dubbed the "silent killer," Hypertension often progresses unnoticed due to its typically asymptomatic nature. However, the emergence of complications can impose severe financial burdens on families, leading to the death or disability of primary earners and propelling millions into poverty [1].

The challenge of managing Hypertension and its risk factors is amplified in contexts where disease awareness is limited. Research across various global regions has linked hypertension awareness to demographic and socioeconomic factors such as age, gender, marital status, educational level, occupation, income, chronic disease presence, and hypertension duration [7–9]. However, such studies typically focus on high-pressure patients, and most often in a hospital setting. A hospital-based study in Madagascar found that 80.92% of participants were knowledgeable [10]. Another study of hypertensive patients carried out by the Association for Medical Assistance to Older People "KAFOLI" in Burkina Faso reported that 68% of patients had good knowledge [7]. Knowledge concerning cardiovascular diseases, their risk factors, and warning signs tend to vary significantly based on the demographic segment, with formal sector employees generally demonstrating greater awareness than their counterparts in rural and urban household studies [11].

This discrepancy underscores the necessity for tailored educational interventions, as a one-size-fits-all approach is unlikely to be effective. Knowledge gaps present formidable barriers to the efficient prevention and treatment of Hypertension [12, 13]. Enhancing patient understanding of Hypertension can facilitate better blood pressure management, reduce cardiovascular complication risks, and improve adherence to antihypertensive treatments [10]. Moreover, addressing modifiable behavioural risk factors such as unhealthy diets, smoking, excessive alcohol consumption, and physical inactivity is vital for hypertension prevention. [14].

While studies have explored hypertension prevalence in Guinea, insights into the rural population's understanding of the condition remain scarce. This study aims to elucidate hypertension awareness and identify associated knowledge factors within rural Guinea.

2. Methods

2.1. Setting and Study Design

We carried out a cross-sectional study from March 01 to April 20, 2023, in Maferinyah, one of the 11 sub-prefectures of the Forecariah district in Guinea. The Maferinyah sub-district is located 75 km from Conakry (capital of the Republic of Guinea) and 28.6 km from Forecariah, its chief town [15]. It covers an area of 500 km2. According to the national statistics institute, it will have a population of 56,648, 51% of whom will be women in 2023. It comprises 112 villages grouped into 45 sectors and 11 rural districts [16]. It is one of the rural agro-industrial zones concerned by rapid emergence due to its tourist attraction and the installation of industrial companies.

2.2. Study Population

The study targeted individuals aged 16 to 65 who were present in the households during the visitation period and consented to participate in the study.

2.3. Data Collection

Data was gathered in participants' homes over 15 days by seven state nurses who received specialized training for this purpose. The survey instrument was pre-tested in a different district to ensure content validity. The questionnaire formed three sections: respondents' knowledge of hypertension risk factors and symptoms, with responses captured as dichotomous variables (0 = no, 1 = yes). A binary outcome variable standing for adequate knowledge was defined as giving at least two correct responses.

Socioeconomic data were also collected to analyze factors contributing to hypertension awareness. Household wealth was assessed through ownership and dwelling characteristics using a list of 25 items. Principal component analysis was

employed to summarize economic data, with the first principal component divided into tertiles to represent low, medium, and high economic wealth levels.

Demographic information included age, gender, marital status, educational attainment, employment status, alcohol consumption, and proximity to healthcare facilities. Data collection was eased by Android smartphones using the ODK Collect application, which is connected to a dedicated server (ona.io) for real-time data entry and management.

2.4. Statistical Analyses

Data analysis was performed using R software (version 4.0.2). An initial descriptive analysis provided summaries for all variables, with qualitative data presented as proportions and quantitative data as means and standard deviations. Using Pearson's Chi-square test, Bivariate analysis examined the relationship between categorical variables and overall hypertension knowledge. Variables with a p-value < 0.20 in bivariate analysis were considered for multivariate logistic regression to identify independently associated factors. Variable selection for the multivariate model was guided by a bottom-up stepwise approach to minimize the Akaike Information Criterion (AIC). Statistical significance was set at p < 0.05.

2.5. Ethics Statement

This study received ethical clearance from the Institutional Review Board of Koffi Annan University, with approval number 023/UKAGE/MED/23. All participants provided verbal informed consent before their inclusion in the study, ensuring their voluntary participation. We strictly adhered to principles of anonymity and confidentiality throughout the research process to protect participant privacy and data integrity.

3. Results

The socio-demographic characteristics of the 701 participants, of whom 68.3% were women, are detailed in Table 1. The mean age was 38 years, with the under-30 age group being the most represented at 32.8%. The majority of participants were married (68.6%), had no formal education (62.8%), and were unemployed (59.3%).

Our findings revealed that 41.5% of participants possessed adequate hypertension knowledge, with specific awareness of

risk factors and symptoms estimated at 26.1% and 43.7%, respectively (Figure 1).

Table 1. Socio-demographic characteristics of participants.

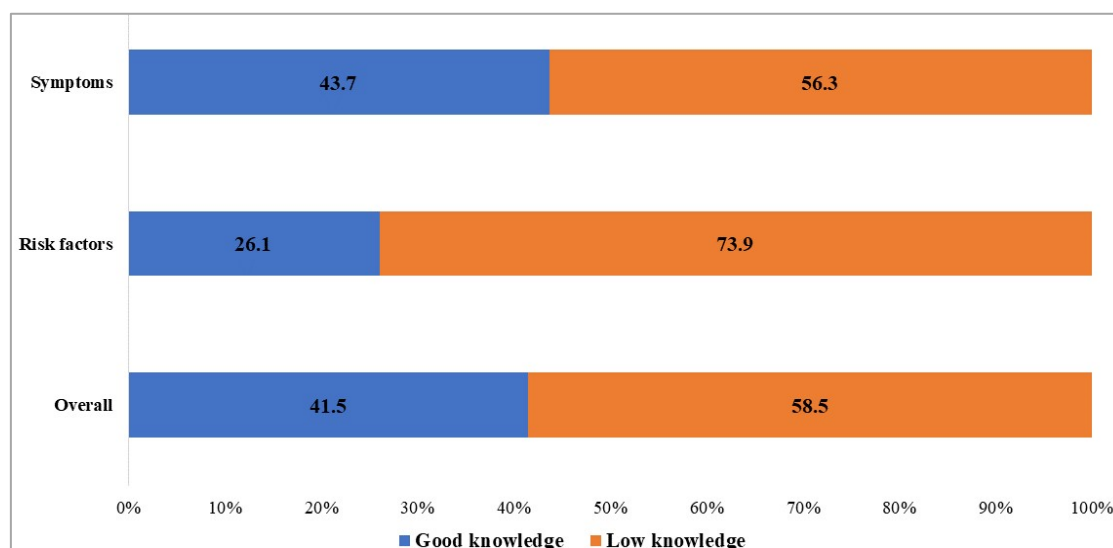| Characteristic	Frequency N = 701 (%)
Wealth index	
Low	234 (33.4)
Middle	234 (33.4)
High	233 (33.2)
Age (Years)	
< 30	230 (32.8)
30-40	198 (28.2)
41-50	106 (15.1)
> 50	167 (23.8)
Sex	
Female	479 (68.3)
Male	222 (31.7)
Marital status	
Single	220 (31.4)
Married	481 (68.6)
Level of education	
Did not attend school	440 (62.8)
Attended school	261 (37.2)
Profession	
Employed	285 (40.7)
Unemployed	416 (59.3)
Alcohol consumption	
No	683 (97.4)
Yes	18 (2.6)
Distance from home to health center	
Less than 5km	535 (76.3)
5km or more	166 (23.7)

Figure 1. Knowledge of risk factors and symptoms predictive of Hypertension.

Identified risk factors included stress (22.1%), poor diet (21.3%), sedentary lifestyle (20.7%), and harmful behaviours like alcohol and tobacco use (14.3%), with heredity cited by 3.9%. The most frequently acknowledged symptoms were headaches (48.9%), palpitations (32.8%), and dizziness (27.5%) (Table 2).

Table 2. Knowledge of risk factors and symptoms predictive of hypertension among our participants.

Characteristic	Frequency n (%)
Knowledge of risk factors	
Stress	155 (22.1)
Poor diet	149 (21.3)
Sedentary lifestyle	145 (20.7)
Behavioral factors (smoking, alcohol, etc.)	100 (14.3)
Hereditary	27 (3.9)
Don't know	213 (30.4)

Characteristic	Frequency n (%)
Knowledge of symptoms	
Headache	343 (48.9)
Palpitation	230 (32.8)
Vertigo	193 (27.5)
Bumblebee	49 (7.0)
Insomnia	8 (1.1)
Don't know	187 (26.7)

Participants from the highest wealth tertile exhibited significantly better knowledge (68.2%) compared to lower tertiles. Age also played a critical role, with those aged 41-50 and 30-40 years demonstrating superior understanding of Hypertension. Surprisingly, participants without formal education (47.7%) and those unemployed (52.9%) showed better knowledge, with these differences being statistically significant ($p < 0.05$).

Table 3. Factors associated with knowledge of risk factors and symptoms predictive of Hypertension in bivariate analysis.

Characteristic	Overall N = 701	Low knowledge (<= 2 points) n = 410	Good knowledge (>2 points) n = 291	p-value
Tertile de richesse				<0.001
Faible	234	165 (70.5)	69 (29.5)	
Moyen	234	171 (73.1)	63 (26.9)	
Elevé	233	74 (31.8)	159 (68.2)	
Age (Années)				<0.001

Characteristic	Overall N = 701	Low knowledge (<= 2 points) n = 410	Good knowledge (>2 points) n = 291	p-value
< 30	230	187 (81.3)	43 (18.7)	
30-40	198	94 (47.5)	104 (52.5)	
41-50	106	40 (37.7)	66 (62.3)	
> 50	167	89 (53.3)	78 (46.7)	
Sexe				0.9
Féminin	479	280 (58.5)	199 (41.5)	
Masculin	222	130 (58.6)	92 (41.4)	
Level of education				<0.001
Did not attend school	440	231 (52.5)	209 (47.5)	
Attended school	261	179 (68.6)	82 (31.4)	
Profession				<0.001
Civil servant/self-employed	285	214 (75.1)	71 (24.9)	
Unemployed	416	196 (47.1)	220 (52.9)	

Multivariate logistic regression analysis indicated that participants from high socio-economic backgrounds were three times more likely to have comprehensive hypertension knowledge (aOR= 2.97; 95% CI: 1.91 - 4.64). Age was a strong predictor, with the 41-50 age group being six times more likely to possess good knowledge than other age groups. Unemployment emerged as a positive factor, doubling the likelihood of better knowledge (aOR= 2.60; 95% CI: 1.75 - 3.89).

Table 4. Factors associated with knowledge of risk factors and symptoms predictive of Hypertension in multivariate analysis.

Characteristic	aOR	95% CI	p-value
Wealth index			
Low	1.0	-	
Middle	0.78	0.51-1.21	0.27
High	2.97	1.91-4.64	<0.001
Age (Years)			
< 30	1.0	-	
30-40	4.74	2.89-7.90	<0.001
41-50	6.30	3.51-11.5	<0.001
> 50	4.13	2.51-6.87	<0.001
Level of education			
Did attend school	1.0	-	
Attended school	1.35	0.90-2.04	0.14

Characteristic	aOR	95% CI	p-value
Profession			
Employed	1.0	-	
Unemployed	2.60	1.75-3.89	<0.001

4. Discussion

This study is one of the first to explore the frequency and factors of good knowledge of non-communicable diseases in rural Guinea. The study showed that less than one in two participants had good knowledge of Hypertension in the Maferinyah sub-prefecture. The main factors associated with good knowledge were high socioeconomic level compared with low socioeconomic level and belonging to the age group 30 to 40 or over compared with under 30. These data suggest the need for a genuine strategy to raise awareness of non-communicable diseases, particularly Hypertension, among people living in rural areas. These strategies should also target younger people, with a view to primary prevention of risk factors for the disease in adulthood.

In this study, we observed a low level of knowledge about Hypertension among the Maferinyah population. Only two out of five participants had reported at least two risk factors or symptoms of Hypertension. Insufficient efforts in health promotion around non-communicable diseases in our rural communities could explain this result. Our result is superior to that of a study carried out in Dakar [17]. Insufficient knowledge of cardiovascular disease and associated risk factors is one of the most essential factors in determining

healthcare-seeking behaviour [11]. Proposing community-centric awareness campaigns, potentially through direct engagements by health professionals, could serve as a crucial mechanism to mitigate this knowledge disparity. Such strategies could enable on-site blood pressure evaluations and impart essential insights on hypertension management and preventive measures tailored to rural communities' unique lifestyle and urbanization dynamics [18].

Economic stability has also surfaced as a correlating factor with health literacy, wherein individuals within the higher economic spectrum exhibit elevated hypertension knowledge. This correlation may be attributed to the greater health service accessibility and utilization among the economically stable, thereby enhancing their exposure to pertinent health information. This observation aligns with analogous findings from other demographic studies, suggesting that wealthier households tend to possess a more profound awareness of their health status than their less affluent peers [19].

We also observed that people over 29 years of age had better knowledge of Hypertension than adolescents, young people, and adults. This result could be explained by the fact that knowledge of Hypertension comes only after diagnosis for most community members. Our findings are consistent with those observed in other studies carried out in Ghana and Senegal [8, 20] which have shown that awareness of Hypertension increases with age. Knowing the risk factors that predispose to cardiovascular disease at an early age is a preventive educational approach, essential to modifying lifestyle behaviours that are detrimental to cardiovascular health [21].

Our study has strengths and limitations that deserve to be highlighted. We found no standardized tool for assessing knowledge about Hypertension, so we drew on field experience and community knowledge to design our collection tools. However, to the best of my knowledge, this study is the first to assess the level of knowledge of the population at household level in Guinea.

5. Conclusions

The analysis of collected data underscores a notable deficit in the awareness of Hypertension and its associated risk factors among the rural populace of Maferinyah. The study elucidates a clear correlation between higher socioeconomic status and advanced age (30 years and above) with better hypertension knowledge. These insights need the implementation of specialized educational and awareness programs tailored to Hypertension and other non-communicable diseases, with a particular focus on engaging the youth. This approach is critical in bridging the knowledge gap and fostering an initiative-taking stance towards hypertension prevention and management within these communities. Additionally, future research should investigate the most effective strategies for information dissemination in rural settings, ensuring that awareness and understanding are comprehensively enhanced.

Abbreviations

ODK: Open Data Kit

AIC: Akaike Information Criterion

aOR: Adjusted Odds Ratio

CI: Confidence Interval

Conflicts of Interest

The authors declare no conflict of interest.

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