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Spatial variation of management of childhood diarrhea in Malawi



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ABSTRACT

This study reports the spatial variability in household management of diarrhea among under-fives in Malawi. Using data from 2010 Malawi Demographic and Health Survey, we examined oral rehydration and feeding practices of mothers and caregivers of 3105 children with an episode of diarrhea by mapping district effect residual in geo-additive probit model and analyzing residual spatial effects in a Bayesian approach. The findings suggest that although diarrhea is relatively less prevalent in the Northern Region, this region lags behind in terms of adoption of appropriate practices for home-based management of diarrhea in children compared to the Central Regions and Southern Regions. A cluster of five predominantly rural districts in the eastern part of the Southern Region showed remarkably high level of household care for childhood diarrhea relative to the rest of the country. The fixed effects show the importance of breastfeeding, paternal education, wealth index, and ethnicity on oral rehydration, while paternal education, marital status, and ethnicity show significant influence on feeding for children with a diarrhea episode. The paper discusses the apparent inverse relationship between regional prevalence of diarrhea episodes and care-seeking practices for childhood diarrhea in Malawi, and makes relevant recommendations for policy.

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1. Introduction

Diarrhea is the passage of three or more loose stool or liquid per day. Diarrhea ranks amongst five most important causes of under-five morbidity and mortality in Malawi. In developing countries, diarrheal diseases account for an estimated 18–21% of all deaths in children younger than five years. This is equivalent to 1.5 million deaths per year (Boschi-Pinto et al., 2008). Nearly four in five of these deaths (78%) occur in Africa and South-East Asia. These two regions are also already excessively burdened by other infant and childhood diseases, including HIV/AIDS and malaria (Boschi-Pinto et al., 2008; UNAIDS, 2009).

Although diarrhea can be dangerous as it can cause severe dehydration, simple household practices such as increasing the amount and frequency of drinks and food given to the child can replace the lost body fluids and salts and effectively treat the condition. Because treatment for diarrhea is relatively straightforward and inexpensive, health service providers, policy-makers, and researchers concerned with Integrated Management of Childhood Illnesses (IMCI) in poor countries seek to know about the spatial distribution of such child care practices in order to have a better understanding of how they can be promoted. Geographical

location is thus an important factor in identifying clusters of the children who may be at elevated risk of diarrhea-related morbidity and mortality because of lack of awareness or poor adherence to these simple life-saving practices on the part of mothers or caregivers (Carter et al., 2000).

Although there is expansive literature on childhood mortality and morbidity in Malawi in general, very few published studies have specifically focused on diarrhea. Available evidence however suggests that diarrhea-related under-five mortality and morbidity in Malawi is spatially highly uneven. A study conducted by Kandala et al. (2006), for instance, pointed to district-level socio-economic and demographic (e.g. food security and population density) as important determinants of diarrhea-related childhood mortality. This study reinforced the findings of an earlier study conducted by Kalipeni (1993) which suggested that the district in which a child is born sets the context for risk for child morbidity and mortality. Kazembe (2007) also found dramatic variations in risk factors of co-morbidity related to fever, diarrhea and pneumonia in under-fives across regions in Malawi. This study also reported that age, habitual place of residence, nutrition status, and bed net use as important determinants, and urged more research to determine the precise linkages between childhood health and geographic location. In another study, Stockman et al. (2007) pointed to variations in access to safe and potable water as an important determinant of spatial differences in prevalence of under-five diarrhea. The authors found that rural poor women

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are less likely to be aware of and to use simple diarrheal disease prevention techniques (e.g. point-of-use water treatment) relative to their urban counterparts.

This study adds to this literature by examining both the suitability and adequacy of therapeutic responses of mothers and caregivers of children with known signs of diarrhea in Malawi. We specifically focus on whether there are significant geographic variations in childhood diarrhea management practices at the household level and, if so, the kind of factors that could explain such variations.

2. Context

Malawi is located in the south-eastern region of the African continent (Fig. 1) with an estimated population of 14 million. Malawi is one of the poorest countries in the world with a per

capita income of US\$383 and approximately 70% of Malawians live on less than one US\$/day (Malawi Government, 2010). The majority of the population (80%) lives in rural areas and subsists on agriculture as smallholder farmers. High levels of poverty are also linked to growing population pressure.

Malawi was divided into three administrative regions after the country gained political independence from Britain in 1964; Northern Region, Central Region and Southern Region. The Northern Region comprises of five districts, Central Region has 9 districts, while the Southern Region has a total of 13 districts. The Southern Region is most populous, accounting for 45% of national population compared to 42% in the Central Region, and 13% in the Northern Region. High population growth rates relative to the fixed amount of landmass has meant that the population density in the Southern Region is nearly 3 times higher (185) than the Northern Region (63). The Central Region has a population density of 154 (Malawi Government, 2008).



Fig. 1. Study area.

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