

## **Risks and Causes of Mortality Among Young People in Ghana: A Study of the Kintampo Health and Demographic Surveillance System**

**Background:** Mortality among young people (aged 10–34 years) in sub-Saharan Africa remains a critical public health concern, yet it is relatively understudied. Ghana, like many low and middle-income countries, faces challenges in reducing premature deaths among young people. Understanding the causes and risk factors driving youth mortality is essential for informing targeted interventions and achieving national and global health goals.

**Objective:** Within the framework of the Modified Epidemiologic Transition Model (ETT) and the Multi-level Eco-epidemiological Life Course Model, this study investigates the sex-differentiated dynamics, predominant causes and risk factors of youth mortality in Ghana. It further assesses the potential gains in youth life expectancy that could be achieved by eliminating broad categories of death, in alignment with specific Sustainable Development Goal (SDG) targets aimed at reducing premature mortality.

**Methods:** The study employed a quantitative design using longitudinal mortality data between 2005 and 2015 from the Kintampo Health and Demographic Surveillance System (KHDSS), comprising 1,834 deaths among young people aged 10–34 years. Descriptive statistics and multinomial logistic regression models were used to identify patterns and significant socio-demographic risk factors of mortality. Multiple decrement and cause-deleted life table analyses were applied to estimate a baseline Youth Life Expectancy (YLE) and to simulate gains from eliminating or reducing key causes of death.

**Results:** Infectious diseases were the leading cause of death for both sexes, but the burden and specific conditions differed. Among females, the top causes included pulmonary tuberculosis, HIV/AIDS-related illnesses and abortion-related complications, along with obstetric haemorrhage and pregnancy-related sepsis, highlighting the impact of reproductive health challenges, especially among the 15–29 age group. In contrast, male mortality was dominated by both infectious diseases and external injuries, particularly road traffic accidents, drownings and interpersonal violence, common among those aged 15–24 years. Non-communicable diseases (NCDs), including liver cirrhosis, digestive neoplasms and other chronic conditions accounted for an increasing share of deaths, especially among males aged 25–34, suggesting early exposure to lifestyle-related risks. This shift reflects rising exposure to behavioural risk factors such as alcohol use, poor diet and sedentary lifestyles. Age, education, ethnicity, residence and place of death were identified as significant determinants of cause-specific mortality. Eliminating infectious diseases could increase YLE by 0.48 years for females and 0.75 years for males. Cumulatively, achieving SDG-aligned reductions across all causes could yield YLE gains of 0.79 years for females and 1.59 years for males.

**Conclusion:** This study underscores the significant burden of preventable mortality among young people in Ghana. The findings reveal a triple burden of disease - infectious, injury-related and NCDs, with distinct sex and age-specific differences. Particularly concerning is the rising contribution of NCD-related mortality among the youth, highlighting the urgent need for early prevention and the integration of NCD services into primary healthcare. The results also indicate that rather than a linear shift from infectious to degenerative diseases, there is a non-sequential, overlapping epidemiological transition characterised by the co-existence of infectious diseases, external injuries and NCDs in a young age group. This aligns more closely with observations from low and middle-income settings, with socio-economic disparities and health system limitations, described as a non-classical transition. Equally important is the need for more disaggregated data and focused research on youth mortality to better understand its drivers, monitor trends and inform targeted interventions. The results highlight the need for youth-centered public health strategies, data-driven planning and evidence-based policymaking to accelerate progress toward Ghana's health and development goals.