Trends and patterns of older children and adolescent mortality (5-19 years) at a subnational level in Tanzania (1995-2022)

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Background

- More than 50% of deaths among 5-19 year olds globally occur in SSA every year
- Mortality patterns among 5-19 in Tanzania are unknown
  - Important for planning, programming & monitoring of health & social services beyond early childhood

- We estimated mortality levels, trends and causes of deaths transitions among 5-19 year olds in Tanzania using longitudinal data from Magu Health and demographic surveillance system (HDSS) (1995-2022)
  - Allowed to show a local context of 5-19 mortality in Tanzania

Fig 1: Magu HDSS located in northwestern Tanzania
Methods

- Age-specific Mortality risk from 1995-2022
  - (5-9 ($q_5$), 10-14 ($q_{10}$), 15-19 ($q_{15}$)) per 1000 person-years

- Obtained average annual rate of change (AARC) for 5-19 mortality & compared with 1-4 years

- Changes in place of death: From verbal autopsy (VA) interviews

- Causes of death transitions: Causes of deaths ascertained from computer algorithm (InSilicoVA) & physician review using VA data

- With evidence that Magu demographic indicators are comparable to Tanzania\(^1\)

- We compared all-cause mortality estimates from Magu HDSS with global estimates for Tanzania derived from UN IGME & Global Burden of Disease (GBD)
  - This was to put the population data in the context of other modelled estimates & test the external validity of the data

5-19 years mortality declined from 1995-2022

Fig 2: Mortality per 1000 among 5-9, 10-14 and 15-19-year-olds in Magu HDSS by 4-year time periods (1995-2022)

Despite little programmatic focus on 5-19, mortality declined from 1995-2022

AARC (%) (1995 to 2022) increased with age:
- -2.0 (-3.3, -0.7) 5-9 years
- -2.7 (-4.4, -1.1) 10-14 years
- -2.9 (-4.2, -1.5) 15-19 years

Mortality decline among 5-19 years not comparable with 1-4 years:
- Mortality declined by 4.8% per year (-4.8(-5.5, -4.0))
Proportion of older children & adolescents dying in health facilities increased (from 25%-47%)

Indicating greater service utilization overtime

Majority (53%) still die outside health facilities

**Fig 3:** Changes in distribution of place of death among 5–14-year-olds, compared to 1-4 years in Magu HDSS (1995-2022)
75% reduction in communicable diseases for 5-14 similar to 1-4 year olds

- ↓ in communicable diseases is driving mortality decline among older children and adolescents

- ↑Relative share of NCDs & Injuries:
  - Accounting 60% of deaths
  - Specific NCD causes are: Sickle cell disease, Cardiovascular illnesses, Neoplasms
  - Specific Injury causes are: Drowning & RTAs

Fig 4: Cause-specific mortality transitions among 5-14 year olds, compared to 1-4 year olds in Magu HDSS (1995-2022)
Older children (5-14 years) estimates are comparable to global estimates, compared to 1-4 years estimates

- **1-4 years**: Population level estimates comparable with UN IGME estimates; divergent with GBD estimates
  
  ➢ Divergence between the two global estimates
Conclusion

- Mortality declined steadily among 5-19 year olds, although at a lower pace compared to 1-4 years.

- Major reduction in communicable diseases beyond 5 years similar to 1-4 years; increase in relative importance of NCDs and Injuries beyond 5 years.

- This study also emphasizes that empirical data are an important input to enhance global estimation of mortality.

- Investments in measurement and monitoring mortality and other health indicators in this age group are critical for successful programs.