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Agroecology and sustainable food systems: Participatory research to improve food security among HIV-affected households in northern Malawi

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ABSTRACT

This article shares results from a long-term participatory agroecological research project in northern Malawi. Drawing upon a political ecology of health conceptual framework, the paper explores whether and how participatory agroecological farming can improve food security and nutrition among HIV-affected households. In-depth interviews were conducted with 27 farmers in HIV-affected households in the area near Ekwendeni Trading Centre in northern Malawi. The results show that participatory agroecological farming has a strong potential to meet the food, dietary, labour and income needs of HIV-affected households, whilst helping them to manage natural resources sustainably. As well, the findings reveal that place-based politics, especially gendered power imbalances, are imperative for understanding the human impacts of the HIV/AIDS epidemic. Overall, the study adds valuable insights into the literature on the human-environment dimensions of health. It demonstrates that the onset of disease can radically transform the social relations governing access to and control over resources (e.g., land, labour, and capital), and that these altered social relations in turn affect sustainable disease management. The conclusion highlights how the promotion of sustainable agroecology could help to partly address the socio-ecological challenges associated with HIV/AIDS.

1. Introduction

Among the several developmental challenges confronting the global community today, perhaps none is more overwhelming than the prevalence and impacts of HIV/AIDS. According to the most recent report from the Joint United Nations Program on HIV/AIDS (UNAIDS), almost 36.7 million people are currently suffering from HIV/AIDS (UNAIDS, 2016). Indeed, one of the most striking features of the HIV epidemic is its uneven geography in terms of regional prevalence. Across all world regions, the rate of people living with HIV is substantially higher in East and Southern Africa (19 million people), compared with Asia and the Pacific (5.1 million), Eastern Europe and Central Asia (1.5 million), Latin America and the Caribbean (2 million), Middle East and North Africa (230,000 million), and West and Central Africa (6.5 million) (UNAIDS, 2016). In sub-Saharan Africa, there are eight countries where HIV/AIDS prevalence rates are more than 10 percent of the population, and all these countries are located in southern Africa, including Botswana (26.3%), Lesotho (24.8%), Malawi (10.8%), Mozambique (12.5%), Namibia (17.2%), South Africa (19.9%), Swaziland (28.6%), and Zimbabwe (17.5%) (UNAIDS, 2015, p. 485–486). In these countries, agriculture plays an important role in providing income, food, and nutrition (FAO, 2014).

Over a decade of scholarship has shown the multifaceted nature of the HIV/AIDS epidemic, and how it shapes, and is in turn shaped by, smallholder farming, nutrition, food security, and gender relations (Aberman et al., 2014; Kalipeni et al., 2004; Mojola, 2014). A number of studies have also explored the complex and interlinked

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social, cultural, political, economic, and geographical relationships between HIV/AIDS and livelihoods (e.g., Kalipeni et al., 2004; Wiegers et al., 2006). These studies have shown that increased HIV rates have compromised food security in agrarian populations, as the number of healthy adults providing farm labor has reduced (Aberman et al., 2014; Bryceson and Fonseca, 2006; Weiser et al., 2007). Household labor is affected in several ways with the entry of HIV. First, at least one person, often an adult, has less energy to devote to farming, although with the dramatic scaling up of Anti-Retroviral Treatment (ART) in the last decade, HIV-positive members can make significant contributions to farm labor (Aberman et al., 2014). Second, household members who are healthy often have to care for the person who is ill, including taking them to the hospital and staying for longer periods of time. Third, the cost of treating HIV/AIDS, including medicine and nutritional requirements, puts added pressure on a household's livelihood and may often lead to loss of capital assets (Mather et al., 2005).

Beyond the issue of household labor for farming, several studies have documented the ways in which poverty interacts with HIV/AIDS to worsen food security, with differentiated gendered impacts (e.g., Mojola, 2014; Mtika, 2001; Shackleton and Shackleton, 2012; Thangata et al., 2007; Tsai et al., 2011; Twine and Hunter, 2011). Gender relations are often a crucial factor in understanding the implications of HIV/AIDS for food security, with highly unequal divisions of labor, particularly for care of the ill, and thus exacerbating food insecurity and poverty for AIDS-affected households. As well, with the extraordinary rise in the number of HIV/AIDS-related orphans (UNAIDS, 2015), the burden of orphan care oftentimes falls disproportionately on women, including grandmothers who have lost all their sons and daughters-in-law to AIDS (Mojola, 2014; Wiegers et al., 2006).

While there is increased availability of ART to reduce AIDS-related deaths, hunger, food insecurity, and poor diets shape the efficacy of these medications. Research has shown that food insecurity has been a considerable barrier to using ART to manage HIV/AIDS because ART requires not only adequate, but also nutritious food (Kalofonos, 2010; Young et al., 2014). In parts of sub-Saharan Africa where ART is being scaled-up, hunger has been a major complaint among people on these medications (Kalofonos, 2010). Another emerging side-effect of ART is related to labour, as the frequency of these treatments limits the ability of HIV-positive members to engage in farming in order to improve their own food security (Young et al., 2014; Kaler et al., 2010). Thus, the HIV pandemic is reworking smallholder agriculture, food security, and nutrition in an interlinked and complicated set of ways.

One of the greatest challenges confronting sub-Saharan Africa is how to address these interlinked processes in the context of the HIV pandemic. In particular, scholars and policy makers have pondered the question of agricultural methods that may best support HIV-affected households to improve food security and nutrition. There are currently raging debates about this question, especially in the context of African agriculture more broadly. Some analysts have called for the use of 'Green Revolution' methods, particularly biotechnology, fertilizers, hybrid seeds, and pesticides to address issues of hunger and food insecurity in sub-Saharan Africa (e.g., see Hartmann, 2012; Juma, 2011). Other scholars have suggested that more diverse farming systems, combined with attention to inequality at multiple scales, are more effective ways to address food security as well as have positive environmental benefits (Moseley et al., 2016; Snapp et al., 2010).

Against the foregoing background, this paper addresses two main research questions. First, what type of agriculture is appropriate for the food security and nutritional needs of HIV-affected households? Second, can smallholder agroecological farming address the labour challenges, environmental, and political economic dynamics affecting agricultural production of HIV-affected households? We address these questions by drawing upon a case study from Malawi in southern Africa. Malawi offers an insightful case study because it has one of the highest HIV prevalence rates in the world (UNAIDS, 2015). In addition, most Malawians rely on farming as their primary livelihood and food source (FAO, 2014), and thus questions about the linkages among agriculture, HIV/AIDS and food security are crucial.

Conceptually, we address the research questions by drawing upon and contributing to scholarship in nature-society geography, especially political ecologies of health (Jackson and Neely, 2015; King, 2015). This conceptual lens allows us to pay crucial attention to both the micro- and macro-level politics of farm management practices in the context of the HIV/AIDS epidemic. We seek to demonstrate that for vulnerable HIV-affected households, agroecological farming methods hold greater potential for addressing the environmental, as well as the political factors undermining nutrition and food security. Overall, the paper contributes to understanding the socio-ecological dimensions of HIV/AIDS, and seeing the pandemic as an issue that is more than a medical problem. Further, the study adds deep and valuable insights into the current literature on the human-environment dimensions of health (Jackson and Neely, 2015; King, 2015). More specifically, our findings demonstrate that the onset of disease can radically transform the social relations governing access to and control over resources (e.g., land, labour, capital), and that these altered social relations in turn affect sustainable disease management.

Throughout the paper, we use the term *food security* to refer to a condition that exists when people have adequate, safe, and nutritious food that is not only culturally acceptable, but also meets dietary needs and food preferences for an active and healthy life (Misselhorn et al., 2012). *Dietary diversity* refers to the number of food groups consumed over a given time, and it is an important measure of nutritional status or dietary quality (Swindale and Bilinsky, 2006). We also use the term *agroecology* to refer to a set of farming practices that attempt to mimic natural systems through in-depth knowledge of crop, insect and disease ecology, increased agrobiodiversity, and attention to interactions with adjacent natural landscapes (Gliessman, 2015; Kremen et al., 2012). As well, agroecology puts stronger emphasis on the social, economic, and political dynamics shaping agricultural production systems (Altieri et al., 2012).

The rest of the paper is organized as follows. The next section outlines our political ecology of health framework. We follow this discussion with a brief historical, political, environmental, and social context of Malawi. In addition, we introduce the HIV/AIDS intervention program that forms the basis of this case study. Attention then shifts to our research methodology, including data collection and analysis. The case study results are subsequently presented. The last section discusses the research findings and provides a concluding commentary outlining the theoretical and policy significance of the study.

2. Political ecologies of health

Conceptually, we draw upon a political ecology of health approach (hereafter PEH) (King, 2015; Richmond et al., 2005) to analyze resource access, farmland management practices, and food security among HIV-affected household in northern Malawi. The PEH approach is a sub-field of political ecology, which is a multidisciplinary lens concerned with the complex relations between nature and society (Blaikie and Brookfield, 1987; Perreault et al., 2015; Watts, 2000). Political ecology is not a theory *per se*, but a conceptual framework used in the social sciences to examine "forms of access and control over resources and their implications