



## Increased Prevalence of Hypertension in Dental Screening Patients in Mosoriot, Kenya: A Short Communication

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### Abstract

Hypertension has been on the rise in sub-Saharan Africa. Informed screening initiatives will improve access to treatment and protect populations from the negative sequelae of chronically elevated blood pressure. Objectives: This retrospective analysis will investigate the prevalence of hypertension in 250 adult patients who attended a field dental screening in Mosoriot, Kenya in July, 2022. Methods: Age and blood pressure were recorded at the screening by trained Kenyan nursing students using a standard, digital blood pressure cuff. These values were used to calculate the prevalence of hypertension for different age groups. Results: This study demonstrates increased prevalence of hypertension as compared to previous studies in Kenya. Conclusion: Health professionals working in Kenya should engage in screening initiatives for high blood pressure and refer patients for hypertension management.

**Keywords:** Hypertension, public health, Kenya

### Introduction

In July of 2022, a team of 3 American and 16 Kenyan volunteers hosted a free dental clinic in Mosoriot, Kenya. Many young adults presented with high blood pressure, categorised as >140 mm Hg systolic blood pressure or >90mm Hg diastolic blood pressure (World Health Organization, 2023). Patients with high blood pressure as defined by the World Health Organization (WHO) guidelines were referred to the neighbouring hospital for assessment and care by a health professional before receiving dental treatment.

Hypertension, a global threat to health, has been shown to lead to stroke, heart failure, heart attack, atherosclerosis, kidney damage, and vision loss (American Heart Association, 2025). Moreover, high systolic blood pressure accounted for the most deaths globally in 2019 compared to other risk factors—including tobacco (GBD 2019 Risk Factors Collaborators, 2020). Screening, lifestyle modifications, and pharmacological treatment are key to protecting cardiovascular health.

The prevalence of hypertension has been increasing in sub-Saharan Africa (Zhou et. al, 2021). According to the 2015 Kenya Stepwise Survey for Non-Communicable Diseases Risk Factors (STEPS), 23.8% of the randomly-selected individuals surveyed (ages 18-69) had hypertension, which was defined as blood pressure greater than 140/90 mmHg or currently taking antihypertensive medication (Kenya Ministry of Health, Kenya National Bureau of Statistics & World Health Organization, 2015, p. 91). Current research in Mosoriot, Kenya seeks to improve blood pressure management programs by including community health

workers and the use of smartphone technology. Efforts include reducing inefficiencies in the referral network for hypertension care (Naanyu et al., 2023; Vendanthan et al., 2019).

This retrospective analysis of blood pressures collected at the screening will investigate the prevalence of hypertension among patients in different age groups to inform blood pressure management strategies.

## Methods

At the field dental clinic, age and blood pressure were recorded by trained nursing students to ensure that a patient could safely undergo a tooth extraction. Blood pressure was measured using the same OMRON Platinum Blood Pressure Monitor (upper arm cuff) for each patient. This information was used to calculate rates of hypertension for different age groups.

This study was approved by the Institutional Review Board of the University of North Carolina at Chapel Hill (Approval No. 23-0520).

## Results

**Table 1.** The number of individuals with and without hypertension who attended a dental field clinic in Mosoriot, Kenya, by age group.

Data is compared to the 2015 Kenya STEPs survey (Kenya Ministry of Health, Kenya National Bureau of Statistics, & World Health Organization, 2015, p. 91).

<b>Hypertension Prevalence by Age</b>					
<b>Age Group</b>	<b>Individuals with Hypertension</b>	<b>Individuals without Hypertension</b>	<b>Total In Age Group</b>	<b>Percent of Individuals with Hypertension</b>	<b>Kenya STEPs Survey 2015 Data<sup>5</sup> (p 91)</b>
18-29	12	56	68	17.6%	13.2%
30-44	31	66	97	32.0%	24.6%
45-59	24	32	56	42.9%	43.6%
60 and above*	16	13	29	55.2%	53.2%
<b>Total</b>	83	167	250	33.2%	23.8%

*\*The 60 and above group was collapsed and the Kenya STEPs survey only includes up to age 69. The Mosoriot Study includes 14 individuals who are 70 or older.*

Table 1 displays the prevalence of hypertension across age groups compared to the 2015 Kenya STEPs Survey. The 60 and above age group had the highest percent of individuals with hypertension, at 55.2%. The lowest percentage was the 18-29 age group, with 17.6%. The younger age groups (18-29 and 33-44 years) differed the most from the data obtained in the 2015 Kenya STEPs Survey.

## Discussion

Our results show increased rates of hypertension compared to the 2015 Kenya STEPs Survey with the highest discrepancies in the 18-29 and 30-44 age categories. A study at Tenwek Mission Hospital, Bomet County, Kenya also demonstrated increased rates of hypertension in young adults (defined as 18-35 years) (Ondimu et. al, 2019).

According to the Kenya STEPs survey, people ages 18-29 were the least likely to be screened for hypertension, whereas people ages 60-69 were the most likely (Kenya Ministry of Health, Kenya National Bureau of Statistics, & World Health Organization, 2015, p. 73). Our findings suggest the value of increased screening efforts for young adults.

“White coat hypertension” is a phenomenon where individuals that present with elevated blood pressure in a clinic environment may maintain normal blood pressure at home (Nuredini et. al, 2020). It is possible that anticipatory anxiety related to dental screening or treatment may relate to increased hypertension rates among dental patients. The blood pressure measurements for this study were obtained in a field dental clinic setting where heightened anxiety due to seeking treatment for a dental emergency and/or travel to the clinic site could elevate blood pressure. The Kenya STEPs survey blood pressure measurements were obtained by healthcare workers on teams that visited households to engage in interviews and questionnaires (Kenya Ministry of Health, Kenya National Bureau of Statistics, & World Health Organization, 2015, p. 19). Home visit blood pressure measurement could limit the possibility of “white coat hypertension.”

## Conclusion

Increased rates of hypertension suggest the need for increased screening initiatives and policies, especially for young adults. Dental health and nursing professionals should engage in screening initiatives for high blood pressure and refer patients for the management of elevated blood pressure.

## Author Responsibilities

Amy Gillespie is the corresponding author. Amy Gillespie designed the study, analyzed and interpreted results, and drafted the initial manuscript. Dr. Ronald P. Strauss analyzed and interpreted results. Dr. Craig W. Valentine collected data. All authors critically revised the manuscript, approved the final version, and agree to be accountable for accuracy and integrity of the work.

## Declaration of Conflicts of Interests

The authors declare no conflicts of interest.

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