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Food as a social determinant of mental health among household heads in the Upper West Region of Ghana

Kilian Nasung Atuoye*, Isaac Luginaah

The Department of Geography, University of Western Ontario, Social Science Centre, 1151 Richmond Street, London, Ontario N6A 5C2, Canada

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ABSTRACT

According to the World Health Organization, mental distress and related illnesses are becoming leading causes of morbidity and mortality in developing countries. Despite the influence of food insecurity on mental health, empirical understanding of this relationship in sub-Saharan Africa, where incidence of food insecurity is relatively high, is almost non-existent. This study contributes to the literature by examining the association between food insecurity and mental health in the Upper West Region of Ghana. We used Ordinary Least Square (OLS) to analyze cross-sectional data collected on household heads (n = 1438) in 2014 using the Household Food Insecurity Access Scale and the DUKE Health Profile. The results show that heads of severely food insecure ($\beta = 0.934$, $p \leq 0.001$) and moderately food secure households ($\beta = 0.759$, $p \leq 0.001$) were more likely to report elevated mental distress compared to those from food secure households. We also found that female household heads were more likely to report elevated mental distress ($\beta = 0.164$, $p \leq 0.05$) compared to their male counterparts. Our findings suggest the need to improve food security as a strategy targeted at improving overall mental health in the Ghanaian context.

1. Introduction

Household food security includes access to safe and sufficient nutritious food in a socially acceptable way for a healthy life. Food insecurity, on the other hand, is conceptualized as "limitation or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire food in socially acceptable ways" (Stuff et al., 2004: p. 2330). It is known to have direct effects on health (Ding et al., 2015; Leung et al., 2015; To et al., 2014). From a nutrition point of view, populations with high incidence of food insecurity are also known to have high proportions of children suffering from malnutrition (Black et al., 2009; FAO et al., 2015; Gundersen and Kreider, 2009). Among adults, food insecurity has been shown to relate with physical and psychological health (Sorsdahl et al., 2011; Stuff et al., 2004). A study in Toronto by Tarasuk (2001) examined the health effects of food insecurity over a three-year period, and found that women from households with high incidence of food insecurity were more likely to consume compromised diets, which ultimately affected their health. Consumption of cheap food containing inadequate nutrients is a coping strategy for most food insecure households (Gowda et al., 2012; Townsend et al., 2001). Generally, food insecure households have a high degree of vulnerability and high exposure to health problems including elevated mental distress (Hadley and Patil, 2006; Stuff et al., 2004).

In a two-wave data collection representing dry season (when households are mostly food secure) and wet season (when households are mostly food insecure) among farmer households in rural Zambia in 2009, Cole and Tembo (2011) confirmed a positive relationship between food insecurity and elevated mental distress. Interestingly, their was the first to have combined ethnography and quantitative data collection techniques to examine food security and mental health. Cole and Tembo (2011) further corroborated the findings from an earlier study among females in agro-pastoral and horticulture-dominated rural Tanzania, that seasonal differences in food insecurity are associated with differences in anxiety and depression (Hadley and Patil, 2008). As explained by the two study contexts, rural populations engaged in agriculture tend to experience a higher level of food insecurity in the wet season, as they run out of food stock while waiting patiently for their food crops to mature. Thus, the wet season is also the period when depression and anxiety increase among food insecure households, which, over

* Corresponding author.
E-mail addresses: katuoye@uwo.ca (K.N. Atuoye), iluginaa@uwo.ca (I. Luginaah).

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time, have the potential to develop into deteriorating psychological and mental conditions (Siefert et al., 2004; Whitaker et al., 2006).

Despite these findings in rural settings in developing countries (Cole and Tembo, 2011; Hadley and Patil, 2008), emerging urban food insecurity and increasing incidence of non-communicable diseases (including mental health) among both urban and rural populations strengthen the need for an understanding of the relationship between food security and mental health in different contexts. There is limited understanding of this relationship among household heads in SSA, even though they have a greater burden of household food insecurity. As recommended from a systematic review by Weaver and Hadley (2009), it is important to further examine the association between these two global burdens (food insecurity and mental health) in different contexts in developing countries.

This paper adds to the literature by examining the relationship between food insecurity (constructed from the Household Food Insecurity Access Scale) and mental health (derived from the DUKE Health Profile) in the Upper West Region of Ghana, where there are wide disparities in incidence of food insecurity and health access among urban and rural households (Atuoye, 2015; Ghana Health Service, 2015). We hypothesize that food insecure household heads would report elevated mental distress when compared to those from food secure households. To the best of our knowledge, this study is the first to examine self-rated household food insecurity status and perceived mental health among household heads (both males and females) in Ghana, and indeed in SSA.

2. Theoretical context

The Social Determinants of Health (SDH) theory recognizes the role of social factors (non-biomedical factors) in shaping the health and wellbeing of individuals and populations. It conceptualizes poor health and wellbeing as products of economic and social inequality. According to the WHO's Commission on Social Determinants of Health (CSDH), understanding health inequalities requires digging into the origins of social inequality and coming to terms with the pathways through which these inequalities emerge into wide disparities in health (Solar and Irwin, 2010). Populations experiencing social and economic inequality are at risk of being vulnerable and food insecure (Sen, 1982), with significant consequences for their health. Heads of Food insecure household heads carry a greater burden of ill-health, and are prone to depression and elevated mental distress because of cumulative stress over food unavailability (Coates et al., 2007).

Social and economic inequality stem from discriminative exercise of structural and individual control and allocation of resources to individuals and populations (Solar and Irwin, 2010). For instance, when power to determine resource allocation at the household, community, and country level is exercised in a manner that discriminates against others, it creates disparities in access to economic resources with longstanding implications for inequalities. In addition, individual attributes and life choices also contribute to disparities in socio-economic positioning of individuals and households. These two broad factors are distinctively identified as contextual and compositional factors in the social determinants of health literature (Marmot and Wilkinson, 2000; Raphael, 2006; Wilkinson and Marmot, 2003).

This study adopts the CSDH's conceptual framework to examine the association between food insecurity and mental health in the Upper West Region of Ghana. The CSDH's framework extends the theoretical space for studying social production of health by recognizing complex linkages between factors that cause social-economic hierarchies, and the impact of that on structural factors, the health system, and equity in health and wellbeing (see Fig. 1).

As indicated in Fig. 1, disparities in individuals' positioning on socio-economic hierarchies is influenced by broader socio-economic and political contexts. The structure and orientation of macro-economic and welfare policy environments tend to configure and produce socio-economic hierarchies, which are reflected in individual positioning factors such as sex, educational status, occupation, wealth status, and social class. These two groups of factors are defined as structural and social determinants of health inequities. The third group of factors, intermediary determinants is related to compositional and contextual factors involving material circumstances, behaviours and biological factors, psychological factors, and the health system. These factors contribute to equity in health and wellbeing of individuals and populations. However, the association between structural determinants and intermediary factors is mediated by social cohesion and social support.

As explained by Veenstra et al. (2005), social cohesion and social support are features of social structure. They may include a network of relations among a group of people, a high degree of reciprocal trust, and strong social norms that provide material and non-material items for mutual and collective benefits (Macintyre et al., 2002; Putnam et al., 1993). These benefits are known to have buffering health effects on individuals in low socio-economic contexts since they serve as critical resources for the realization of health needs of group members (Ahnquist et al., 2012; Lin, 2001; Veenstra et al., 2005). Further, equity in health and wellbeing often play important role in health policy considerations. Health disparities, understandably, are a reflection of disparities in socio-economic positioning of individuals and households. This framework guides the examination of food security as a social determinant of health within a network of complex relationships of compositional and contextual factors at multi-scales. It also helps us to draw out relevant policy recommendations.

3. The study context

The Upper West Region (UWR) is located in the Northwestern part of Ghana (see Fig. 2). It falls within the semi-arid Guinea Savannah belt, which experiences one season of rainfall from April/May to October (Rademacher-Schulz et al., 2014). The climate and agro-ecological factors in the region are not supportive of smallholder agriculture, which has been the main economic activity (Armah et al., 2011; Kuuire et al., 2013; Luginaah et al., 2009). The region is the most deprived in the country, having nine out of every ten persons living on less than US $1.25 a day (Ghana Statistical Service, 2012). Pre- and post-independence development policy implementation tended to neglect the UWR and the other two regions in the northern part of the country (Seini, 2002; Songsore, 2011). The consequence of this is reflected in extreme and cyclical vulnerability, and inadequate social amenities such as poor transportation networks, health and education facilities (Ghana Statistical Service, 2013).

As a result, 53% of females and 41.3% of males in the region have no formal education, compared to 14.4% and 7.7%, respectively, in the Greater Accra Region, which hosts the national capital, Accra. The doctor to population ratio stood at 1:35,000 in 2013 (Ministry of Health, 2014), and in 2014, 64% of deliveries were supervised by a professional, compared to 92% in the Greater Accra Region (Ghana Statistical Service, Ghana Health Service, & ICF International, 2015). Apart from being the poorest, the region also has the greatest income inequality (Gini coefficient = 0.33), with 60.2% of the population in the lowest wealth quintiles and only 2.6% in the highest wealth quintiles (Ghana Statistical Service et al., 2015).

In combination with the effect of climatic stressors, deep-seated deprivation has systemic challenges for food, nutrition, and health.