



Emerging blood pressure concerns among young adults in Zimbabwe: a call for action

Nomin Bayaraa^{1,2^}, Mahfuja Luna^{1^}, Aynul Ashekin¹, Kaori Kitaoka^{1^}, Yuichiro Yano^{1,3,4^}

¹Noncommunicable Disease (NCD) Epidemiology Research Center, Shiga University of Medical Science, Shiga, Japan; ²Division for University Hospital Development, Mongolian National University of Medical Sciences, Ulaanbaatar, Mongolia; ³Department of General Medicine, Juntendo University Faculty of Medicine, Tokyo, Japan; ⁴Department of Family Medicine and Community Health, Duke University, Durham, NC, USA

Correspondence to: Yuichiro Yano, MD, PhD, FAHA. Noncommunicable Disease (NCD) Epidemiology Research Center, Shiga University of Medical Science, Shiga, Japan; Department of Family Medicine and Community Health, Duke University, Durham, NC, USA; Department of General Medicine, Juntendo University Faculty of Medicine, 2-1-1, Hongo, Bunkyo-Ku, Tokyo 113-8421, Japan. Email: yano.yuichiro@jichi.ac.jp; y.yano@juntendo.ac.jp.

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Elevated blood pressure (BP) has been substantially prominent in low- and middle-income countries over the last few decades, causing various public health concerns among different age groups (1). In this reality, sub-Saharan Africa has the highest hypertension rate, where a large proportion of its overall population mostly consists of young adults (2). Zimbabwe, a landlocked country in sub-Saharan Africa is witnessing an increasing trend of hypertension, particularly affecting the young adults aged 18–24 years challenging the traditional perception that it is common among adults (3). Around 1 in 10 individuals age ranges between 10–19 years have hypertension in sub-Saharan Africa, who are likely to develop premature cardiovascular disease (4). According to the population based cross-sectional study, young adults in Zimbabwe have high prevalence of both hypertension (7.4%) and elevated BP (12.2%) (3). Due to the lower rate of BP control among young individuals in Africa compared to developed countries (5), age-specific mortality rates from cardiovascular complications related to hypertension are significantly higher in younger age groups of both sexes in Africa than in the developed world (6).

The rising prevalence of high BP among young adults in Africa can be attributed to several interrelated factors. First, urbanization and changes in lifestyle play a significant role (7). As more young Africans move to urban areas, they adopt more sedentary lifestyles and dietary habits that differ significantly from those of previous generations (8,9). The lifestyle habits adopted during childhood and young adulthood significantly contribute to the risk of developing hypertension in later life. A systematic review emphasizes that unhealthy behaviors, such as physical inactivity, poor dietary choices, smoking, and obesity, are prevalent among young adults and are strongly associated with the early onset of hypertension (10). These habits, if carried into adulthood, increase the risk of sustained hypertension. Moreover, researchers highlight that young adults with hypertension often have the lowest rates of BP control and treatment adherence compared to older age groups, highlighting a gap in healthcare delivery and patient education (11). This lack of awareness and engagement is critical, as untreated hypertension can lead to significant cardiovascular disease outcomes in later life (10). Another contributing factor is the limited access to healthcare and health education (5),

[^] ORCID: Nomin Bayaraa, 0009-0001-7376-8593; Mahfuja Luna, 0000-0002-4099-4375; Kaori Kitaoka, 0000-0001-8214-5251; Yuichiro Yano, 0000-0002-2565-7290.

which decelerates effective prevention and management of hypertension. Many young adults may not be aware of the importance of regular BP checks or lack the resources to manage their condition if diagnosed. Furthermore, genetic predispositions to high BP (6), coupled with environmental and lifestyle changes, exacerbate the problem in this demographic. Lastly, economic challenges that limit the availability of healthy food options and restrict opportunities for physical activity also play a role. As a result, the combined effect of daily lifestyle, economic constraints, and inadequate healthcare infrastructure is leading to a troubling increase in hypertension among young adults in Africa (12), posing significant public health challenges. Although preventable, this phenomenon is highly likely to have immense negative consequences on the overall population health in Zimbabwe in the long run, causing deaths, disabilities, and a compromised quality of life if it remains untreated without adequate prevention and control strategies to manage hypertension effectively (13).

The present study by Sabapathy *et al.* (3) demonstrates the high prevalence and risk factors of elevated BP among urban and peri-urban youth in Zimbabwe. The study was conducted on 16,883 young adults (18–24 years old) of 24 urban and peri-urban communities in three provinces (Harare, Bulawayo, and Mashonaland East) of Zimbabwe to ascertain the outcome of a cluster-randomized trial (CHIEDZA; NCT03719521). Among them, 1,166 participants were living with human immunodeficiency virus (HIV), with 391 receiving antiviral therapy. According to the International Society of Hypertension, hypertension is defined as having a systolic BP equal to or greater than 140 mmHg, a diastolic BP equal to or greater than 90 mmHg, or both. High-normal BP is defined as a systolic pressure between 130–139 mmHg and a diastolic pressure between 85–89 mmHg. The majority of the participants are from 19–20-year age group, and the prevalence of overweight and obesity is higher among women than men, with rates of 20.2% and 6.3% compared to 9.6% and 1.3%, respectively. The median systolic BP and isolated systolic hypertension were higher among men, whereas median diastolic pressure and isolated diastolic hypertension are more frequent in women. The prevalence of hypertension was 7.4% [95% confidence interval (CI): 7.0–7.8%] and high-normal BP was 12.2% [95% CI: 11.7–12.7%] among young adults. The investigators found hypertension is more prevalent in men [adjusted odds ratio (aOR) =1.53; 95% CI: 1.36–1.74] but the rate of increase with age was greater for women than men. In addition, a sharp rise in hypertension with age, from 5.6% at age 18 years to 10.0% by age

23–24 years was observed (aOR =1.90; 95% CI: 1.57–2.30). Authors presented obese young adults, having high body mass index were associated with almost twice the odds of having hypertension (aOR =1.94; 95% CI: 1.53–2.47).

The current research conducted by Sabapathy *et al.* (3) represents a clarion call for health policymakers and practitioners in Zimbabwe and similar environments to reformulate and reinforce public health policies. Proactive screening for hypertension should be embedded in health services targeted at young adults. Public health campaigns should prioritize education on hypertension risk factors and promote healthier lifestyles by encouraging healthy diets and physical activity and reducing tobacco and alcohol use. Research suggests that smoking among young adults is a crucial predictor of future cardiovascular diseases, including hypertension (14). Prolonged smoking is linked to sustained increases in BP, underscoring the increased risk of developing hypertension with longer smoking durations (15). In Zimbabwe, smoking prevalence among male adolescents aged 15–19 years is 3.2%, rising significantly to 13.3% among young adults aged 20–24 years (16). Notably, there is a high rate of early smoking initiation among 13–15 years old (17). Likewise, alcohol consumption is strongly associated with hypertension among young adults. Early alcohol intake can activate the sympathetic nervous system, leading to increased vascular resistance and elevated BP (18). In this population, alcohol consumption is prevalent, with 10.8% of male adolescents and 15.8% of young adults reporting alcohol use (16) which is concerning high. Simultaneously, it is crucial that healthcare providers are trained in hypertension screening among young adults and capable of providing age-appropriate counseling on healthy lifestyle choices.

The study by Yano *et al.* (19) emphasizes the crucial role of early detection, treatment, and prevention of hypertension in young adults, highlighting a significant association between elevated BP levels before the age of 40 years and increased risk of cardiovascular events later in life. The findings underscore that young adults with elevated BP, stage 1 (systolic BP 130–139 mmHg/diastolic BP 80–89 mmHg) and stage 2 (systolic BP \geq 140 mmHg/diastolic BP \geq 90 mmHg) hypertension, as defined by the 2017 American College of Cardiology (ACC)/American Heart Association (AHA) BP guideline (20), exhibit a notably higher risk of cardiovascular disease compared to those with normal BP. According to this study, the importance of early interventions could include both nonpharmacological and pharmacological treatments to manage and mitigate long-term health risks.

Furthermore, recent findings suggest that accurate early diagnosis of hypertension in young adults can serve as a predictive tool for identifying individuals at higher risk, thereby facilitating earlier, targeted interventions that could prevent the progression of hypertension, reducing the long-term burden of cardiovascular diseases in a population that might otherwise be overlooked until later years of adult life (21,22).

Previous studies have shown that hypertension onset at young age is associated with significant hypertensive end-organ damage by midlife (23), emphasizing the necessity for early detection and intervention (10). The interrelationship between early hypertension onset and increased cardiovascular risk underscores the urgency of addressing hypertension in young populations.

To effectively reduce hypertension among young adults in Africa, targeted initiatives at various levels are essential, combining awareness, education, healthcare access, and technological integration, despite the challenges of implementation. Educational initiatives should be diverse and relatable, including health programs in schools and colleges, community workshops, and engaging social media content that is relevant to young adults, promoting hypertension awareness, healthy eating, and physical activity (24). Improving access to affordable healthcare is also essential, can be achieved by subsidizing BP monitors, equipping primary healthcare facilities for hypertension screening and management, and training non-physician healthcare professionals—such as nurses, pharmacists, public health practitioners, and community healthcare workers—to perform early detection and management of elevated BP under supervision and in accordance with approved protocols (24). Additionally, dialog-based artificial intelligence (AI) enhances patient education and strengthens interactions between patients and doctors (25). When integrated with mobile health apps and telemedicine, which support health monitoring, provide educational resources, and promote medication adherence, it can significantly improve hypertension management. However, the successful implementation of these technologies requires attention to improving internet connectivity, infrastructure, policy frameworks, and consistent maintenance.

Initiatives for early screening, diagnosis, treatment, and control of hypertension at a young age could not only reduce the progression to serious cardiovascular complications but also enhance preventive strategies more effectively among young adults in regions like sub-Saharan Africa.

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References

1. Schutte AE, Srinivasapura Venkateshmurthy N, Mohan S, et al. Hypertension in Low- and Middle-Income Countries. *Circ Res* 2021;128:808-26.
2. Muhihi AJ, Anaali A, Mpembeni RNM, et al. Prevalence, Awareness, Treatment, and Control of Hypertension among Young and Middle-Aged Adults: Results from a Community-Based Survey in Rural Tanzania. *Int J Hypertens* 2020;2020:9032476.
3. Sabapathy K, Mwita FC, Dauya E, et al. Prevalence of hypertension and high-normal blood pressure among young adults in Zimbabwe: findings from a large, cross-sectional population-based survey. *Lancet Child Adolesc Health* 2024;8:101-11.

4. Nsanya MK, Kavishe BB, Katende D, et al. Prevalence of high blood pressure and associated factors among adolescents and young people in Tanzania and Uganda. *J Clin Hypertens (Greenwich)* 2019;21:470-8.
5. Ataklte F, Erqou S, Kaptoge S, et al. Burden of undiagnosed hypertension in sub-saharan Africa: a systematic review and meta-analysis. *Hypertension* 2015;65:291-8.
6. Udosen B, Soremekun O, Kamiza A, et al. Correction: Udosen et al. Meta-Analysis and Multivariate GWAS Analyses in 80,950 Individuals of African Ancestry Identify Novel Variants Associated with Blood Pressure Traits. *Int. J. Mol. Sci.* 2023, 24, 2164. *Int J Mol Sci* 2024;25:4093.
7. Essouma M, Noubiap JJ, Bigna JJ, et al. Hypertension prevalence, incidence and risk factors among children and adolescents in Africa: a systematic review and meta-analysis protocol. *BMJ Open* 2015;5:e008472.
8. Pinchoff J, Mills CW, Balk D. Urbanization and health: The effects of the built environment on chronic disease risk factors among women in Tanzania. *PLoS One* 2020;15:e0241810.
9. Batubo NP, Moore JB, Zulyniak MA. Dietary factors and hypertension risk in West Africa: a systematic review and meta-analysis of observational studies. *J Hypertens* 2023;41:1376-88.
10. Gooding HC, McGinty S, Richmond TK, et al. Hypertension awareness and control among young adults in the national longitudinal study of adolescent health. *J Gen Intern Med* 2014;29:1098-104.
11. Johnson HM, Thorpe CT, Bartels CM, et al. Antihypertensive medication initiation among young adults with regular primary care use. *J Gen Intern Med* 2014;29:723-31.
12. BeLue R, Okoror TA, Iwelunmor J, et al. An overview of cardiovascular risk factor burden in sub-Saharan African countries: a socio-cultural perspective. *Global Health* 2009;5:10.
13. Chen A, Waite L, Mocumbi AO, et al. Elevated blood pressure among adolescents in sub-Saharan Africa: a systematic review and meta-analysis. *Lancet Glob Health* 2023;11:e1238-48.
14. Jee Y, Jung KJ, Lee S, et al. Smoking and atherosclerotic cardiovascular disease risk in young men: the Korean Life Course Health Study. *BMJ Open* 2019;9:e024453.
15. Zhang Y, Feng Y, Chen S, et al. Relationship between the duration of smoking and blood pressure in Han and ethnic minority populations: a cross-sectional study in China. *BMC Public Health* 2021;21:135.
16. Yaya S, Bishwajit G. Alcohol and Tobacco Use among Men in Zambia and Zimbabwe. *J Lifestyle Med* 2019;9:67-73.
17. Peltzer K. Early smoking initiation and associated factors among in-school male and female adolescents in seven African countries. *Afr Health Sci* 2011;11:320-8.
18. Piano MR, Burke L, Kang M, et al. Effects of Repeated Binge Drinking on Blood Pressure Levels and Other Cardiovascular Health Metrics in Young Adults: National Health and Nutrition Examination Survey, 2011-2014. *J Am Heart Assoc* 2018;7:e008733.
19. Yano Y, Reis JP, Colangelo LA, et al. Association of Blood Pressure Classification in Young Adults Using the 2017 American College of Cardiology/American Heart Association Blood Pressure Guideline With Cardiovascular Events Later in Life. *JAMA* 2018;320:1774-82.
20. Whelton PK, Carey RM, Aronow WS, et al. 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *Hypertension* 2018;71:e13-115.
21. Guwatudde D, Mutungi G, Wesonga R, et al. The Epidemiology of Hypertension in Uganda: Findings from the National Non-Communicable Diseases Risk Factor Survey. *PLoS One* 2015;10:e0138991.
22. Kawabe H, Azegami T, Takeda A, et al. Features of and preventive measures against hypertension in the young. *Hypertens Res* 2019;42:935-48.
23. Suvila K, McCabe EL, Lehtonen A, et al. Early Onset Hypertension Is Associated With Hypertensive End-Organ Damage Already by MidLife. *Hypertension* 2019;74:305-12.
24. Owolabi M, Olowoyo P, Mocumbi A, et al. African Control of Hypertension through Innovative Epidemiology and a Vibrant Ecosystem (ACHIEVE): novel strategies for accelerating hypertension control in Africa. *J Hum Hypertens* 2023. [Epub ahead of print]. doi: 10.1038/s41371-023-00828-8.
25. Yano Y, Nishiyama A, Suzuki Y, et al. Relevance of ChatGPT's Responses to Common Hypertension-Related Patient Inquiries. *Hypertension* 2024;81:e1-4.

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