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Low-intensity violence and the social determinants of adolescent health among three East African pastoralist communities

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ABSTRACT

Recently, strong pleas have emerged to place the health of adolescents on the global health agenda. To reposition adolescence front and center, scholars argue that we must work toward a richly contextualized approach that considers the role that social environments play in shaping the final stages of growth and development. We aim to contribute to this deeper understanding of the social determinants of global adolescent health by offering a case study of three nomadic pastoralist communities from northern Kenya. In addition to noteworthy political and economic marginalization, East African pastoralist communities also contend with chronic, low intensity intercommunity conflict. Data collected over five extensive visits from 2008 to 2011, include the 10–19 year olds from 215 randomly sampled Pokot, Samburu, and Turkana households. Using a case/control design, we sampled two sites per ethnic community: one directly affected and one less affected by intercommunity violence. Our nutritional findings indicate that teens ages 15–19 years old had significantly higher anthropometric values compared to younger teens. Living in a wealthier household is associated with greater height, body mass indices, and summed skinfolds for boys but not for girls. Anthropometric measures were influenced by household and community variation in the mixed-effects, multi-level regression models. The Self-Report Questionnaire (SRQ-20) was used to assess psychosocial health, with higher scores associated with living in a community directly affected by violence and having lost a loved one due to violence. Our findings highlight the unique nature of adolescent health challenges but also the central role even subtle differences across communities and households play in shaping young people's experiences. With few studies to document the lived experience of pastoralist youth as they move toward adulthood, examining how such challenging socioeconomic environment shapes health seems long overdue.

1. Introduction

Despite comprising approximately one quarter of the world's population, we know remarkably little about adolescent health globally (Resnick et al., 2012; Sawyer et al., 2012; Viner et al., 2012). To better address this gap in knowledge, conceptual frameworks have emerged that place young people's health in the context of their daily lives (Currie et al., 2009; Resnick and Bowles, 2007; Sawyer et al., 2012). In this approach, adolescent health is best imagined as the complex interplay of biological, sociological, and structural inequalities that influence growth and development across the life course (Currie et al., 2009; Sawyer et al., 2012). Part of the challenge for creating inclusive, meaningful models of global adolescent health lies in the diverse social environments in which young people live (Call et al., 2002). With rising income inequality, intractable pockets of poverty, widespread conflict and violence, to navigating the digital divide from the most remote places on the planet, this generation of youth have much to assimilate during this critical bio-psychosocial transition.

To contribute to a deeper understanding of the social determinants of global adolescent health, we offer a case study of three nomadic pastoralist communities from northern Kenya – Pokot, Samburu, and Turkana. With high rates of poverty and low levels of political and economic integration, East Africa's pastoralist zones also struggle under the weight of chronic, low intensity intercommunity conflict. A noteworthy proportion of the armed conflicts found in Sub-Saharan Africa are situated in pastoralist zones (Nori et al., 2005). This pervasive exposure to armed conflict is set in a backdrop of rapidly shifting livelihoods, dramatic cultural change, aggravated by periodic food shortages associated with herding in unpredictable environments (Little and Leslie, 1999), creating vulnerable futures for pastoralist youth. A

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consistent body of time allocation literature points to these young people as among the most labor-intensive members of their communities (Curran and Galvin, 1999; Sellen, 1996; Straight, 1997). Given this precarity, any model designed to evaluate adolescent health in pastoralist communities must be able to detect even subtle differences in a household's ability to nurture.

Drawing on mixed-longitudinal data from three ethnic communities who live at the intersections of inter-community raiding, we examine the costs of this high-risk livelihood for the semi-independent young people that represent the future of pastoralism. First, we examine the nutritional consequences associated with young people's roles in pastoralist livelihoods with particular attention to the newly independent pre-teen girls and boys. Second, we examine the psychosocial consequences of being a highly mobile teenager in the midst of low-intensity violence. Our research suggests that modest differences in community, household, and individual, gendered, experiences matter even as low intensity violence disrupts long-established livelihood strategies.

2. Social determinants of health among pastoralist youth

The social determinants of health (SDH) approach advocates for greater attention to the upstream factors that “shape an individual's ability to be healthy” (Viner et al., 2012:1641). Such approaches demand closer scrutiny of how global, national, and local political economic circumstances shape the circumstances in which children grow and thrive. For communities in the pastoralist zones of northern Kenya these upstream variables shape health in powerful ways. Pastoralist livelihoods depend upon mixed-species herds of cattle, camels, goats, sheep, and donkeys, a precarious subsistence strategy, but one of the only possible ways to feed one's family in this dry, unpredictable environment (Galvin, 2009; McCabe, 2004). As a highly mobile livelihood, pastoralism strains national governments' abilities to provide infrastructure and vital services. Worse yet, this livelihood represents a “backward past” to national governments with little desire to invest in community development (Fratkin, 2001). Over the past twenty years pastoralist communities in northern Kenya have experienced four multi-year droughts, a profound erosion of access to grazing areas (Galaty, 2014; Galvin, 2009; Hobbs et al., 2008), and perhaps the most dramatic shift has been the widespread incursion of small arms (Mkutu, 2007). All of these experiences are set against a backdrop of noteworthy socioeconomic marginalization with poor integration into the national infrastructure in Kenya. Despite such disenfranchisement, engagement with civil society is on the rise, with increasing voter turnout in recent elections, although the majority of pastoralists who maintain subsistence livelihoods do not feel well represented by the national government.

Attending school represents a key predictor of a suite of health outcomes across the global south (Call et al., 2002; Sawyer et al., 2012). Educational opportunities exist for pastoralist youth who reside near town centers but meeting the educational needs of mobile households remains a challenge. Literacy rates across the pastoralist region are below twenty percent (Christiaensen and Subbarao, 2005), with rates lower on average for women than men. A few programs sponsored by nongovernmental organizations serve nomadic families by delivering mobile literacy classes. Moreover, in an effort to bolster early child development, the Kenyan government mandated preschool for all children, although the availability of schools and teachers to meet this goal poses an important obstacle to pastoralist communities.

In large-scale analyses, the wealth of nations serves as a powerful predictor of mortality and morbidity among young people (Gore et al., 2011; Mokdad et al., 2016; Patton et al., 2012). Indeed, poverty represents the strongest single predictor of child developmental health (Masten, 2001; Shonkoff, 2010). Moreover, quality of life indicators are lowest for Sub-Saharan Africa youth, suggesting limited health infrastructure and higher rates of absolute poverty shape adolescent health in potent ways (Patton et al., 2012). That wealth matters for adolescent health seems obvious, but one of the challenges to implementing the social determinants framework lies in assessing subtle variations in wealth in the poorest communities. Wealth in pastoralist communities can be highly variable, but also perilous, with one severe drought or livestock raid threatening to push families into poverty. Wealth comes with formidable social responsibilities for households including sharing animals, cash, and other resources. But to be poor and without animals represents a loss of identity and incurs social ostracism that creates considerable distress (Pike et al., 2010). Adolescent pastoralists observe and experience the impact of these losses on their families in ways that shape their understanding of the future.

Although there is substantial variation in the degree to which pastoral communities rely on livestock versus agricultural products as dietary staples, a well-established pattern of seasonal and longer-term fluctuations in food availability exists (Galvin, 1992; Nestel, 1989). These fluctuations are associated with seasonal and longer-term variation in nutritional status (Galvin and Little, 1999). While there is a strong commitment to buffering younger children during food shortages (Galvin, 1985; Pike, 1999), the degree to which adolescents may be buffered is unknown. Qualitative interviews and food security questionnaires indicate that in addition to livestock losses, dietary quality is an important concern, with many families reporting the need to eat inferior, even demeaning foods (unpublished report). In a pioneering study of Ethiopian teens' perception of food security (Belachew et al., 2011; Hadley et al., 2008), stark gender differences in health experiences were unmasked when teens' self-reports of being food insecure were used rather than using aggregated household indicators.

While livestock raids have been present throughout pastoralist history, even fatal raids, the current youth represent the first cohorts to come of age in the presence of wide-scale raiding with small arms, including attacks that can be defined as terrorism (Pike, 2004). McCabe (2004) argues that we know very little about the feelings of loss, suffering, and revenge associated with the current violence, nor the potential fatalism associated with a high risk for mortality. We know even less about these emotions in children who are born into and experience this insecurity across their young lives. These emotional consequences matter for a host of social justice and human rights reasons (Betancourt, 2011; Panter-Brick et al., 2011) and also represent an important risk for poor mental health outcomes (Call et al., 2002; Patel et al., 2007). Yet we know little about how this low intensity violence shapes health and well-being for pastoralist youth, despite the fact that young men transition into a warrior age-set and care for animals at the front lines of violence.

3. Methods

We designed an ethnographically-driven epidemiological study to generate baseline data on nutritional and psychosocial health in three adjacent ethnic communities engaged in inter-community violence (Pike et al., 2010, 2016; Straight et al., 2015). From 2008 to 2011, we conducted a longitudinal panel study that compares six sites in three ethnic communities, three in close contact with endemic violence and three communities more removed from the violence. These three ethnic groups include the Pokot, Samburu, and Turkana pastoralists. We randomly sampled at least 30 households within each community for a total of 215 households. Table 1 provides the sample sizes by site, sex, and age groups. Our protocol for protecting human subjects was approved by the University of Arizona Human Subjects Protection Program (protocol # 0800000553A002). Research clearance was granted by the National Commission of Science, Technology, and Innovation (NACOSTI) in Kenya.

Anthropometric assessments were conducted on all resident members of the household (Pike et al., 2010, 2016). Each household was visited at least four times over the course of two years. One research team of three to four assistants was recruited from each of the three