Water Access and Food Security: A Cross-Sectional Study of SSA Countries in 2017

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Abstract : Compared to the other Least Developed Countries (LDCs), major countries in sub-Saharan Africa (SSA) have limited access to the clean water. People in this region, and more specifically females, suffer from acute water scarcity problems. They are compelled to spend too much of their time bringing water for domestic use like drinking and washing. Apart from domestic use, water through affecting agriculture and livestock contributes to the food security status of people in vulnerable regions like SSA. Livestock needs water to grow, and agriculture requires enormous quantities of water for irrigation. The main objective of this study is to explore the association between access to water and individuals' food security status. Data from 2017 Gallup World Poll (GWP) for SSA were analyzed (n=35,000). The target population in GWP is the entire civilian, noninstitutionalized, aged 15 and older population. All samples selection is probability based and nationally representative. The Gallup surveys an average of 1,000 samples of individuals per country. Three questions related to water (i.e., water quality, availability of water for crops and availability of water for livestock) were used as the exposure variables. Food Insecurity Experience Scale (FIES) was used as the outcome variable. FIES measures individuals' food security status, and it is composed of eight questions with simple dichotomous responses (1=Yes and 0=No). Different statistical analyses such as descriptive, crosstabs and binary logistic regression, form the basis of this study. Results from descriptive analyses showed that more than 50% of the respondents had no access to enough water for crops and livestock. More than 85% of respondents were categorized as "food insecure". Findings from cross-tabulation analyses showed that food security status was significantly associated with water quality (0.135; P=0.000), water for crops (0.106; P=0.000) and water for livestock (0.112; P=0.000). In regression analyses, the probability of being food insecure increased among people who expressed no satisfaction with water quality (OR=1.884 (OR=1.768-2.008)), not enough water for crops (OR=1.721 (1.616-1.834)) and not enough water for livestock (OR=1.706 (1.819)). In conclusion, it should note that water access affects food security status in SSA.

Keywords : water access, agriculture, livestock, FIES

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