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Determinants and Differentials of Maternal Reproductive Health Outcomes in Nigeria: A Review of National Demographic Health Survey Data from 1999 to 2013

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Abstract
Women in Sub-Saharan Africa face significant clinical and socio-demographic challenges that translate to poor health outcomes including high maternal morbidity and mortality. Nigeria being the most populous nation in Africa bears a significant burden of both communicable and non-communicable diseases. This study aimed to determine the trends and differentials in indices fuelling poor health outcomes in Nigeria. The study was a review and trend analysis of maternal reproductive health indicators obtained from the Nigeria National Demographic and Health Survey (NDHS) data from 1990 to 2013 including secondary data from WHO, UNICEF and the World Bank. The life expectancy at birth was 54.5 years with an estimated infant mortality rate of 75 per 1000 live births, child mortality rate of 88 per 1,000 live births, under-5 mortality rate of 157 per 1,000 live births and a maternal mortality ratio (MMR) of 545 per 100,000 live births. Contraceptive prevalence was 22% among women in the wealthiest quintile and 3% among those in the poorest quintile. Only 3% of women with no education used modern contraception as compared to 24% of women with tertiary education. Most of the maternal deaths were due to preventable causes which were largely related to poverty, inimical socio-cultural beliefs and practices as well as clinical factors like haemorrage, hypertension, and indirect causes like inadequate human resource for health, user charges, cultural pregnancy/childbirth beliefs and myths. A community-based participatory research using both qualitative and quantitative methods may shed more light on the non-clinical factors fueling high MMR in Nigeria.
Keywords: Maternal and Child Health, maternal mortality, contraception

1. Introduction and Background

Women in sub-Saharan Africa face significant health challenges such as exposure to malaria, poor access to contraception and complicated abortions; these result in poor health indices and high maternal morbidity and mortality (Ndep, 2014). Factors that fuel high maternal mortality in Nigeria include haemorrhage, constant exposure to malaria, rural women's socio-economic status that may hinder timely health seeking behaviour, women's and children's vulnerability to social and health problems including but not limited to poverty/poor housing, access to nutritious foods and facilities that promote proper hygiene practices. In addition age and gender defined roles that may expose rural women/children to mosquito and or geohelminths infested soil, vegetation, animal and water sources pose a significant threat to their health and wellbeing. Insufficient institutional priority and resource allocation related to health education and health promotion activities targeting the co-morbidities have been identified as a significant barrier to reducing the health impact of these issues. Barriers to rural women's health such as education and lifestyle, dependence on seasonal income seem to exacerbate the impact of these co-morbidities.

The Nigerian federation has three tiers of government - federal, state, and local with a three-tiered health system; tertiary, secondary and primary based on the three tiers of government. Health service provision in Nigeria includes a wide range of providers in both the public and private sectors, such as public facilities managed by federal, state, and local governments, private for-profit providers, NGOs, community-based and faith-based organizations, as well as religious, alternative and traditional caregivers. Both the orthodox and alternative systems are recognized and regulated by the governments. The national health policy regards primary health care as the framework for ensuring access to health care for the population. A health sector reform was initiated in 2004 to address the apparent lack of accountability in the running of the health system. The health sector is characterized by wide regional disparities in status, service delivery, and resource availability. More health services are located in the southern states than in the north (National Demographic and Health Survey, 2013).

Currently Nigeria ranks among the countries with the highest child and maternal mortality rates due to its poor health status indicator. The life expectancy at birth is 54.5 years. Even though only 2% of the global population is in Nigeria, the country has an estimated infant mortality rate of 75 per 1000 live births, child mortality rate of 88 per 1,000 live births, under-5 mortality rate of 157 per 1,000 live births and a maternal mortality ratio of 545 per 100,000 live births. About 72% of the urban population and 49% of the rural population have access to safe drinking water. The major contributors to the disease burden of the country are malaria, tuberculosis (TB), and HIV/AIDS. Malaria is a major health and developmental problem in Nigeria,

with a prevalence of 919 per 100,000 population. It is responsible for the high morbidity and mortality in infants and young children; about 75 percent of malaria deaths occur in children under five, and one in ten maternal deaths is due to malaria (National Demographic and Health Survey, 2013).

The HIV/AIDS epidemic has also had its toll on a large scale in Nigeria. The 2012 National Human Immunodeficiency Virus (HIV) and Acquired Immunodeficiency Syndrome (AIDS) and Reproductive Health Survey (NARHS plus II), showed that the national adult HIV prevalence HIV was 3.4%. HIV prevalence was higher among females (3.5%) than males (3.3%). With an HIV infection rate of 3.2 percent in a population of 173 million, this translates into 3.4 million Nigerians who were living with HIV in 2013; of these, 430,000 were children under 14. Nigeria faces the "triple threat of high HIV burden, low treatment coverage and no or little decline in new HIV infections." Moreover, the national HIV rate conceals sharp disparities among the 36 states, with some states recording as high as 15% HIV prevalence (Federal Ministry of Health, 2014)

In the Nigerian Constitution, health is on the concurrent list; which implies that each level of Government has to take responsibility for the funding and implementation of the aspects of health care that has been constitutionally assigned. The Federal Government is responsible for tertiary health care services, while the State and local Governments handle secondary and primary health care services respectively. The per capita health expenditure is about $10. The total health expenditure (THE) as a percentage of the GDP in 2013 was 3. 9 %; while the Public Health expenditure (PHE) as a percentage of the total health expenditure dropped from 36.8% in 2008 to 31.1% in 2012. Out-of-pocket health expenditure as a percent of total expenditure on health increased from 60.5% in 2008 to 65.9% in 2012 (World Bank, 2013a). Nigeria has one of the largest stocks of health workers in Africa comparable to Egypt and South Africa, [Table 1] however the health workers are poorly distributed and in favour of urban areas, the southern part of the country and tertiary health care services delivery which mostly provide curative care. [Table 2]

Maternal Mortality: The Scope and Contexts

It is estimated that globally an average of 500,000 women die each year as a result of complications related pregnancy and child birth (World Health Organization, UNICEF, United Nations Population Fund, & World Bank, 2014). Nigeria constitutes just about 2% of the global population, but with estimated maternal deaths of 40,000 each year, it contributes about 10% of the global estimates of maternal deaths. This translates to about 5 women dying from pregnancy-related causes every hour. Maternal deaths account for 32 percent of all deaths among women age 15-49 while the lifetime risk of maternal death in Nigeria is 1 in 31 compared to 1 in 4000 for industrialized countries (National Demographic and Health Survey, 2013; World Bank, 2013a)

For every woman who dies, as many as 20 others are seriously inflicted by fistula or other injuries of childbearing. The maternal mortality ratio (MMR) in Nigeria is more than 100 times worse than that of any industrialised nation, highlighting what is perhaps one of the widest disparities in international public health. Although many of these deaths are preventable, the coverage and quality of health care services in Nigeria continue to fail women and children. Presently, less than 20 per cent of health facilities in Nigeria offer emergency obstetric care and only about 35 percent of deliveries are attended by skilled birth attendants (National Demographic and Health Survey, 2013)

2. Methods

The study reviewed the Nigerian Health and Demographic (NDHS) data from 1993 to 2013 and described the levels and trends in maternal mortality in Nigeria as well as its correlates and determinants using WHO, UNICEF, UNFP and World Bank data.

3. Results

The NDHS data shows that maternal mortality in Nigeria has declined from 1100 /100,000 live births in 1990 to 576 /100,000 live births in 2013; which was still a far cry from the expected MDG target of 280/100,000 live births.

3.1. ***Correlates and determinants of maternal mortality***

The findings of the NDHS reviewed for the period 1990-2013 showed a high total fertility rate of more than five children per woman. The TFR decreased with increasing level of education. Women with more than a secondary education have a TFR of 3.1, compared with a TFR of 6.9 among women with no education. Women in the highest wealth quintile have an average of three fewer children than women in the lowest quintile (3.9 and 7.0 births per woman, respectively (National Demographic and Health Survey, 2013).

3.1. 1. Fertility preferences

Preference for larger family size was evident from the data. Women with four living children as well as those with six living children expressed desire for more children. The desire to stop childbearing among currently married women has changed only minimally over the past decade (18% in 2003 and 19% in 2013). Currently

married women report an ideal family size of 7.1 children, which showed a decrease of 0.2 children since 2003

3.1.2. Family planning services and contraceptive prevalence

Even though contraceptive prevalence among women ages 15-45 has increased from 6% in 1990 to 15% in 2013, overall, Nigerian women have about one child more than the number they want. This implies that the total fertility rate of 5.5 children per woman is 15% higher than it would be if all unwanted births were avoided. Socioeconomic differences underpin the use of modern contraception among women: Contraceptive prevalence is 22% among women in the wealthiest quintile and 3% among those in the poorest quintile Similarly, just 3% of women with no education use modern contraception as compared to 24% of women with tertiary education, and 7% for rural women versus 17% for urban women. (NDHS 2013)

3.1.3. Reproductive health services /Utilization of antenatal, delivery and postnatal services

At least one attendance at antenatal care (ANC) clinic is about 60%. ANC attendance is much higher in urban areas (86%) compared to rural areas (47%). Similarly, ANC attendance was found to be correlated with educational status. Antenatal care utilization is highest among women with more than secondary education (97%) and lowest among women with no education (36%). The proportion of mothers receiving ANC from a skilled health provider increased from 58% in 2003 to 61% in 2013 (National Demographic and Health Survey, 2013).

3.1.4. Births attended by skilled health personnel

The review of the trend in the proportion of deliveries attended by trained /skilled healthcare providers showed that skilled birth attendance has remained largely below 40% with wide disparities by zone, place of residence, level of education and wealth quintile. Only 22% of births in rural areas are attended by skilled provider; similarly less than 10% of those in the lowest wealth quintile and less than 15% of those with no education had access to skilled birth attendants. The 2013 data showed that 38% of births in Nigeria were delivered by a skilled health provider while 36% of the deliveries took place in health facilities. This represents a marginal improvement since a decade back in 2003, 35 percent of births was delivered by a skilled health provider, and 33 percent of the deliveries took place in a health facility (National Demographic and Health Survey, 2013; World Health Organization et al., 2014).

3.1.5. Place of delivery

Over 60% of births take place at home, with about 30% of the deliveries taking place in health facilities. Most of the home deliveries are also not attended or assisted by a trained health care provider. Traditional birth attendants (TBAs) account for about 22% of the home deliveries, 60% of urban dwellers deliver in a health facility while only 22% of rural dwellers deliver in a health facility.

3.1.6. Cultural practices

The 2013 NDHS data showed that one in four women age 15-49 years in Nigeria has had her genitals mutilated and that 82% of them had undergone female genital mutilation before age five. It is also worth noting that the proportion of female genital mutilation practices on girls aged 0-14 was higher among those whose mothers had been circumcised.

3.1.7. Access to Essential Obstetric Care (EOC) Services

A review of the emergency obstetric care capacity in Nigeria showed that Nigeria has very limited capacity in terms of structures and facilities. The data showed that only 18.5% of facilities offering maternal health care services met the EOC criteria. The breakdown of the data showed that only 4.2% of public sector facilities compared with 32.8% of private sector facilities met the criteria. Among the 12 states that randomly selected for the national EOC services survey covering the six geopolitical zones of the country, only Lagos State was able to meet the availability criterion of having 4 Basic Emergency Obstetric Care (BEOC) facilities for a population of 500,000; and that was achieved only by combining both the private and public sector facilities. The report also highlighted the fact that only 5.9% of pregnant women delivered in EOC facilities, indicating a high level of unmet need for EOC services (Federal Ministry of Health & United Nations Population Fund (Nigeria), 2003; National Demographic and Health Survey, 2013)

4. Discussion

The global trend in maternal mortality reduction is equally reflected in Nigeria, however whereas the decline in most developing countries in Asia and Latin America has reached appreciable levels, that of Nigeria is still unacceptably high. The study brings to the fore the fact that fertility decline has been very marginal in Nigeria and that in the past 10 years total fertility rate has only declined by 0.2% (from 5.7% in 1999 to 5.5% in 2013). Nigeria still has a relatively high total fertility rate of 5.5 children per woman and that the national average masks the differentials in fertility rate by residence, zone, states, education, and wealth quintile.

High poverty levels, low education attainment especially among rural dwellers, coupled with poor access to / poor utilization of reproductive health services and the high prevalence of inimical socio-cultural practices like girl child marriage and female genital cutting, poor ANC attendance, high level of home deliveries with unskilled birth attendants all negatively impact on the maternal mortality situation in Nigeria. Several

research findings have established the fact that the levels of health attainment are not solely affected by health systems (World Health Oorganization, 2008). Education is also known to be a key determinant of health; and is strongly associated with the health of both children and adults in developed and developing countries.

Cadwell (1979), showed decades ago, that to reduce morbidity and improve longevity and life expectancy, policy makers need to shift resources for health from acute care medicine to investment in nutrition, public housing, sanitation, and other public health measures. Raising the status of women through economic empowerment by improved literacy, job creation, gender equality and access to employment are some ways through which women can be supported to take responsibility for their own health and by extension also promote their reproductive health outcomes (J. C. Caldwell, 1979; J. C. Caldwell & Caldwell, 1985). Some developing countries like Sri Lanka have succeeded in improving girl child education, which has resulted in an increase in the age at marriage and in delays in marriage and by extension the age at first births; ultimately contributing to decrease in fertility and the attendant mortality (World Bank, 2013a). Data covering the period 2008-2012 for Sri Lanka showed the following: gross girl child primary school enrolment of Sri Lanka is 96%, contraceptive prevalence - 68.4%, skilled attendant at birth -98.6% and institutional delivery-98.2%. The total fertility of the country dropped from 4.4 in 1970 to 2.3 in 2012, while the maternal mortality ratio is 35/100,000 (World Bank, 2013b). Addressing maternal mortality in Nigeria would therefore require a holistic approach to maternal mortality reduction by addressing the different proximate or distant determinants.

5. Conclusions:

Considering the fact that maternal mortality in Nigeria is to a large extent fuelled by inimical socio-cultural and religious practices, there should be a contextual socio-cultural re-orientation in Nigeria through massive advocacy and health education to redress the gender dynamics and imbalances that reduces the status of womanhood, protects the reproductive rights of women and promotes culturally-responsive safe-motherhood practices. Underneath the statistics that portray this public health disaster in Nigeria, lie the pain and anguish of a global health tragedy, for the thousands of families who have lost their loved ones due to pregnancy or childbirth. Even more agonizing is the fact that most of these deaths could have been averted had there been access to care engendered through a well-funded and equitable health system in which the stewardship role of the government is well ensured and the service providers are friendly, diligent and client-centred. Therefore In order to address the age-long factors that have contributed to and sustained this unacceptably high maternal mortality situation in Nigeria; a fundamental paradigm shift would have to take place, that would empower women take control of their lives and be free to express their opinions about the contemporary suppressive and inimical religious, ethno-cultural practices and socio-economic factors that have tended to make the woman assume a second class status in the society.

6. Recommendations

Stemming the prevalent tide of high maternal mortality in Nigeria would require a multipronged approach that would address inimical cultural and religious belief and practices, rural poverty, socio-economic disparities and inequities and health system failures. This would demand a concerted effort by the research community, political class and the health authorities at various levels. Inimical cultural practices and socio-cultural beliefs and myths that fuel maternal morbidity and mortality should be studied as rigorously as the clinical factors have been over the decades. This study recommends a comprehensive community-based participatory research employing various qualitative methodologies to study cultural and religious factors influencing pregnancy and childbirth outcomes in our communities.

Functional and qualitative education targeted at empowering the girl child should be vigorously pursued as a matter of policy that would ensure their rights to life, health and longevity. Health system factors such as inadequate health manpower and poorly equipped health facilities should be addressed through appropriate funding. The national government should make adequate budgetary allocation to health as recommended by the World Health Organization.

The policy implications of these findings point to the fact there is an urgent need to address the various cultural /religious, socio-economic and health systems factors that have continued to fuel high maternal mortality in Nigeria. While belief systems and cultural practices may take a while to change, health-systems related factors like user charges and inadequate health manpower can be addressed though policy decision like waiving fees for all pregnant women and training and deploying more health service providers. There should also be a deliberate policy of encouraging compulsory girl child education at least up to the secondary level (high school) as a policy strategy for delaying early / girl-child marriage and therefore indirectly reducing total fertility rate.

References

Caldwell, J. C. (1979). Education as a factor in mortality decline: an examination of Nigerian data. *Pop Stud, 33*, 395-413.

Caldwell, J. C., & Caldwell, P. (1985). Education and literacy as factors in health. In S. B. Halstead, J. L. Walsh & K. S. Warren (Eds.), *Good health at low cost* (pp. 181-185). New York: Rockefeller Foundation.

Federal Ministry of Health. (2014). National human immunodeficiency virus and acquired immunodeficiency syndrome and Reproductive Health Survey 2012 (plus II): Human immunodeficiency virus Testing. *J HIV Hum Reprod [serial online], 2*, 15-19.

Federal Ministry of Health, & United Nations Population Fund (Nigeria). (2003). National Study on essential Obstetric Care. Abuja, Nigeria: Federal Ministry of Health and United Nations Population Fund (Nigeria)

National Demographic and Health Survey. (2013). National Population Commission (NPC) [Nigeria] and ICF International. 2014. Nigeria National Demographic and Health Survey 2013. Abuja, Nigeria, and Rockville, Maryland, USA: NPC and ICF International.

Ndep, A. O. (2014). Informed Community Participation is Essential to Reducing Maternal Mortality in Nigeria. *International Journal of Health and Psychology Research, 2*(1), 26-33.

World Bank. (2013a). Retrieved 16/10/15 http://data.worldbank.org/indicator/SH.XPD.TOTL.ZS

World Bank. (2013b). World Bank Basic Indicators –Sri Lanka. Retrieved 8-10-15 http://www.unicef.org/infobycountry/sri_lanka_statistics.html

World Health Oorganization. (2008). Human Resources for Health Country Profile; Nigeria: WHO Global Health Workforce Alliance & the E.U; Africa Health workforce Observatory

World Health Organization, UNICEF, United Nations Population Fund, & World Bank. (2014). Trends in Maternal Mortality: 1990 to 2013, Estimates of Maternal deaths per 100,000 live births; Number of Maternal deaths and Lifetime Risk of Maternal death, 2013. Geneva, Switzerland: World Health Organization, UNICEF, United Nations Population Fund and the World Bank.

Table 1: Selected Categories of Human Resources for Health

Health occupational categories	**2005**		**2006**		**2007**	
	Number	HW/1000 Pop	Number	HW/ 1000 Pop	Number	HW/1000 Pop
Physicians	39210	3.0	49612	3,54	52408	3,70
Prof / Registered Nurses	124629	10.0	125292	8,95	128918	9,10
Registered Midwives	88796	6.8	88996	6.36	90489	6.39
Pharmacists	12072	1	12503	0.89	13199	0.93
Environment & public health workers	3441	-	-	-	4280	0.3
Health management workers / Health Records	820	0.66	935	0.07	1187	0.08
Other health support staff/ community health officers	19268	-	-	-	19268	1,36

Source: WHO Global Health Workforce Alliance & the E.U;; Africa Health workforce Observatory; Human Resources for Health Country Profile – Nigeria[October 2008]

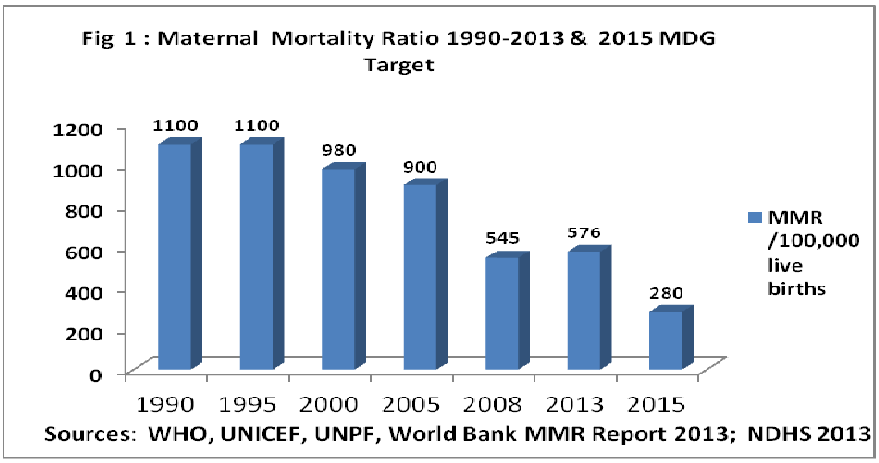

Figure 1: Trends in maternal mortality from 1990 to 2013 and MDG target for 2015