Available online at www.koozakar.com/journals/proceedings



BRIDGING THE IMPLEMENTATION GAP: A SYSTEMATIC REVIEW OF HEALTH-POLICY PATHWAYS, COMPARATIVE EFFECTIVENESS, AND EDUCATIONAL OUTCOMES IN SUB-SAHARAN AFRICA

Morufu Olalekan Raimi[1*], Aishat Funmilayo Abdulraheem[2], Aziba-anyam Gift Raimi[3], and Ifiaobebh Agnes Ita[4]

[1]Niger-Delta Institute for Emerging and Re-Emerging Infectious Diseases, Federal University Otuoke, Nigeria
[2]Department of Sociology and Anthropology, University of Uyo, Nigeria
[3]Department of Business Administration, Federal University Otuoke, Nigeria
[4]Department of Office and Information Management, Niger Delta University, Wilberforce Island, Nigeria
[*]***Corresponding Author Email***: *raimimo@fuotuoke.edu.ng*

ARTICLE INFORMATION

Article Type: Extended Abstract

Conference: International Conference on Science, Peace, Environment, Climate, Technology, Resilience and Agriculture (SPECTRA 2026)
Conference Theme: *Reimagining the Future: Science, Technology and Innovation for a Resilient, Sustainable and Secure World*

Copyright: © 2026 The Author(s). Published by Koozakar.
License: [CC BY 4.0, International]

Publication Note: This extended abstract was peer-reviewed, accepted, and published online in advance of its scheduled presentation at SPECTRA 2026, to be held virtually on 13–14 November 2026.

Keywords: Educational Policy, Health Policy, Governance Systems, Educational Inequality, Systematic Review, Student Enrolment

https://doi.org/10.69798/54234644

Introduction

The relationship between health and education is a foundational determinant of human capital development, yet in Sub-Saharan Africa (SSA), millions of children enter classrooms carrying a burden of preventable disease, malnutrition, and poverty that fundamentally undermines their capacity to learn (Elemuwa *et al.,* 2024; Eli *et al.,* 2025; 2026; Ezekiel & Raimi, 2026; Akabueze & Raimi, 2026). While global policy frameworks increasingly recognize the symbiosis between health interventions and educational access, the evidence base linking specific health-policy domains to basic education outcomes remains highly fragmented across disciplines, geographies, and intervention types. Policymakers face a critical knowledge gap: while broad assumptions posit that "health improves education," there is insufficient comprehensive evidence to determine which specific health policies yield the greatest educational returns, under what contextual conditions, and most critically, whether these interventions merely facilitate school attendance or actually catalyse meaningful learning achievement. This systematic review addresses this gap by synthesizing evidence across multiple health-policy domains, moving beyond single-intervention evaluations to provide a comparative, rigorous assessment of how health policies function as determinants of educational success in SSA. By examining the pathways through which health interventions influence enrolment, attendance, retention, progression, and learning, this review seeks to inform integrated, evidence-based policymaking that maximizes the dual dividends of health and education investment. The primary objective of this systematic review was to identify, classify, and compare the effectiveness of distinct health-policy domains, including school feeding, preventive healthcare,

deworming, water, sanitation, and hygiene (WaSH), health education, and social protection on basic education outcomes in Sub-Saharan Africa. Secondary objectives were to: (1) determine the contextual and methodological moderators that influence effect variation; (2) assess the certainty and policy relevance of the underlying evidence using the GRADE framework; and (3) evaluate whether these health policies exert a differential impact on access-oriented outcomes (enrolment, attendance) versus learning-oriented outcomes (cognitive performance, literacy, numeracy).

Methodology

This study employed a systematic review design, adhering to PRISMA 2020 guidelines. A PECO-structured search strategy was executed across seven major databases (PubMed/MEDLINE, Embase, Scopus, Web of Science, ERIC, EconLit, and CENTRAL) and institutional repositories (WHO AFRO, UNESCO, UNICEF, World Bank) to capture both peer-reviewed literature and grey evidence. The search covered children aged 5-17 years in SSA exposed to health-related interventions, with comparators including non-intervention, routine services, or alternative interventions. Two independent reviewers screened records, extracted data, and assessed risk of bias using RoB 2 for randomized trials and ROBINS-I for non-randomized studies. Evidence certainty was graded using the GRADE approach, and findings were synthesized narratively across five structured evidence tables, with effect estimates reported as odds ratios (OR), risk ratios (RR), and standardized mean differences (ES). A comparative ranking of policy domains was constructed based on effect magnitude, consistency, breadth of outcomes, and certainty of evidence.

Results

The review included 85 studies, revealing substantial heterogeneity across intervention domains. School feeding and nutrition programmes (n=8) demonstrated consistent positive effects on enrolment (OR 1.4-1.8) and attendance (RR 1.3-2.1), with moderate-certainty evidence supporting learning achievement gains (ES 0.2-0.5 SD); however, retention effects were mixed (RR 1.2-1.6). Conditional cash transfers **(**CCTs) (n=14) showed the strongest evidence for improving enrolment (OR 1.6–2.4), attendance (RR 1.3-2.2), and retention (RR 1.2-1.9), though their impact on learning outcomes remained inconsistent. Preventive healthcare, specifically school-based deworming (n=12), provided the strongest causal evidence for attendance (RR 1.2–1.8) and long-term human capital benefits, with moderate-to-high certainty. Unconditional cash transfers (n=9) yielded beneficial but weaker effects on participation (RR 1.2-1.8) compared to CCTs. WaSH interventions (n=7) consistently reduced illness-related absenteeism but lacked direct evidence linking them to learning attainment (low certainty). Health education (n=6) improved health knowledge but had insufficient comparative evaluation of direct educational outcomes (very low certainty). Integrated health-education frameworks (n=8) demonstrated high conceptual policy relevance but negligible empirical evaluation of implementation effectiveness. Contextual moderators, including country context, age, socioeconomic status, and implementation fidelity, significantly modified outcomes, with greater benefits observed among younger, disadvantaged children. Critically, across all domains, evidence for learning achievement and progression remained weak, geographically concentrated (primarily Kenya, Uganda, Malawi, Nigeria), and insufficiently disaggregated by sex or rural-urban location.

Conclusion

This review demonstrates that health policies reliably and substantially improve access-oriented educational outcomes, enrolment, attendance, and retention in Sub-Saharan Africa, positioning schools as underutilized platforms for scaled preventive and nutritional health delivery. However, the evidence base remains heavily skewed toward participation indicators, with a persistent and critical gap regarding learning achievement, progression, and completion. The comparative synthesis reveals a clear hierarchy of effectiveness: school feeding, deworming, and CCTs currently offer the strongest evidence for policy investment, while WaSH, health education, and integrated frameworks require rigorous, longitudinal evaluation before scale-up. The findings underscore that while health policies are a proven lever for getting children into school, they are an unproven

strategy for ensuring that time in school translates into learning. This distinction is paramount for policymakers seeking to optimize resource allocation across health and education ministries. Priority investment should target school feeding, deworming, and CCTs, supported by harmonized, longitudinal, equity-disaggregated outcome measurement systems. Policymakers should integrate deworming delivery into existing primary healthcare platforms and embed feeding programmes within coherent social-protection architectures rather than standalone safety nets. WASH and health-education investments require outcome-linked monitoring, moving beyond infrastructure counts to measurable educational indicators. Integrated health-education frameworks should be prioritized for implementation-focused research rather than premature scale-up. Future evaluations must adopt multi-country, cluster-randomized designs with long-term follow-up, standardized learning assessments, and mandatory sex- and settlement-disaggregated reporting to close the evidence gap and ensure that health policies deliver not only access but also the learning and human-capital outcomes that basic education ultimately promises.

References

Akabueze, C. T., & Raimi, M. O. (2026). Tele-epidemiology in the digital age: Ethical communication, governance, and innovation in remote disease monitoring. *Preprints*. https://doi.org/10.20944/preprints202603.1785.v1

Elemuwa, C. O., Raimi, M. O., Ainu, M., Adias, T. C., Ufuoma, R. S., Elemuwa, U. G., Oginifolunnia, O. C., Rath, B. A., & Obermeier, P. E. (2024b). Conquering Mpox: A comprehensive public health strategy for addressing Mpox and poxvirus infections in Nigeria. *JMIR Preprints*. https://doi.org/10.2196/preprints.67534

Eli, A. A., Markmanuel, D. P., Raimi, M. O., Oyibo, C., & Omidiji, A. O. (2026). Bayelsa's future is rooted in nature: Why World Environment Day 2026 must become a turning point for climate action. *JMIR Preprints*. https://doi.org/10.2196/preprints.103865

Eli, A. A., Raimi, M. O., & Amachree, D. (2025). Evaluating the role of Marine Protected Areas (MPAs) in enhancing biodiversity and supporting sustainable economic growth in the blue economy. *JMIR Preprints*. https://doi.org/10.2196/preprints.74970

Ezekiel, A. A., & Raimi, M. O. (2026). Pandemic preparedness and the infodemic: Communication strategies to mitigate misinformation and improve public compliance. *JMIR Preprints*. https://doi.org/10.2196/preprints.98088