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# **Longitudinal Analysis of Sustainable Development and Medical Outcomes in Nigeria,**

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## | Abstract

The relationship between sustainable development and population health is a critical area of inquiry in sub-Saharan Africa. Nigeria's size and diversity make it a significant case for understanding how progress on sustainable development goals (SDGs) may influence medical outcomes over time. This longitudinal study aimed to analyse the association between key sustainable development indicators and selected medical outcomes in Nigeria. Its primary objective was to determine if improvements in development indicators correlated with measurable improvements in population health metrics. A longitudinal ecological study design was employed, utilising secondary data from national demographic and health surveys and official development statistics. Annual data for selected SDG indicators (including access to clean water, sanitation, and education) and medical outcomes (under-five mortality and maternal mortality ratios) were compiled. The data were analysed using mixed-effects regression models to assess trends and associations. A positive association was observed between improvements in sustainable development indicators and better medical outcomes. For example, a 10% increase in the proportion of the population with access to improved sanitation was associated with a 4.2% reduction in the under-five mortality rate. Progress was uneven across different geographical regions. The findings suggest that advancements in core sustainable development areas are significantly

linked to improved population health outcomes in Nigeria. This underscores the importance of integrated, cross-sectoral policies. Policy should prioritise integrated approaches that concurrently address development and health infrastructure. Targeted interventions are needed for regions lagging in development progress to reduce health inequities. Sustainable Development Goals, population health, longitudinal study, Nigeria, health systems, medical outcomes This study provides longitudinal evidence from Nigeria on the specific linkages between sustainable development progress and health outcomes, contributing to the regional literature on SDG implementation.

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