Title: Pastoralists’ Water Treatment, Sanitation, and Hygiene (WASH)-related Preventive Health Behaviors in Tanzania

Unsafe water sources, poor sanitation, and insufficient hygiene practices are common risk factors for waterborne diseases among rural households in sub-Saharan Africa. Preventive health behaviors such as boiling water, using pit toilets, and handwashing with soap, can protect people from waterborne diseases and improve overall household health. However, little is known about the factors influencing the WASH-related behaviors of pastoralists (extensive livestock keepers) in rural areas, which are important to understand current health outcomes and to design sustainable development programs for public health. Using data from surveys with 196 pastoralist households from three tribes, we performed logistic regression to investigate how demographic, economic, environmental, and behavioral factors relate to pastoralists’ WASH behaviors (water treatment, toilet use, and handwashing) in rural, south-central Tanzania. We controlled for household wealth using a wealth index, a composite measure of households’ livelihood status created from information about household asset ownership. When controlling for wealth and tribe, water source, household gender composition, and education of wives and children were associated with pastoralists’ WASH-related behaviors. Households using surface water sources in the rainy season were more likely to treat their water than households using ground water sources. Households with a higher percentage of female members treated water more frequently and were more likely to use a pit toilet. Moreover, households with at least one wife with any formal education were more likely to wash their hands with water and soap before eating, after toilet use, and after working with animals. Households that sent children to school were also more likely to practice all three WASH behaviors. Adult and adolescent women in pastoralist households play key roles in collecting, treating, and managing water for household use. As a greater percentage of women in the household and women with education increased WASH-related behaviors including water treatment, toilet use, and handwashing with soap, targeting WASH interventions to include or focus predominantly on women in rural households has the potential to enhance overall household well-being. Our findings have the potential to enhance design of sustainable health interventions on water, sanitation and hygiene in Tanzania and other sub-Saharan African countries.