

In sub-Saharan Africa, a shorter walk to water saves lives

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A new study by researchers at Stanford University shows that reducing the amount of time spent fetching water can improve the health of young children in sub-Saharan Africa. Credit: Amy Pickering, Stanford

In the fight against child mortality in the developing world, simple things make a big difference. A new study by Stanford researchers recently published online by the journal *Environmental Science and Technology* shows that decreasing the amount of time families must walk to obtain clean water can help save the lives of young children.

More than a third of the world's population does not have potable water piped into the home. In sub-Saharan Africa, that number jumps to 84 percent. The Stanford study analyzed data from 26 [African countries](#), where it is estimated that some 40 billion hours of labor each year are spent hauling water, a responsibility often borne by women and children. The Stanford study is the first [quantitative analysis](#) of the relationship between the time devoted to fetching water and [health outcomes](#).

Time equals lives

"The time that women devote to water fetching is time that can't be used for child care, food preparation, cleaning the household environment, or generating income," explained Amy Pickering, lead author of the study and post-doctoral fellow at the Stanford Woods Institute for the Environment. "All of these factors can have direct influence on the health of children."

The study found that cutting the walking time to a water source by just 15 minutes can reduce under-five mortality of children by 11 percent, and slash the prevalence of nutrition-depleting diarrhea by 41 percent.

"There is a direct correlation between fetching times and the risk of illness and mortality among children in these regions," said Jenna Davis, a professor in the Department of Civil and Environmental Engineering at Stanford and a faculty member at the Stanford Woods Institute for the Environment. "Shorter walk times mean less disease, less death."

Correlations

The authors proposed several reasons that might explain the correlation. The longer fetching times could mean that people bring less water home and, therefore, ration more, leaving little water for hand-washing and

other hygienic activities that decrease the spread of disease. Conversely, mothers who spend significant time fetching water may have fewer free hours to care for their children in ways that promote health, and may lose opportunities to earn income that might pay for more nutritious diets and improved health care.

In the near future, growing urban populations and climate change will threaten to further restrict access to freshwater. The researchers' analysis suggests that efforts to improve water supplies should focus not only on the quality, but also on the distances to water sources.

"Child health is often cited as a principal motivation for making water infrastructure investments. Traditionally, however, these investments have focused on improving the type of [water](#) source used, rather than the time or effort required to obtain it," said Pickering. "This is the first study that shows that other factors, especially fetching time, can play a significant role in improving child health."

Provided by Stanford School of Engineering

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