The Effects of Underdevelopment on Health: An Analysis of the Spread of Ebola in Sierra Leone and Liberia

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Abstract: In 2014, a global turmoil occurred due to the Ebola outbreak, in West Africa. Liberia and Sierra Leone, remain affected by this threat despite global eradication efforts. These regions have been the worst hit by the Ebola epidemic due to their poor healthcare infrastructures, damaged as a result of the 14-year civil war. This paper examines whether underdeveloped institutions undermines both countries' ability to effectively tackle Ebola epidemics, thus affecting the population's health. This paper concludes that underdevelopment in both countries has a significant association with the prevalence of the virus.

The Ebola virus is a communicable disease that has emerged in West Africa. After an initial direct contact with infected rodents, the waterborne virus was transmitted from human to human (Howard, 2005). Although discussions surrounding the virus have decreased, many sub-Saharan African countries remain heavily affected by this threat despite global eradication efforts. While the outbreak began in Guinea, Liberia and Sierra Leone are two countries that have been the worst hit by the Ebola epidemic (Coltart et al. 2017). This is due to their

underdevelopment, specifically referring to their lack of adequate transportation and healthcare infrastructures, which have been damaged as a result of the (neo-)colonial legacies and the 14-year civil war they have experienced. This paper examines whether Sierra Leone and Liberia's underdeveloped institutions undermines both countries' ability to effectively tackle Ebola epidemics, thus affecting the population's health. Hence, an analysis of the association between health and development, specifically regarding the working-class population, will be made through this case study. A focus will be placed on the damaged health institutions fraught by colonial legacies. This research is important since an understanding of the ways in which underdevelopment can lead to poor health may be useful in terms of political and economic changes in these countries of interest, and in underdeveloped nations as a whole.

Liberia and Sierra Leone's Civil War and the Roots of Underdevelopment

In order to understand the state of underdevelopment in Liberia and Sierra Leone, it is important to understand the effects that colonialism and the years of civil war had on these regions. Throughout the continent of Africa, colonial rulers have failed to develop democratic institutions in their colonies. Hence,

upon the end of colonial rule, Sierra Leone and Liberia were transferred these ineffective, colonial means of governance and power structures (Meredith, 2014). This includes the use of ethnic tactics to govern their systems, resulting in tensions and inciting wars, as will be explained. Until 1980, Liberia was governed by a one-party political system. This allowed the same group of elites to continuously use patronage based on ethnicity to monopolize their power and disfranchise the indigenous people by using them as forced labour (Davies, 2005). Interestingly, sustaining a dysfunctional health sector was a control mechanism used by dictators and previous colonial rulers (Lahai, 2017). Through time, the political leaders, ignoring the long-term implications of their acts, ensured that the population remained unhealthy, poor, and uneducated; believing that a weak and ignorant population will prevent uproars against the political authority (*ibid.*). This form of repression was accomplished through budget cuts in social services (*ibid.*). The majority was thus marginalized without access to either basic education, health services, nor employment. The systematic oppression of Liberians, based on ethnic divisions created during colonialism, fuelled insurgencies and what was deemed Africa's bloodiest civil war.

This civil war heaved adjacent countries, such as Sierra Leone, into the

conflict. Since Sierra Leone gained independence from its former colonial rulers, the diamond fields were the country's most valuable asset (Meredith, 2014). The lack of stable democratic rule caused its illegitimate leaders (and rebel groups from neighboring countries) to take hold of the diamond industry and spread the revenue to "a few people through politicised ethnic lines", leaving the country bankrupt (Davies, 2005). In order to resolve the instability that the countries were faced with, and to eliminate poverty, the World Bank and the International Monetary Fund offered aid in the form of conditional loans: the developing countries were required to implement Structural Adjustment Programmes (Harpham, 2001). These austerity programs aimed to stimulate the national economies, while cutting public expenditures in education and health care, among others. In both countries, the illicit government failed to pay professionals, including teachers and health care workers, causing social systems to collapse, and causing the country to gravitate towards destruction (Meredith, 2014). Furthermore, though peacebuilding missions have been implemented, there has been excessive emphasis on building the state at the expense of improving social services. For instance, The United Nations has poured a great sum of money into Liberia's justice reform and security sectors, rather than subsidizing its welfare and health

infrastructures (Boas and Stig, 2010). Hence, these countries experienced increasing inequality, debt, poor governance and under-development.

Thus, as a result of colonial rule and civil wars in West Africa, which engendered "nepotism, corruption, mismanagement by the elites", Sierra Leone and Liberia experienced "an economic downtrend and under-development" (Davies, 2005). Development is defined by Amartya Sen as "a process of expanding the real freedoms that people enjoy" (1999). These freedoms include education, health, economic growth, transparency of the government and politics, etc. (Sen, 1999). Underdevelopment, throughout this paper, will thus refer to the lack of these freedoms; when political, economic and social institutions fail to enable a climate which expands and supports individual freedoms. In the next sections of this paper, the effects of underfunding health will be explored to understand how under-development has affected both countries' ability to effectively tackle the Ebola outbreak.

The Underdevelopment of Health-Care Institutions

The corrupt governance and the mismanagement of funds in both states resulted in low spending in the Health sector, henceforth catalyzing the outbreak of diseases. A major issue which facilitated the spread of Ebola was the lack of

health care facilities to treat infected patients. For example, Sierra Leone "had only 1,264 public and private health facilities, and 23 government hospitals" (Lahai, 2017). Also, regarding funding, the budget of the *Ministry of Health and Sanitation* in these regions was "below the recommended standards of a number of international public health governance frameworks" (*ibid.*). For example, in 2012, the Liberian and the Sierra Leone governments spent $20 and $16 per person per year on healthcare, respectively, which is "below the minimum of $86 recommended by the World Health Organization to provide essential health services" (Kaner and Scha-ack, 2016). Government health funding affects the amount (and adequacy) of health workers, medicines, equipment, and hospitals present in a country. Hence, as will be seen in the next subsections, underdevelopment of the health sector affects these countries' ability to protect their population from epidemiological outbreaks.

The lack of Health Care professionals

Underdevelopment, including underfunding, is clearly exposed when considering the shortage of health care workers (HCWs). Numerous health professionals, such as doctors and nurses, have resigned from their positions because of the lack of adequate pay and the unsafe environments they were forced to work

in. In fact, the relative risk of HCWs to acquire Ebola was 100 times higher than the general population (Lahai, 2017). Over 221 nurses and 11 specialist physicians, including the country's single virologist, have lost their life during the outbreak, since they did not have any basic training in modern Western medicine (*ibid.*). To fight against the unsafe working conditions and the lack of hazard pay they were owed, medical employees went on strikes to force the government to increase funding and to develop medical facilities (Coltar, 2017). The unsafe working conditions, which include the absence of adequate safety equipment, will be explored in depth in the next sub-section.

The lack of developed institutions (e.g. lack of job and income security) forced HCWs to seek work elsewhere. For example, in Liberia, nine out of ten medical doctors were leaving the country to search for safer work environments (Mulbah, 2016). As explained by Mills (2008), Sub-Saharan African countries were losing their HCWs who were provided with valuable work opportunities oversees, in high-income countries. There was an evident brain drain in West Africa: "over half of the doctors born in Sierra Leone and Liberia now work in Organization for Economic Co-operation and Development (OECD) countries" (DuBois, et al., 2015). The departure of HCWs and their medical knowledge

furthered human resources loss and the weakening of health systems, hence affecting the developing nations' ability to swiftly tackle epidemics (Mackey and Liang, 2012). As a result, in Liberia, "the system for training medical personnel had collapsed, and only 168 physicians remained in the country" (Mulbah, 2016). Thus, the health facilities in Liberia and Sierra Leone were understaffed. During the Ebola outbreak, Sierra Leone had about 5.5 million people, a life expectancy of 40 years and a ranking of 177 out of 187 countries in the Human Development Index, and "only one trained virologist medical doctor" (Lahai, 2017). The HDI is a development statistic which takes into account the following indicators: life expectancy, education and per capita income (Somers, et al., 2007). The fact that this indicator is at such a low level, especially compared to other countries, clearly illustrates the depth of the country's underdeveloped state, hence providing an understanding of the underlying causes of medical professional's deaths. Pre-outbreak, HCW capacity was "already critically low at approximately one or two HCWs per 100,000 population" (Coltart, 2017). Understaffed health care systems meant fewer people could receive treatment when contracted by diseases. This is because of the increase "in the number of patients per physician" (Mills et al., 2008). For example, due to a low availability of HCWs,

families were forced to "care for patients at home, putting them and their contacts at risk of infection" (DuBois, et al., 2015). This inaccessibility of health care is a clear example of the way in which underdevelopment affects health.

Hence, due to underdeveloped health care institutions, medical faci-lities could not adequa-tely ensure the health of the countries' civilians and HCWs were not receiving adequate pay, forcing them to work in unsafe conditions and, in many cases, to seek work overseas. Not only was there a lack of health professionals available, there was also a lack of clinics and hospitals, which decreases the ability for one to receive treatment and improve their health.

Protective Equipment, Beds and the Delivery of Health Services

Due to the war, hospitals and clinics were looted of medical equipment and drugs, and many buildings were burned down (Mulbah, 2016). By the time the war ceased in Liberia, only 354 of its 550 health facilities were operational (*ibid.*). The health facilities' medical shortages placed workers at risk of contracting viruses from infected patients. These shortages include "the inadequate number of beds, personal protective equipment (PPE), disinfectant and basic medical supplies" (DuBois, et al., 2015). For instance, both countries "struggled to provide the necessary bed capacity to isolate and treat all confirmed,

probable, and suspected cases of Ebola" (Coltart, 2017). Hence, over-crowding increased the potential cases of infection and health issues. Also, the poor (and destroyed) health infrastructures meant that there was a "lack of electricity and running water in some health facilities" (Obeng-odoom and Bockharie, 2018). The absence of running water makes it difficult to ensure effective infection control, proper sanitation and hygiene. Finally, many medical centers did not have protective gear, such as gloves. One reason for this was logistical failures, which sometimes caused the failure of supply distribution to medical centers. For instance, in 2014, "60,000 pairs of gloves [were] in a central warehouse in Liberia, but no gloves were available in health centers (DuBois, et al., 2015). Another issue pertaining to warehouses, was that these buildings often lacked uninterrupted power supplies. Therefore, the *National Drugs Services* in these countries were unable to store medication (Mulbah, 2016). Since cold-storage facilities were under-developed, Sierra Leone's facilities had on average 35% of the required essential drugs in stock in 2011 (DuBois, et al., 2015).

Delivery of health services was also problematic because of the underdeveloped transportation and communication networks. "Surveillance and early-warning systems were extremely weak, with limited capacity to detect

and respond appropriately to events such as the Ebola outbreak" (Mulbah, 2016). It was critical to have "fast and accurate laboratory diagnosis, yet in rural West Africa both laboratory and human resource capacity was limited" (Coltart, 2017). Diagnostic confirmation often took days, because "in some settings, clinical samples had to be transported across large geographical areas with poor transport infrastructure" (*ibid.*). Since the transportation of diagnostic samples (including individual blood test analyses) was hindered, the transportation of infected patients to hospitals was delayed as well. As such, the lack of adequate transportation services suspends the health treatment of infected victims Ebola.

Conclusion

To conclude, underdevelopment of health sectors in Liberia and Sierra Leone does seem to have a significant association with the prevalence and widespread nature of the Ebola virus. As shown throughout this paper, underdevelopment tends to increase the risk of having an unhealthy population. The issues that permeates both countries today are outcomes of the colonial era and the intermittent civil wars, which lead to underdevelopment. Underdeveloped health institutions and poor financing resulted in the lack of protective equipment, impro-per training of health care workers, limited sanitizations, poor transportation and communications systems,

as well as income and job insecurity for health care workers. These issues, both pertaining to social sectors, create propitious conditions for the spread, incidence and prevalence of diseases.

As the fastest growing continent in terms of demography, Africa has a very important human capital, especially in terms of labor and economic development. A healthy population is thus required to ensure the countries' national development, by inciting a more productive labor force, increasing national power (more robust soldiers), and increasing population happiness and well-being. This can be accomplished by developing health institutions as demonstrated throughout this paper. Better health-care infrastructures and adequate funding are a few optimistic solutions recommended to potentially cease the vicious cycle of poor health and underdevelopment in Sierra Leone and Liberia, and ultimately, in various countries in Africa and around the world.

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