# Levels, trends and inequalities in mortality among 5–19-year-olds in Tanzania: Magu Health and demographic surveillance study (1995-2022)

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## Extended Abstract

*Background:* For the past two decades, health priorities in Tanzania have focused on children under-five, leaving behind the older children and adolescents (5-19 years). Understanding mortality patterns beyond 5 years is important in bridging a healthy gap between childhood to adulthood. This study aimed to estimate mortality levels, trends and inequalities among 5–19-year-olds using population data from Magu Health and Demographic Surveillance site (HDSS) in Tanzania, compared 5-19 mortality trends with younger children (1-4 years) and further contextualizes the population level estimates with global estimates.

*Methods:* Using data from Magu HDSS from 1995 to 2022, from Kaplan Meir survival probabilities, we computed annual mortality probabilities for ages 5-9, 10-14 and 15-19. We determined the average annual rate of change in mortality by fitting the variance weighted least square regression on annual mortality probabilities and compared 5-19 trends with younger children aged 1-4 years. Mortality was further disaggregated by sex, area of residence and wealth tertiles, to determine inequalities age-stratified risk ratios with respective 95% confidence intervals were computed using Cox proportional hazard model. The population level estimates in all-cause mortality were further compared with Tanzania modelled global estimates from United Nations Inter-agency group for child mortality

estimation (UN IGME) and the Global Burden of Disease (GBD) by computing the relative differences to the estimates.

*Results:* Mortality declined steadily among the three age groups from 1995 to 2022, and the average annual rate of decline increased with age (2.2%, 2.7% and 2.9% for 5-9 10-14 and 15-19 years, respectively). The pace of mortality decline was lower compared to younger children aged 1-4 years (4.8% decline). We observed significant mortality inequalities with boys and those residing in rural areas lagging behind for 5-9- (AHR: 1.44; 95% CI: 1.13, 1.82) and 10–14-year-olds (AHR: 1.51; 95% CI: 1.06, 2.14) and those from poorest wealth tertiles lagging behind for 5-9- (AHR: 1.48; 95% CI: 1.05, 2.10) and 15–19-year-olds (AHR: 1.74; 95% CI: 1.09, 2.78). Magu estimates were close to global estimates for 5-9 years with relative differences ranging from 3-20%. However, we observed divergent results for adolescents (10-19 years) with Magu estimates lying between the global estimates.

*Conclusion:* Despite little programmatic focus on the older children and adolescent during 1995-2022, we observed a mortality decline, however, at a pace that was only half of what was observed at ages 1-4 years. Mortality inequalities by socio-demographic characteristics do exist. A greater focus on health and survival of children beyond age 5 years can accelerate the mortality decline, especially when focused on the more disadvantaged children and adolescents. This study also showed that empirical data are an important input to enhance global estimation of mortality among older children and adolescents. Further investments in measurement and monitoring mortality and other health indicators in this age group are critical for successful programs.