Health & Place 51 (2018) 125–135

Contents lists available at ScienceDirect

Health & Place

journal homepage: www.elsevier.com/locate/healthplace

"What the mind does not know, the eyes do not see". Placing food allergy risk in sub-Saharan Africa

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ARTICLE INFO

Keywords:
Chronic disease
Food allergy
Political ecology of health
Qualitative
Ghana

ABSTRACT

Policy makers and health geographers are increasingly intrigued by the global rise of chronic disease. While current engagement coalesce around cardiovascular disease, cancers, chronic respiratory disease, and diabetes, very little attention has been given to other important chronic conditions: e.g., allergic disease. Concerns about how health is shaped by context and experienced in place can provide important insights to understand the trajectory of allergic disease and inform policy especially in developing countries experiencing an epidemiologic transition. Using Ghana as a case study. this paper draw on theories of political ecology of health to enhance our understanding of how individual (e.g. care seeking behaviours), sociocultural (e.g. lack of education and awareness), health system (e.g. absence of logistics) and policy environments (e.g. absence of policy) influence the ways in which food allergy is perceived, diagnosed and managed. These findings highlight the need for decision makers to target structural factors that impede access to and utilization of healthcare, diagnostic practices, as well as food allergy coping and management strategies. Moreover, the findings highlight the need for a global health agenda that pays critical attention to place-based factors in the construction of emerging health risks.

1. Introduction

Geographers are interested in the epidemiologic transition (McCracken and Phillips, 2009; Jones and Moon, 1992), the idea that as infectious disease decline and life expectancy increase, partly in response to modernization and socioeconomic changes, chronic non-communicable diseases [NCDs] will emerge as critical global health issues (Mercer, 2014; McKeown, 2009; Omran, 1971). Historically, this has been the case in many European and North American countries as a number of chronic coditions including cardiovascular, cancer, diabetes, chronic respiratory disease, autoimmune and allergic diseases filled the "epidemiological vacuum left by the retreat of infectious diseases" (Mercer, 2014; Jackson, 2006, p.17; Bach, 2002).

Today, it is widely recognized similar trends are taking place in many low and middle income countries (LMICs). As life expectancy has increased in the African region, in large part due to gains in reducing AIDS and malaria related deaths and improving access to healthcare (WHO, 2016), globalization, migration and urbanization processes are exposing people to lifestyles and behaviours – e.g. smoking, drinking alcohol, unhealthy diets, and physical inactivity that put them at risk for developing several NCDs (Allen et al., 2007, Reubi et al., 2016; Mercer, 2014, WHO, 2011). By 2020, most of the expected global increase in NCD-related deaths will occur in Africa with some estimates indicating deaths will reach about 4 million (WHO Africa Region, 2016).

While the spectrum of chronic disease is wide, policy and research attention to date has coalesced around priority diseases: cardiovascular, cancers, chronic respiratory disease, and diabetes especially in LMICs (WHO, 2014a), neglecting others such as allergic disease (Prescott, 2013). This may likely be due to the assumption that allergies are "…a scientific conundrum of only limited epidemiological, economic, social and political significance" (Jackson, 2006, p.11). For example, the focus of both global and national NCD policy on preventing deaths may overshadow concerns for allergies considering case fatality rates are generally low compared to say cardiovascular diseases. Also, the hygiene hypothesis which suggests infections and microbial environments protect against allergies may further be entrenching popular notions of a distinct pattern of disease in developed and developing countries. But as recent evidence highlights, there are growing similarities than differences in health and disease out-

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https://doi.org/10.1016/j.healthplace.2018.02.005
Received 4 July 2017; Received in revised form 17 December 2017; Accepted 23 February 2018

comes in most parts of the world (Atiim and Elliott, 2016; WHO, 2011).

In this paper, we focus our attention on food allergy, an adverse immune response that occurs following exposure to food (Sicherer and Sampson, 2010). It is one of the most common and earliest onset chronic conditions (Prescott, 2013) affecting between 7 – 10% of children and adults in western societies (Soller et al., 2015; Osborne et al., 2011). Symptoms include but are not limited to breathing difficulties, swelling, abdominal cramps, vomiting and anaphylaxis - a severe life threatening condition that can lead to death when left untreated (Hadley, 2006). Food allergies affect health and wellbeing in several ways: through restricting or disrupting participation in social events, increasing stress and anxiety; as well as experiencing stigmas and bullying (e.g. Dean et al., 2015; Pitchforth et al., 2011). There are also significant economic costs to individuals and families (Zuberbier et al., 2014) with one recent study estimating the overall cost (both direct and indirect) at over US$24 billion dollars yearly in the United States (Gupta et al., 2013).

We are motivated by the potential for food allergies to become the next epidemic in developing regions such as sub-Saharan Africa (SSA) undergoing an epidemiologic transition. The experience of western countries suggests that, food allergy has closely followed the rise of other chronic illnesses as infectious diseases have declined (Jackson, 2006; Bach, 2002). Considering the rising tide of NCDs and its risk factors in SSA (Allen et al., 2017; WHO, 2014a; 2014b; Llyold-Sherlock et al., 2014) and reported increases in both respiratory and skin allergies (Addo-Yobo et al., 2007; Ait-Khaled et al., 2007), there is growing research interest in food allergy especially in emerging economies, of which Ghana provides a typical example.

Like most countries in SSA, though national prevalence and distribution of food allergy in Ghana is lacking, recent studies in urban populations are hinting at a rise. For example, self-reported prevalence is estimated at 11% among school children in Greater Accra region (GAR), the national capital compared to 6.9% in Canada (Soller et al., 2015). Cases have also been reported among senior high school students in the Ashanti region (Ababio et al., 2016), although it is unclear how food allergies were defined and the criteria for sample selection. More recently, qualitative studies are providing insights of risk perceptions, and the health, social and economic implications for those affected by food allergies (some of our other works). While few, these studies provide preliminary basis to begin to reflect on the burden of food allergy and underscores the risk they will pose in Ghana given its ongoing rapid social and economic changes.

Over the years, a combination of sound economic policies and the discovery of oil resources for example have contributed to a steady growth in the Ghanaian economy from 4.2% to 7.9% between 2001 and 2012 (Saleh, 2013). The transformation of the economy from subsistence agriculture has resulted in a growing industry and service sector, with jobs in these areas increasing from 38% to 59% between 1992 and 2010 (World Bank, 2014). As a consequence, poverty incidence has declined, though unevenly (Saleh, 2013; World Bank, 2011) with cities such as Accra and Kumasi the primary beneficiaries. As a result, migration and urbanization has increased with over 50% of people living in major cities (Ghana Statistical Service (GSS), 2012).

Since the 1980s, trade liberalization policies and globalization has also led to a growing fast food industry, both national and transnational as well as an influx of shopping malls with cheap, convenient and energy-dense foods (e.g. fats and oil, snack, red meat) which are becoming “the hub of evening and weekend social meetings” especially among young people and the urban working class (Agyei-Mensah and de-Graft Aikins, 2010). This is creating a climate conducive for NCDs to thrive with recent estimates suggesting they account for 42% of total adult deaths (WHO, 2014a). Across the country, out-patient data show high reported incidence of hypertension, diabetes, and sickle cell in health facilities between 2011 and 2014 (Ghana Health Service, 2015). As lifestyles increasingly mirror those in western societies, public health officials are recognizing the potential for the rise of several NCDs and consequently developing a national strategy to address both current and future burdens (Ministry of Health, 2012).

Ghana's NCD research landscape to date is characterized by concerns around cancers, diabetes, mental health, cardiovascular disease, mental health and modifiable risk factors (see de-Graft Aikins et al., 2013 for overview). Only recently is food allergy receiving attention in Ghana (e.g. Atiim et al., 2017; Obeng et al., 2011) and elsewhere in Africa (Gray et al., 2014; Kung et al., 2014). With few exceptions (Atiim et al., 2017), much of these existing studies are focused on estimating prevalence, with a tendency to overlook the structures underpinning health and disease outcomes in places. As part of a larger research project, previous studies reveal that food allergies are often unrecognize health problems in healthcare and community settings (Atiim et al., 2017). In this paper, we seek to understand why this is the case. Focused on the Greater Accra region (GAR), the paper specifically addresses the following question: what are the local level factors influencing perceptions and management of food allergy? Through the accounts of healthcare workers and those affected by food allergy, the results add to the literature on the effects of sociopolitical and cultural processes on health in the context of food allergy.

2. Political ecology of health

To understand the factors that shape risk perceptions around food allergy, this work is informed by studies within the domain of political ecologies of health (PEH) which explicitly examines the interactions between biology, broader sociopolitical and environmental processes, and how they interact at different levels to shape population health and wellbeing (Neely, 2015; King, 2010; Mayer, 1996). Earlier concerns of political ecologists centered around how structural processes including the political economy, policy and politics create environmental degradation and social injustice, gendered access to environmental resources, conflicts, marginalization and social mobilization (Bebbington, 2015; Robbins, 2012) with little attention to health and disease (but see Turshen, 1977 for historical exception).

Following calls to explore the utility of political ecology frameworks to understand disease and health (King, 2010; Mayer, 1996), several studies have demonstrated how unequal power relations, public policy, sociocultural barriers and economic incentives shape concerns around water and health linkages (Bisung et al., 2015; Hunter, 2003), environment, livelihoods and health linkages (Richmond et al., 2005), infectious disease risk (Mkandawire et al., 2013) as well as maternal and child health (Atuoye et al., 2015; Rishworth et al., 2015). For example, Hunter (2003) examined the rising incidence of Schistosomiasis hematobium in Ghana's Upper East region, linking it to agricultural initiatives (building of dams) of the 1950s. While these initiatives were intended to improve nutrition and wellbeing for inhabitants, the failure to apply knowledge of parasitic disease within the ecological and environmental context produced detrimental health outcomes (i.e. schistosomiasis) for many people. By exploring the role of these structural processes, a PEH lens moves discussions of population health and wellbeing beyond dominant biomedical models which largely conceptualizes the links between humans and disease in biological terms (King, 2010), situating health outcomes and vulnerabilities at the local level within large-scale socio-cultural, historical, economic, political influences and agendas (Richmond et al., 2005; Mayer, 1996).

In the context of food allergy, few studies explicitly invoke PEH framework despite calls for stakeholders in the allergy field to recognize that allergic diseases are “not separate from the complex of environmental relations – physical, social, economic – out of which [they] came into being” (Mitman, 2008 cited in Smith, 2015, p.10). Recently, Jackson (2006), and Smith (2015) have reflected on the rise of (food) allergic diseases and drawn attention not just to the role socioecological changes have played in the risk of developing allergies, but also the