

Reducing Maternal and Child Mortality in West Africa: Improve Health Indicators for Mother and Child Well-Being

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ABSTRACT

World Health Organization provides reliable information about health performance of countries around the global. In most of their periodical data, sub-Saharan Africa kept performing poorly in relation to most health indicators such as maternal mortality, child mortality, HIV AIDS rate, health financing, vaccination coverage for under 1 year child and others.

A major challenge in the health indicators is the high Total Fertility Rate of West African countries, with some countries recording Total Fertility Rate of six children per woman in her reproductive age. Many researchers have focused in Total Fertility reduction as a way of reducing the poor quality of health in West Africa, but fertility control efforts have not yielded the needed outcomes, as usage of contraceptives in the region is not encouraging.

This study used World Health Organizations statistics data for 2017 to established the fact that Maternal and Infant Mortality can be reduced not only by reducing the high Total Fertility Rate but also by increasing the yearly expenditure on health, increasing vaccination coverage, increase the number of skilled birth attendants, while providing other needed health inputs.

The paper revealed significant association between total fertility rate and maternal mortality, child mortality and stunting growth of children. The positive association between total fertility and other variables show the high total fertility rate is impacting negatively on the other variables. Hence the need to control fertility rate in West Africa as it will lead to health systems improvement in the region.

KEYWORDS: *fertility in West Africa, maternal mortality, infant mortality, sub-Saharan africa*

INTRODUCTION

Maternal and Child Mortality were major features in the Millennium and the present Sustainable Development Goals (Ma, 2019). As to whether the targets were met by sub-Saharan Africa countries or will be met according to the targets set by United Nations remained debatable (Sanyang, 2019). Figures from the United Nations World Fertility Booklet of 2015 and World Health Organization's Health Statistics 2017, show that achieving most of the health related SDGs in sub-Saharan Africa will be as difficult as a search for lion's blood.

Performance of health indicators such as stunting growth among children, availability of skilled birth attendant, maternal and child mortality and expenditure in health in west Africa countries are nothing closer to the target set by the United Nations Sustainable Development Goals (Nyamuranga & Shin, 2019). For the health systems of the 15 countries in West African to make any positive show in global rankings, the high Total Fertility Rates in the region must record downward growth rather than unacceptable insignificant low decline we claimed to be witnessing (Mccord, Conley, & Sachs, 2017).

Whereas higher Fertility Rate may demand for increased in health expenditure, paradoxically, contribution to health delivery from annual budgets of these countries continued to be below the 15% demanded at the Abuja Declaration of 2001 (Nyamuranga & Shin, 2019), while foreign donation to the health sectors keep dwindling (Ashiabi & Nketiah-amponsah, 2015). Though this study side with many studies that pronounced reduction in Total Fertility Rate in sub-Saharan Africa as a major solution to the weak health systems (Ahmed & Fielding, 2019), our study suggested that, since the Total Fertility Rates still stand at the average of 4.2 which is more than the projected fertility rate figure for developing countries, increasing allocation to health expenditure, increasing vaccination coverage and training of more skilled birth attendant can rescue the situation of high Maternal and Child Mortality and Stunting Growth Among Children in west Africa.

METHODOLOGY

The study is a multinational retrospective study using data from world health organization's World Health Statistics 2017 publication and United Nations World Fertility Patterns 2015.

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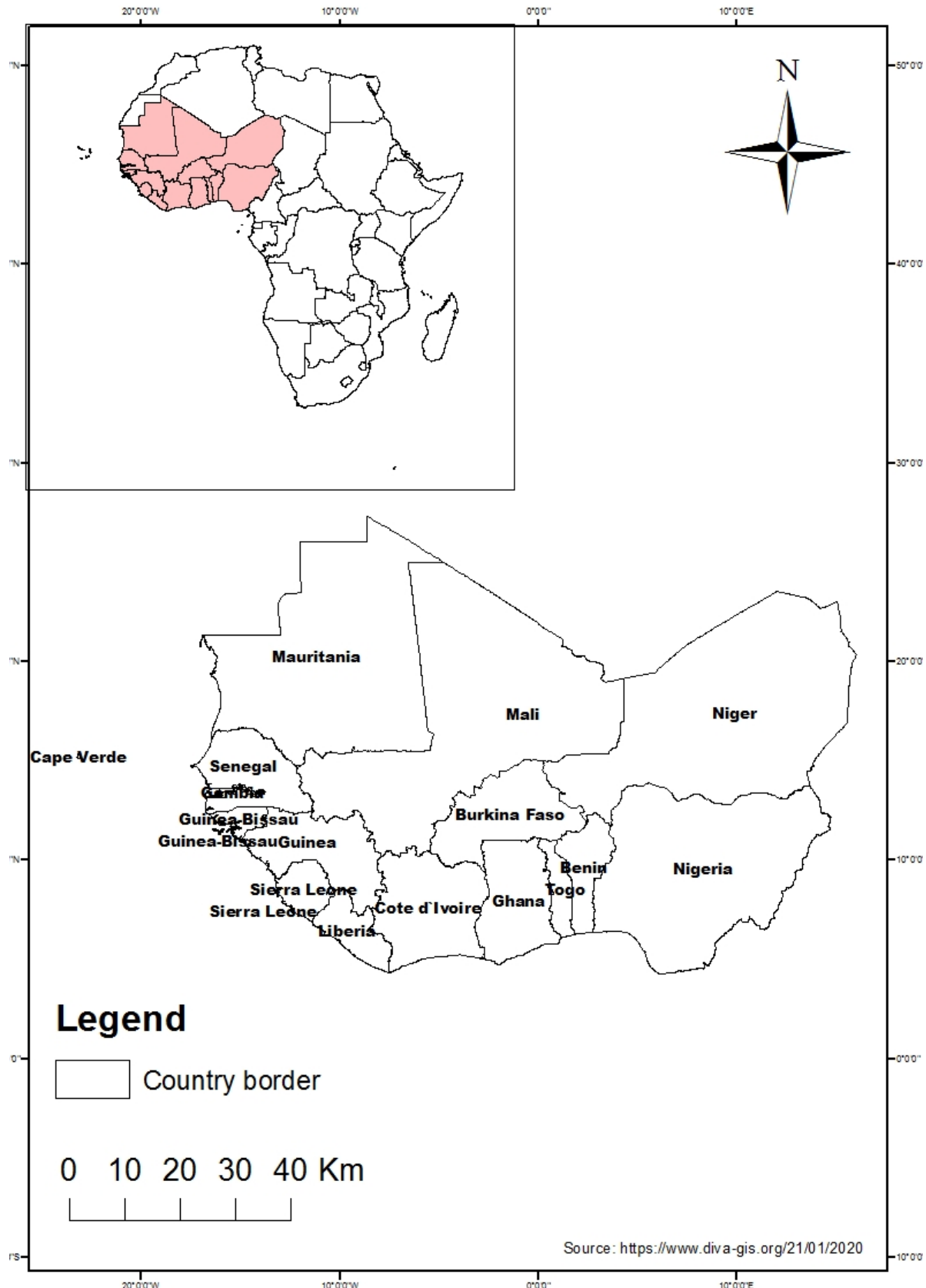


Since the focus of the study is to evaluate how maternal mortality, child mortality and stunting growth can be reduced in west Africa. Data of 2015 in relation to the 15 west Africa countries was extracted. Countries involved in the study are Benin, Burkina Faso, Cape Verde, Cote D'Ivoire, Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo.

Key health indicators selected were; Health Expenditure, Skilled Health Professionals' Density, Skilled Birth Attendant,

Total Fertility Rate, Vaccination Coverage, Maternal Mortality, Child Mortality and Stunting Growth in Children.

Data was analyzed using statistical software STATA 15, natural logarithm use to bring the figure in the data under a single unit. Pair wise Correlation was used to show association between variables since the interest of the study is to establish associations between the health indicators and identify the indicators when controlled can help reduce maternal mortality, child mortality and stunting growth in west Africa.



RESULTS

Figure 1.0 World Health Organization’s health indicators and years recorded

COUNTRIES	Health expenditure %	skill health professionals per 1000 population	skilled birth attendant %	Vaccine coverage per 1 year old %	Total Fertility Children per woman	Maternal mortality per 100,000 Life births	Child mortality per 1000 Life births	Stunting growth Under 5years %
Benin	9.6 (2014)	7.5 (2005-2015)	77 (2015 - 2016)	79 (2015)	4.7 (2010 - 2015)	408 (2015)	99.5(2015)	30.4 (2015-2016)
Burkina Faso	11.2 (2014)	6.8 (2005-2015)	66 (2015 - 2016)	91(2015)	5.6 (2010 - 2015)	371(2015)	88.6(2015)	27.3 (2015-2016)
Cape Verde	11.6 (2014)	8.7 (2005 - 2015)	92 (2015 - 2016)	93(2015)	2.4 (2010 - 2015)	42(2015)	24.5(2015)	-
Côte d'Ivoire	7.3 (2014)	6.2 (2005 - 2015)	59 (2015 - 2016)	83(2015)	5.1 (2010 - 2015)	645(2015)	92.6(2015)	29.6 (2015-2016)
The Gambia	15.3 (2014)	10.0 (2005 - 2015)	57 (2015 - 2016)	97(2015)	5.8 (2010 - 2015)	706(2015)	68.9(2015)	25.0 (2015-2016)
Ghana	6.8 (2014)	10.2 (2005 - 2015)	71 (2015 - 2016)	88(2015)	4.2 (2010 - 2015)	319(2015)	61.6(2015)	18.8 (2015-2016)
Guinea	9.0 (2014)	-	45 (2015 - 2016)	51(2015)	5.1 (2010 - 2015)	679(2015)	93.7(2015)	31.3 (2015-2016)
G-Bissau	7.8 (2014)	7.3 (2005 - 2015)	45 (2015 - 2016)	80(2015)	5.0 (2010 - 2015)	549(2015)	92.5(2015)	27.2 (2015-2016)
Liberia	11.9 (2014)	2.8 (2010 - 2015)	61 (2015 - 2016)	52(2015)	4.8 (2010 - 2015)	725(2015)	69.9(2015)	32.1 (2015-2016)
Mali	7.0 (2014)	5.3 (2010 - 2015)	49 (2015 - 2016)	68(2015)	6.4 (2010 - 2015)	587(2015)	114.7(2015)	38.5 (2015-2016)
Mauritania	6.0 (2014)	7.4 (2010 - 2015)	56 (2015 - 2016)	73(2015)	4.7 (2010 - 2015)	602(2015)	84.7 (2015)	27.9 (2015-2016)
Niger	5.6 (2014)	1.6 (2010 - 2015)	40 (2015 - 2016)	65(2015)	7.6 (2010 - 2015)	553(2015)	95.5(2015)	43.0 (2015-2016)
Nigeria	8.0 (2014)	18.3 (2010 - 2015)	35 (2015 - 2016)	56(2015)	5.7 (2010 - 2015)	814(2015)	108.5(2015)	32.9 (2015-2016)
Senegal	10.8 (2014)	4.9 (2010 - 2015)	53 (2016 - 2016)	89(2015)	5.2 (2010 - 2015)	315(2015)	47.2(2015)	20.5 (2015-2016)
SerialLeone	3.4 (2014)	3.4 (2010 - 2015)	60 (2015 - 2016)	86(2015)	4.8 (2010 - 2015)	1360(2015)	120.4(2015)	37.9 (2015-2016)
Togo	7.8 (2014)	3.6 (2010 - 2015)	45 (2015 - 2016)	88(2015)	4.7 (2010 - 2015)	368(2015)	70.4(2015)	27.5(2015-2016)

Data Sources: World Health Statistics 2017 And World Fertility Patterns 2015 (countries, health indicators and years)

FIGURE 1.1 VARIABLES AND THEIR ABBREVIATIONS

Variables	Abbreviations
HED	Health Expenditure
SHP	Skilled Health Professionals
SBA	Skilled Birth Attendants
VC	Vaccination Coverage
TFT	Total Fertility Rate
MM	Maternal Mortality
CM	Child Mortality
SG	Stunting Growth Among Children

Figure 1.2 shows positive association between SBA and VC coefficient 0.5164, indicating when SBA goes up VC will also go up. But negative associations exist between SBA and the following variables TFTcoefficient -0.6895, MM coefficient -0.5722 and CM coefficient -0.5419 meaning when SBA goes up TFT, MM, and CM will decline. Also TFT has positive association with MMcoefficient 0.7389, CM0.7557 and TG coefficient 0.5955, indicating reduction in TFT will lead to reduction in MM, CM and SG and viceversa. MM is also positively associated with cm 0.8708 and TG 0.6328 again decline in mm will lead to decline in CM and TG.

Figure1.2 Pairwise correlation (association between health indicators) SIGNIFICANT AT 0.05+

	HED	SHP	SBA	VC	FT	MM	CM	TG
HED	1.0000							
SHP	1.000	1.0000						
SBA	0.1532	0.1532	1.0000					
VC	0.1963	0.1963	0.5164*	1.0000				
FT	-0.3114	-0.3114	-0.6895*	-0.3250	1.0000			
MM	-0.3114	-0.1873	-0.5722*	-0.4083	0.7398*	1.0000		
CM	-0.1316	-0.1316	-0.5419*	-0.3954	0.7557*	0.8708*	1.0000	
TG	-0.4763	-0.4763	-0.3946	-0.5177*	0.5955*	0.6328 *	0.8017*	1.000

Correlation coefficient is significant at P< 0.5*

DISCUSSION

Reliable data from World health organization's annual and periodical reports continuously expose the weaker health systems of sub-Saharan African countries (Gautier & Ridde, 2017). With a trusted data from the above organization, health systems of sub-Saharan African countries need to be improved if most of the Sustainable Development Goals are to be achieved (Lange & Klasen, 2017).

The heighten total fertility rate of sub-Saharan Africa countries which stands at the average of 4.2 children per a woman in her reproductive ages of 15 -49 years is the highest on the globe (Haal, Smith, & Doorslaer, 2018). Niger as at the year 2015 was recording fertility rate of 7.6 and Gambia recording 5.8 in the same period (who, world health stat, 2017). With these huge fertility turnovers, one may expect increase in health expenditure (Gautier & Ridde, 2017), but most of these countries contributed less than 10% of their annual budgetary expenditure to health delivery which are willfully inadequate (Witter et al., 2019). Since most study relate high fertility to high maternal mortality, stunting growth, child mortality and others (Lori, Assistant, Starke, & Nurse-midwife, 2015), it will be difficult to expect a downward trend in maternal mortality, stunting growth, child mortality and other when strategies such as family planning put in place to apprehend the ever up surging fertility rate in west Africa is not yielding the needed results (Hategeka, Ruton, & Law, 2019).

This study supports other studies which show growing fertility rate has negative impact on maternal mortality, stunting growth and child mortality (other factors constant. Similar associations exist between fertility and child mortality with positive correlation coefficient 0.7557. fertility rate has been established as a determinant of wellbeing of children (Acheampong, Ejiofor, Salinas-miranda, Wall, & Yu, 2019). Fertility rate is strongly correlated with maternal mortality at of coeficient 0.7398 indicating when fertility rate goes up maternal mortality will equally go up holding all and mothers health (Lynn & Yadav, 2015) and high fertility rate without the needed investment in health delivery makes west Africa less a safer place for women and children in terms of health delivery (Acheampong et al., 2019).

The positive association between total fertility rate and the above indicators, is a clearer call to the sub-Saharan Africa countries, that reducing the fertility of the area is likely to come with a lot of health benefits (Mihigo et al., 2019). Comparing the fertility rate of west African countries to that of other highly populated countries such as India and China (world fertility, 2015), though the size of their population is huge, their total fertility rate remained very low which has contributed to the improvement of their health systems (world have statistics, 2017). Equally the 15 countries of west African have high fertility rate with worsening health systems making the geographical area to continuously perform abysmally in WHO ratings (Umeh, 2017).

Stunting growth of children, maternal and child mortality in west Africa can also be reduced by fixing the disparities in skilled pregnancy attendants and skilled delivery care (Hategeka et al., 2019). Though there are available records of disparities in healthcare in rural and urban areas, the

compounding issues is the unmatched number of skilled birth attendants in the region (Yaya et al., 2018). Most maternal and child mortality occurred as the result of lack of midwives and other health logistics in most parts of west Africa (Hategeka et al., 2019). Though increasing number of skilled birth attendant in the area may not result in absolute elimination of maternal and infant mortality (Paul et al., 2018), the figure may not have been higher if more focus was put on training and supporting skilled birth delivery (Edwards, 2018). As at 2015, Niger, Nigeria, Guinea and Togo have less than 50% deliveries being supervised by skilled birth attendants. Mother and infant lives are mostly at risk with the absence of professional midwives (Iacoella & Tirivayi, 2019). ironical sub-Saharan Africa with its huge fertility rate hardly provide the needed number of skilled birth attendants and other needed logistics for the safety of mothers and children (Arendt, 2016).

While increase in the number of skilled birth attendant will result in the reduction number of maternal mortality (Coburn, Restivo, & Shandra, 2015), training and equipping midwives in the region to combat maternal and child mortality remain a dream which will be hard to realized due low allocation to health expenditure which is below the Abuja Declaration of 2001 which demand Africa countries invest at least 15% of their annual budget in health delivery. (Akinlo & Sulola, 2019 and WHO, 2002).

A critical tool in lessening child mortality and stunting growth in child is vaccination coverage (Ma, 2019). Nonetheless the critical role play by vaccination in child wellbeing, a lot of children in the region remained unvaccinated (Lange & Klasen, 2017), exposing them to the six childhood killer disease and other health implications (Sanyang, 2019). As at 2015 Liberia, Guinea and other countries in west Africa have more than 40% of children unvaccinated (Mihigo et al., 2019) Though none vaccination may not always result in child mortality, other health benefits of vaccinated have eluded these children (Kaberuka, Mugarura, & Bishop, 2017).

The statistical associations between the health indicators established the fact that improvement in one health indicator will transient the others. Statistically a change in maternal mortality will lead to a change in child mortality and stunting growth of children (Lange & Klasen, 2017). Nevertheless, there is no doubt that reduction in fertility rate can help change the negative trend in the health indicators (Ahmed & Fielding, 2019), investment in health and number of health professionals in the region need to increase (Nyamuranga & Shin, 2019). The sub-Saharan Africa region harbours countries whose contributions to health delivery leave much to be desired (Akinlo & Sulola, 2019). With decreasing donor funding for health activities in the region, it will be prudent if national government increase their yearly budgetary contribution to health while taking steps to reduce the high fertility rates (Mccord et al., 2017).

STUDY IMPLICATION

This study supports already existing studies that outline the implication of high total fertility rate on health delivery. Nevertheless, we agreed sub-Saharan African countries need to reduce their fertility rates to achieve positive improved health systems, the study suggested that in the absence of fertility reduction, increasing expenditure in health delivery,

increase in number skilled birth attendant and increase vaccination coverage can help in reduction of maternal and child mortality in west Africa.

CONCLUSION

This study focus only on west Africa and it is a cross-sectional study, so only sections of the world health organization's data for 2017 was used. Again, not all WHO's health indicators were factored into the study. These shortcomings will have some minimal influence of our findings. We again recommend the focus on downing fertility rate and increasing investment in health delivery as the way forward to make sub-Saharan Africa a better place for delivery mothers and children.

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