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# Correlates of diarrhea and stunting among under-five children in Ruvuma, Tanzania; a hospital-based cross-sectional study

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# Correlates of diarrhea and stunting among under-five children in Ruvuma, Tanzania; a hospital-based cross-sectional study

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## Abstract

Undernutrition affects 20% of children under five in the developing world. Stunting is a form of undernutrition when children have low height for their age. Global prevalence of stunting in 2019 was 21.4%, while current Tanzania national average is 34%. Ruvuma region has one of highest prevalence of stunting (44%) in Tanzania, which prompted this cross-sectional study on correlates responsible for this high prevalence. The study included randomly sampled children below 5 years of age who attended outpatient clinics at hospitals from Ruvuma between April – May 2019. The mean and median ages of children were 18 and 13 respectively. Among children, 46% were females and 45.6% were stunted. More male children (52%) were stunted than females. Through bivariate analysis, stunting was associated with gender ( $\chi^2 = 6.6759$ ,  $df = 1$ ,  $p = 0.009772$ ), handwashing before food ( $\chi^2 = 5.1213$ ,  $df = 1$ ,  $p = 0.02363$ ), location of hospital ( $\chi^2 = 3.851$ ,  $df = 1$ ,  $p = 0.04972$ ) and use of Municipal garbage collection system ( $\chi^2 = 3.6814$ ,  $df = 1$ ,  $p = 0.05502$ ). Moreover, diarrhea was associated with toilet sharing ( $\chi^2 = 5.4703$ ,  $df = 1$ ,  $p = 0.002$ ), use of household's toilet ( $\chi^2 = 4.0224$ ,  $df = 1$ ,  $p = 0.004$ ) and rinsing child feces into toilet ( $\chi^2 = 3.6814$ ,  $df = 1$ ,  $p < 0.01$ ). Multivariate logistic regression analyses showed that stunting risk increased with male gender (OR (95%CI) = 1.7945 (1.1944 – 2.712)), age (OR (95%CI) = 1.3122 (1.1484 – 1.507)), and decreased with handwashing before meal (OR (95%CI) = 0.5403 (0.3042 – 0.940)). Finally, diarrhea risk increased with toilet sharing (OR (95%CI) = 2.154 (1.153 – 3.953)) and decreased with child's use of toilet (OR (95%CI) = 0.510 (0.259 – 0.945)). Our study revealed important correlates that determined observed high prevalence of stunting in Ruvuma. These correlates can be modified through health interventions to reduce this high prevalence.

## Keyword

Stunting; WaSH; Diarrhea; Undernutrition; Songea; Ruvuma; Tanzania