



NUTRITION AND CHILDREN INFECTED WITH HIV/AIDS IN WEST AND CENTRAL AFRICA: IMPLICATIONS FOR HUMAN CAPITAL DEVELOPMENT

By

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Abstract

Nutrition is highly essential for the immune system and the existence of humanity. The HIV/AIDS disease, however, targets the immune systems of its victims, attacks and weakens them, which further aggravates the risk of developing infections and illness; thereby, making it impossible for the system to defend itself against diseases. Moreover, HIV reduces the nutritional status of the infected person, and this leads to immune depletion and progression of the virus into a full-blown AIDS. The destructive activity of the disease on the immune systems of infected persons is capable of influencing human capital development negatively. This paper assesses nutrition and children infected with HIV/AIDS in West and Central Africa, using stylized facts and review of related literature. The findings indicate that HIV/AIDS has contributed to the high prevalence of malnutrition, underweight, stunting, and wasting among HIV/AIDS-positive children; including those on antiretroviral therapy. These tend to impact negatively on human capital development activities in the area of health and education of the children. Thus, it is recommended that proper, appropriate and adequate nutrition should be provided for HIV/AIDS positive children to enhance human capital development activities among children in West and Central Africa. Efforts to attain 100% coverage of infected children with ART should be put in place while attempt should also be made to eradicate the disease in the sub-region.

Key Words: HIV/AIDS, nutrition, children, immune system, West and Central Africa.

Introduction

West and Central Africa (WCA) has the third-highest burden of HIV/AIDS globally, with about 6.1 million persons living with the disease in 2017 while new infections the same year stood at 0.37 million, the highest globally (UNAIDS, 2019). The number of children ages 0-14 years living with the virus and those newly infected remain high in the sub-region. One striking feature of HIV/AIDS is that it is devastating due to its negative effect on the immune system of its victim.

According to Multicultural HIV and Hepatitis Service (2018), HIV/AIDS attacks the immune system of its victim and destroys the white blood cells, thereby making the immune system weak. This in turn, aggravates the risk of developing infections and illness, thus, making it almost impossible for the system to defend itself against the onslaught of diseases. Duggal, Chugh & Duggal (2012) affirm that HIV infection reduces the nutritional status of the infected person, which results in immune depletion and HIV progression.

The destructive activity of HIV/AIDS on the immune systems of infected persons has a negative implication for human capital development. For instance, the disease can aggravate school dropout rate in any society where the prevalence is high, reduce school enrolment and completion, raise infant, under-five, maternal, and adult mortalities rates, and depress or lower average life expectancy (UNICEF, 2011; Guo, Li & Sherr, 2012; and Dauda, 2017 & 2018). This paper, therefore, examines the effect of nutrition on children infected with HIV/AIDS in WCA, and how this influences human capital development in the sub-region, using stylized facts and the review of related literature. The next section of the study presents facts on the status of HIV/AIDS and human capital in WCA. Section three focuses on literature review while the last section concludes the study.

2.0 Stylized Facts

This section provides statistics on the status of HIV/AIDS among children and human capital variables in WCA.

Table 2.1: Children HIV/AIDS Statistics in West and Central Africa, 1990-2017

Year	CAIDSD (Millions)	CHIVA (Millions)	CHIVAN (Millions)	MNA (Millions)	PLHA (Millions)
1990	0.017	0.075	0.037	0.110	1.90
1995	0.043	0.210	0.081	0.260	4.10
2000	0.066	0.380	0.110	0.350	5.80
2005	0.073	0.500	0.110	0.350	6.10
2010	0.064	0.530	0.087	0.330	6.00
2017	0.045	0.500	0.067	0.330	6.10

CAIDSD = AIDS-related deaths in children (0-14)

CHIVA = Estimated children (0-14) living with HIV

CHIVAN = Children (0-14) newly infected with HIV

MNA= Mothers Needing Antiretrovirals For Preventing Mother-to-Child Transmission

PLHA = Estimated adults and children living with HIV

Source: UNAIDS (2019).

Table 2.1 gives facts on the status of HIV/AIDS in WCA, particularly on children. As indicated in the table, more children still suffer from the menace of the disease in the sub-region. Although declining, children ages 0-14 years, who are living with the disease; AIDS-related deaths among this age bracket and new infections, still remain high. The number of mothers who require antiretrovirals in order to prevent mother-to-child transmission is also very high; while the overall number of persons who are living with the disease in WCA continues to increase.

For instance, AIDS-related deaths in children (0-14), which rose from 17 thousand in 1990 to 64 thousand in 2010 declined to 45 thousand in 2017. Similarly, the estimated number of children (0-14) living with the virus in the sub-region increased from 75 thousand in 1990 to 380 thousand in 2000 and later to 530 thousand in 2010. It however, declined slightly to 500 thousand in 2017. In the sub-region, the number of mothers needing Antiretrovirals for preventing mother-to-child transmission of the virus stood at 330 thousand in 2017 while the total number of persons living with the disease rose from 6 million in 2010 to 6.1 million in 2017. The statistics provided above vary from country to country as apparent in Table 2.2, which presents country-specific information on the status of the disease among children in selected countries of the sub-region.

Table 2.2: Country-Specific Statistics on Children Affected by HIV/AIDS in West and Central Africa, 1990-2017

HIV/AIDS Data Year/Country	CAIDSD ('000)			CHIVA ('000)			CHIVAN ('000)		
	1990	2000	2017	1990	2000	2017	1990	2000	2017
Burkina Faso	1.6	2.8	<0.5	7.3	20.0	9.4	3.3	3.9	0.66
Burundi	0.66	2.0	<0.5	3.1	14.0	8.8	1.5	3.1	0.69
Cameroon	0.5	4.5	3.3	1.9	22.0	40.0	1.2	7.9	4.5
Central African Republic	<0.5	2.1	0.7	1.5	13.0	8.9	1.0	3.3	1.1
Cote d'Ivoire	2.3	8.5	3.1	9.6	51.0	38.0	5.1	1.0	3.8
Democratic Republic of the Congo	3.6	9.2	3.4	19.0	59.0	51.0	7.1	15.0	4.8
Ghana	0.78	3.4	2.9	3.4	20.0	28.0	1.7	5.6	3.4
Guinea	<0.5	1.1	7.2	1.1	6.8	10.0	0.59	1.8	1.5
Nigeria	4.7	24.0	23.0	19.0	130.0	220.0	10.0	40.0	36.0

CAIDSD = AIDS-related deaths in children (0-14)
 CHIVA = Estimated children (0-14) living with HIV
 CHIVAN = Children (0-14) newly infected with HIV

Source: UNAIDS (2019).

Country-specific HIV/AIDS statistics as they affect children are presented in Table 2.2. The data cover AIDS-related deaths among children who are within the age bracket 0-14 years, the estimated number of children aged 0-14 years living with HIV/AIDS and children from age 0 to 14 years newly infected with HIV/AIDS in WCA. A look at the table does not only show high values of the variables but also in some of the countries, the values have continued to rise. For instance, the number of children living with the disease in Cameroon rose from 19,000 in 1990 to 22,000 in 2000, and further to 40,000 in 2017. The same pattern is observed in Ghana when the number of children living with the virus, which was 3,400 in 1990 increased to 20,000 in 2000 and later rose to 28,000 in 2017. In Guinea, AIDS-related deaths among children and the number of children living with the disease have been rising over the years.

Table 2.3: Treatment Issues Affecting HIV/AIDS Infected Children in West and Central Africa, 2010-2017

Year	PCHIVAA (%)	NMRR ('000)	PMTCTR (%)	NCRA ('000)
2010	08	82.2	25	42.5
2011	12	98.2	30	61.2
2012	13	114.0	35	66.3
2013	16	141.0	43	81.7
2014	18	159.0	48	92.5
2015	20	160.0	48	101.0
2016	24	167.0	50	119.0
2017	26	160.0	48	131.0

PCHIVAA = Percent of children (0-14) living with HIV receiving Antiretroviral therapy (ART)

NMRR = Number of mothers receiving effective prevention of mother-to-child transmission (PMTCT) regimen

PMTCTR = Prevention of mother-to-child transmission (PMTCT) coverage of effective regimen

NCRA = Number of children (0-14) receiving ART

Source: UNAIDS (2019).

Concerning treatment, less than 30% of the children infected with the virus in WCA are covered. However, the percentage covered has been rising over the years. As shown in Table 2.3 above, the coverage rate increased from 8% in 2011 to 18% in 2014, and thereafter rose to 26% in 2017. This however, is low considering how deadly the disease could be. It is easier for infected children who are not covered in the treatment to develop full-blown AIDS. The number of mothers receiving effective prevention of mother-to-child transmission (PMTCT) regimen and prevention of mother-to-child transmission (PMTCT) coverage of effective regimen have been

fluctuating while the number of children (ages 0-14) receiving Antiretroviral therapy (ART) has been rising, as presented in the table.

State of Human Capital Development in West and Central Africa

The performance of WCA with respect to human capital development has not generally been encouraging. Only few nations in the sub-region appear to be doing well moderately. This is obvious in the values of different indicators presented in Table 2.4 below. Looking at the 2018 human capital index, none of the countries attained 50%. The best-performing country is Ghana, which recorded 0.44 index. Prevalence of stunting among children under five years remains double digits while literary rate in most of the countries except Cameroon, Democratic republic of Congo and Ghana is still relatively low compared to what obtains in most advanced and some developing countries, including North Africa. Moreover, none of the countries could boast of average life expectancy reaching 70 years.

Table 2.4: Latest Indicators of Human Capital Development in Selected Countries in West and Central Africa

Country	Human Capital Index (2018)	Life Expectancy at birth (2017)	Literacy Rate	Prevalence of Stunting (%)
Burkina Faso	0.37	60.8	34.60 (2014)	27.3 (2016)
Burundi	0.38	57.9	61.57 (2014)	55.9 (2016)
Cameroon	0.39	58.6	71.29 (2010)	31.7 (2014)
CAR	-	52.9	36.75 (2010)	40.7 (2010)
Cote D'Ivoire	0.35	54.1	43.91 (2014)	21.6 (2016)
Democratic Republic of the Congo	0.37	60.0	77.04 (2016)	42.6 (2013)
Ghana	0.44	60.0	71.50 (2010)	18.8 (2014)
Guinea	0.37	60.6	32.00 (2014)	32.4 (2016)
Nigeria	0.34	53.9	51.08 (2008)	43.6 (2016)

Prevalence of Stunting = Prevalence of stunting, height for age (% of children under 5)

Source: World Bank (2019a & 2019b)

Literature Review

Nutrition and HIV/AIDS Infected Children: Implication for Human Capital Development

Nutrition is highly essential in the life of HIV/AIDS infected person. The disease is capable of causing impairment to the immune system, thereby leading to malnutrition, which can bring about “further immune deficiency, and contributes to rapid progression of HIV infection to AIDS” (Duggal, Chugh & Duggal, 2012). According to the authors, HIV/AIDS causes malnutrition, which can reduce the capacity of the body to fight infection by compromising various immune parameters because it “adds fuel to the fire by accelerating the progress of HIV infection to AIDS”, and “once there is an infection with HIV, the patient’s nutritional status declines further leading to immune depletion and HIV progression.” Kourkouta et al (2017) maintained that HIV/AIDS being a viral infection “affects the nutritional status of patients by complicating the absorption of nutrients and their metabolism.” Children who are HIV/AIDS positive suffer from acute and chronic malnutrition, particularly those from resource-constrained countries (Rose, Hall & Martinez-Alier, 2014) because the disease acts to worsen the nutritional status of those infected.

Good and appropriate nutrition therefore, can boost the immune system while inappropriate nutrition can weaken it and aid progression of HIV to a full-blown AIDS in the life of an infected person. Oguntibeju, van den Heever & Van Schalkwyk (2007) reiterate that “nutrition has helped to strengthen the immune system and reduce the severity and impact of opportunistic infections in people living with HIV/AIDS.” Moreover, maintaining “a good nutritional status has a significant impact on the functioning of the immune system and the overall health of people living with HIV/AIDS (Kourkouta et al., 2017). Children who are HIV/AIDS positive require additional nutrition, “high-energy, high-protein, and nutrient-dense diets” in order “to ensure normal growth and development” (Rose, Hall & Martinez-Alier, 2014)

Empirical evidences support negative effect of HIV/AIDS on the immune system and positive impact of nutrition on the immune status of HIV/AIDS infected persons. In a cross-sectional study conducted by Gogia, Ambey & Sahu (2016) among 84 HIV positive children in India, it was reported that the nutritional status of these children was very poor. Thus, prevalence of

under nutrition was significantly high leading to moderate and severe stunting, moderate and severe underweight, and moderate and severe wasting in under-five years HIV positive children. Moreover, low height for age, low weight for age, and low body mass index (BMI) were observed in greater proportion among age group 6-18 years who were HIV/AIDS positive.

A similar study carried out by Saliya, Azale, Alamirew & Tesfaye (2018) in South Ethiopia to determine the nutritional status of 428 HIV positive adults as well as the risk factors for their malnutrition in 12 health centers also found significant prevalence of chronic energy deficiency and malnutrition among this population. In the same vein, Sunguya et al (2011,1) in their study reported higher rates of undernutrition among HIV/AIDS positive children on ART in Tanzania than HIV-negative children. The study further discovered that “among the ART-treated HIV-positive children, 78 (36.6%) were stunted, 47 (22.1%) were underweight, and 29 (13.6%) were wasted.”

Other findings consistent with the above include Ndirangu et al (2011); Moolasart, Chottanapund, Ausavapipit & Ampornarekul (2017); and Lentoor. 2018). However, Jeylan, Mohammed & Girma (2018) reported low (13.4%) stunting and 21.8% thinness among children on chronic HIV care and support in Adama Hospital Medical College, Adama, Oromia Regional State, Ethiopia.

In West and Central African countries, empirical findings do not diverge from those that reported high under/malnutrition among children infected with HIV/AIDS. For instance, Jesson et al (2015) “assessed the prevalence of malnutrition and its associated factors among HIV-infected children in HIV care programmes in Central and West-Africa.” The findings revealed high prevalence of malnutrition among HIV-positive children who were on ART. Specifically, malnutrition prevalence among the children was 42%, “with acute, chronic and mixed malnutrition” being 9%. The study further reported that more than 50% of the malnourished children did not “receive any nutritional support at the time of the survey.”

Anigilaje & Olutola (2015) investigated “prevalence and risk factors of undernutrition among” 182 HIV-infected children aged under 5 years in Makurdi, Nigeria, West Africa and discovered that “prevalence of undernutrition was 12.1%, 33.5%, and 54.4% for underweight, wasting, and

stunting, respectively.” Similarly, Poda, Hsu & Chao (2017) studied malnutrition among HIV infected children below 5 years in Bobo-Dioulasso City of Burkina Faso. The findings showed that among these children, prevalence of food insecurity was 58%, inadequate diet was 92% while prevalence of underweight, stunting, and wasting stood at 77%, 65%, and 63% respectively. Penda et al (2018) also found similar results in their study conducted among HIV infected children aged under-five years in Cameroon. They reported 68.7% malnutrition prevalence, 63.6% stunting, 37.8% underweight, and 18.4 % wasting.

From the foregone literatures, it is apparent that nutrition plays pivotal role in the life of children infected with HIV/AIDS. This has important implications for human capital development. For instance, HIV/AIDS progression can be aggravated through poor nutritional status of and infected person while good and appropriate nutrition can help to boost the immune system of HIV/AIDS infected person. When the immune system of an infected person is weakened through poor nutrition, such a person’s schooling can be affected negatively, while the health status is compromised. Mortality and morbidity can rise, and this in turn could reduce average life expectancy in any society where the incidence and prevalence of the disease is high. The implication of this is poor human capital development.

Studies have reported negative impact of the disease on human capital variables in the area of education such as declines in school enrolments and school drop-outs, delay in school enrolment, poor performance of infected pupils in class, poor attendance, and reduction in quantity and quality of teachers (Wobst & Arndt, 2004; Evans & Miguel; 2007; Mahal et al, 2008; Sunguya et al, 2011; Fortson, 2011; and Toska, 2019); and reduction in average life expectancy (see McDonald & Roberts, 2006; Gardner & Lee, 2010; Haacker, 2010; and Dauda, 2018). However, the introduction of ART has contributed to the improvement in the life span of infected persons (see Nsanzimana et al., 2015; and Bhatta et al., 2019). Similarly, HIV/AIDS has also contributed to increase in mortality and morbidity among children and adults living with the disease (McDonald & Roberts, 2006; UNAIDS, 2019; and Wu et al., 2019)

Good and appropriate nutrition can also boost the immune system of infected persons and helped to reduce morbidity as a result of HIV/AIDS and lengthens the life span of such person, thereby increasing school enrolment and improve average life expectancy (see Oguntibeju, et al., 2007;

Kourkouta et al., 2017; Rose, Hall & Martinez-Alier, 2014). This in turn can reduce various types of mortality. It is therefore, essential for HIV/AIDS infected children to be provided with food that will provide good, appropriate and adequate nutrition in order to boost their immune systems, improve their average life expectancy and enhance human capital development activities among them.

Conclusion and Policy Recommendations

This study assesses nutrition and children infected with HIV/AIDS in West and Central Africa, using stylized facts and review of appropriate literatures. The findings revealed that the sub-region of West and Central Africa is still struggling with the burden of HIV/AIDS. This is due to the high number of infected children and adults as well as AIDS-related deaths. Moreover, the disease has contributed to high prevalence of malnutrition, underweight, stunting, and wasting, even among HIV-positive children who are on ART. This is capable of eroding human capital development activities among the children. This is obvious in the facts presented on the poor state of human capital in the sub-region. It is therefore important that steps are taken to provide adequate and appropriate nutrition for the children who live with HIV/AIDS in the sub-region while human capital development activities covering education and health should be encouraged among them. Effort to attain 100% coverage of infected children with ART should be put in place while attempt should also be made to eradicate the disease in WCA.

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