



## **UWL REPOSITORY**

**repository.uwl.ac.uk**

A systematic review and meta-analysis examining the global prevalence of hypertension among younger populations

Lawal, Muili ORCID logo ORCID: <https://orcid.org/0000-0002-1502-3884> (2026) A systematic review and meta-analysis examining the global prevalence of hypertension among younger populations. Evidence Based Nursing.

<https://doi.org/10.1136/ebnurs-2025-104451>

**This is the Accepted Version of the final output.**

**UWL repository link:** <https://repository.uwl.ac.uk/id/eprint/14669/>

**Alternative formats:** If you require this document in an alternative format, please contact: [open.research@uwl.ac.uk](mailto:open.research@uwl.ac.uk)

**Copyright:** Creative Commons: Attribution 4.0

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

**Take down policy:** If you believe that this document breaches copyright, please contact us at [open.research@uwl.ac.uk](mailto:open.research@uwl.ac.uk) providing details, and we will remove access to the work immediately and investigate your claim.

### **Rights Retention Statement:**

For the purpose of open access, the author has granted their employer, the University of West London, a non-exclusive, irrevocable, sub-licensable, worldwide license (effective from acceptance of publication) to make any final accepted manuscript publicly available under the terms of a Creative Commons Attribution (CC-BY copyright) license. Please direct any correspondence to [open.research@uwl.ac.uk](mailto:open.research@uwl.ac.uk)

A systematic review and meta-analysis examining the global prevalence of hypertension among younger populations

**Commentary on:** Global prevalence of Hypertension in Children and Adolescents Younger than 19 years – A systematic review and meta-analysis. *JAMA Pediatrics* 2025; 179 (9): 987-999.

### **Implications for practice and research**

- Hypertension was previously associated with older population, however, its prevalence is increasing worldwide among the younger population under 19 years old.
- Prevalence study of hypertension is important to assess the burden of the disease, promote preventive measures and aid appropriate allocation of healthcare resources.

### **Context**

Hypertension is a long-term condition characterized by raised blood pressure on repeated measurements. It results from alteration in the mechanisms regulating vascular tone, blood volume and cardiac output. The development of hypertension is influenced by lifestyle factors such as high dietary sodium intake, lack of physical activity, stress, undiagnosed comorbidities, dyslipidemia, overweight, and family history<sup>3</sup>. Uncontrolled hypertension can affect multiple organ systems resulting in complications such as chronic kidney disease, heart failure and stroke<sup>1,3</sup>. Hypertension is a global health problem with a growing prevalence that increasingly affects children and adolescent populations<sup>1</sup>. Despite this growing trend, there is paucity of research studies on its prevalence among this age group. This secondary research study examines the global prevalence estimate and the regional distribution of hypertension among children and adolescents.

### **Methods:**

A pragmatic approach using several databases which includes PubMed, Web of science, the China National Knowledge Infrastructure (CNKI), and the Wan fang database from inception to July 7, 2024, were used to identify the relevant studies. The authors screened 40,143 records, and the researchers retrieved a final selection of 271 studies based on the eligibility criteria and the selection of studies excluded papers with a small sample size of less than 500<sup>1</sup>. The data extraction and quality assessment were done by two independent authors, they assessed for risk of bias using the Joanna Briggs Institute tool and disagreements were resolved through discussions<sup>1</sup>. A meta-analysis approach was used to combine the studies, Funnel plots, and the Egger test were used to examine publication bias. The researchers also used meta regression analysis to investigate potential sources of heterogeneity and sensitivity analyses were performed to assess the robustness of results.

### **Findings:**

The evidence from this systematic review showed that the studies retrieved were published between 2001 and 2024, covered 48 countries and divided into two broad categories as sustained hypertension (persistent diagnosis confirmed on three or more occasions) and occasional hypertension that is based on a single blood pressure measurement. The key themes that emerged from the study highlighted the global prevalence, trends, geographical differences, and population distribution of paediatric

hypertension. The global prevalence of paediatric hypertension varies across different diagnostic principle and higher in occasional hypertension when compared to sustained hypertension. Similarly, the trends for the prevalence of paediatric hypertension showed an upward trend for occasional hypertension from 1987 to 2022 across all WHO region except for regions of the Americas where there is little or no change. The authors identified significant differences for the prevalence of both occasional and sustained hypertension across different BMI levels and central obesity in all the regions<sup>1</sup>.

### **Commentary:**

This systematic review meta-analysis demonstrates that hypertension is a prevalent medical condition affecting children and adolescents, reinforcing its growing importance as a global health problem<sup>1</sup>. A key finding is the substantial variation in prevalence estimates depending on the diagnostic criteria applied. This discrepancy highlights the importance of repeated, standardised assessments to improve diagnostic accuracy. Overweight and obesity emerged as consistent risk factors for elevated blood pressure in children, regardless of the diagnostic framework used. This association supports existing evidence linking excess adiposity to early cardiovascular risk<sup>1,2,3</sup>.

Early diagnosis and timely intervention remain critical to preventing childhood hypertension from progressing into persistent adult disease. The upward global trend and the influence of modifiable risk factors indicate that public health strategies should focus on promoting healthy weight, reducing dietary sodium, and increasing physical activity among children. This systematic review demonstrated that strengthening screening programmes, particularly in low- and middle-income countries, will be essential to mitigating the long-term consequences of this condition.

This study presents methodological deficiencies which include variability in hypertension definitions across studies, potential publication bias, methodological biases related to region, demographics, study quality, and substantial heterogeneity. Nevertheless, this secondary research provides clinical insight and suggests that future research should prioritise harmonised methodologies and longitudinal designs to better understand the trajectory of paediatric hypertension and its determinants.

### **References**

1. Ruan X, Zhu A, Wang T, et al. Global prevalence of Hypertension in Children and Adolescents Younger than 19 years – A systematic review and meta-analysis. *JAMA Pediatrics* 2025; 179 (9): 987-999.
2. Beevers DG, Lip GYH, O'Brien E. *ABC of Hypertension*. 2015, West Sussex: John Wiley & Sons.
3. WHO. 2025. Hypertension: Fact sheet. [Hypertension](#) (16/01/26).