African Population and Health Research Center

Maternal Health in Nigeria

A Situation Update

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15 years
APHRC
of championing evidence-based development in Africa

FOREWORD

While maternal mortality has declined globally since the 1990s, pregnancy and the period surrounding it continue to be risky for millions of Nigerian women. The evidence presented in this report makes one thing clear: death and disability from maternal causes remain far too common in Nigeria. This must change.

The Transition Committee set up in 2015 by newly-elected President Muhammadu Buhari identified poor health and weak health systems as the country's biggest obstacles to achieving sustainable economic development. To that end, the government of Nigeria is working together with development partners, including the United Nations Population Fund (UNFPA), to ensure that pregnancy and childbirth become safer for women in Nigeria.

The new government is also committed to the full implementation of the National Health Act, which seeks to ensure universal access to basic healthcare, particularly for the poor and the vulnerable.

This report provides many reasons for federal, state, and local governments in Nigeria to stay committed to the provision of excellent, accessible and affordable health care, including sexual and reproductive health services, to women in all parts of the country; to improve funding to address weak health systems; and to ensure that human resources for maternal health are considerably strengthened and expanded. We owe it to all Nigerian women and girls – to our mothers, wives, sisters, nieces and daughters – to make these life-saving investments now and end preventable maternal deaths and disabilities.

Dr. Babatunde Osotimehin

Executive Director, UNFPA

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LIST OF ABBREVIATIONS AND ACRONYMS

ANC	Antenatal care
APHRC	African Population and Health Research Center
EmOC	Emergency obstetric care
E4A	Evidence for Action
FMOH	Federal Ministry of Health (Nigeria)
FCT	Federal Capital Territory
IMNCH	Integrated Maternal, Newborn and Child Health
LGAs	Local Government Areas
MMR	Maternal mortality rate/ratio
MDGs	Millennium Development Goals
MSS	Midwives Service Scheme
NDHS	Nigeria Demographic and Health Survey
NPHCDA	National Primary Health Care Development Agency
PNC	Postnatal care
PHC	Primary health care
PMHC	Primary maternal health care
SRH	Sexual and reproductive health
SMI	Safe Motherhood Initiative
SOML	Saving One Million Lives
SDGs	Sustainable Development Goals
SSA	sub-Saharan Africa
VVF	Vesicovaginal fistula
WHO	World Health Organization

DEFINITION OF CONCEPTS AND TERMS

Adolescent fertility rate refers to the number of births per 1,000 women aged 15 to 19 years.

Focused antenatal care is provided to pregnant women by skilled attendants and emphasizes the woman's overall health, her preparation for childbirth and her readiness for complications that may occur in pregnancy, labor, delivery and the postpartum period.

Maternal death refers to the death of a woman during pregnancy or within 42 days of the termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes.

Maternal mortality rate is the number of maternal deaths within 42 days of the termination of pregnancy due to complications of pregnancy, childbirth, and the puerperium, divided by total resident live births for a specified time period, usually a calendar year, multiplied by 100,000.

Maternal mortality ratio measures the number of maternal deaths during a given time period per 100,000 live births during the same time period.

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HOW TO CITE THIS REPORT

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EXECUTIVE SUMMARY

Protracted socio-economic crises and poor development planning have resulted in misplaced priorities, inefficiencies, and a moribund health sector in Nigeria. The health crisis finds its most decisive expressions in dismal national maternal health outcomes and indicators. This report combines data from different sources to furnish state-of-the-art evidence on maternal health in Nigeria.

Despite successive efforts to improve maternal health outcomes in Nigeria, relevant indicators in the country remain generally poor. A woman's chance of dying during pregnancy and childbirth in Nigeria is high, at 1 in 13 (compared to 1 in 31 for sub-Saharan Africa). Currently, there is only one obstetrician/gynecologist for every 181,458 individuals. Pregnancy and the period surrounding it remain very precarious times for the approximately 9.2 million Nigerian women and girls who become pregnant annually. The country is currently the second largest contributor to maternal mortality worldwide. Each day, about 109 Nigerian women die in childbirth, which approximates to one death every 13 minutes. Nigeria's estimated annual 40,000 pregnancy-related deaths account for about 14% of the global total, placing it among the top 10 most dangerous countries in the world for a woman to give birth. Currently, Nigeria's maternal mortality ratio (MMR) of 560 per 100,000 live births is higher than the sub-Saharan African average of 510. In northern Nigeria, the maternal mortality ratio is as high as 1,549 per 100,000 live births. The typical Nigerian woman currently lives five fewer years than her other sub-Saharan African counterparts and dies 18 years earlier than the rest of the world's women.

The common medical causes of maternal morbidity and mortality in Nigeria are largely preventable, and include hemorrhage, infections, eclampsia, and unsafe abortion. For each maternal death, an estimated 30 to 50 cases of chronic maternal morbidities and disabilities occur. Presently, over a million abortions occur annually in Nigeria, and most of these are unsafe. The abortion rate in Nigeria, at 36 per 1,000 women aged between 15 and 49 years, is higher than the region's average of 28 per 1,000.

Key vulnerable maternal health populations in Nigeria include poor, adolescent, multiparous and uneducated mothers. Women in rural and northern Nigeria are also important at-risk maternal health groups. These women use skilled providers and formal health facilities less, tend to deliver at home, engage more in unsafe abortions, are less healthy, and die more often from maternal causes. For instance, pregnancy-related complications are a leading cause of death among girls aged 15–19 and complications of unsafe abortion account for more than 70% of deaths among Nigerian girls under 19 years of age. Girls continue to marry early, with about one in four of them marrying before the age of 15. Further, the adolescent fertility rate remains high at 124 per 1,000 women aged 15–19.

Current programs and policies to address Nigeria's poor maternal health situation are constrained by poor and inadequate funding, a shortage of skilled health professionals and weak referral and regulatory systems, as well as poor acceptability, accessibility and affordability of existing health services. Maternal care-seekers' waiting time remains unusually long and unsatisfactory. Abuse and mistreatment of maternal care-seekers are also widespread. The persistent lack of access to safe, high-quality sexual and reproductive health services is also a major barrier to maternal health and wellbeing in the country.

The recently launched Sustainable Development Goals (SDGs) offer an important opportunity to transform the maternal health situation in Nigeria. Change, however, requires the sustained political commitment of Nigerian leaders at various levels and the long-term support of development partners and other stakeholders to ensure that pregnancy and childbirth become safer for women in Nigeria; that women and girls have access to high-quality, safe sexual and reproductive health services; and that human resources for maternal health are considerably expanded. Improved funding is also key to addressing the infrastructural deficiencies that characterize the Nigerian maternal health system, enhancing the quality of care offered to women, and ensuring that maternal health services reach needy women and communities.

1. BACKGROUND

As the Sustainable Development Goals (SDGs) begin to guide the global development agenda, maternal health remains an area for urgent policy and programmatic attention in Nigeria. Nearly one in every four women in sub-Saharan Africa (SSA) is Nigerian. The plight of women in Nigeria will vastly impinge on the achievement of the SDGs in the region. Investing intentionally and purposefully in safeguarding maternal health in the country is a sure strategy for improving on the current levels of progress and guaranteeing the future potential for growth and advancement in Africa as a whole [1,2].

While the key to ensuring the quality of maternal care is a systems perspective on the provision of care and the conscious and continuous improvement of service delivery and health care systems [3], persistent socio-economic crises have resulted in misplaced priorities, inefficiencies, and a moribund health sector in Nigeria. The dismal national maternal health indicators [4] are the clearest expression of the health crisis in Nigeria (see Table 1). Currently, Nigeria ranks among the bottom five out of 191 countries with the poorest-performing health service delivery systems globally. Further, while sub-Saharan Africa's maternal mortality ratio of 510 per 100,000 live births is more than twice the global average, the ratio in Nigeria is 560 [5], which makes the country the second largest contributor to maternal mortality worldwide. Each day, about 109 Nigerian women die in childbirth—approximately one death every 13 minutes. The country's estimated annual 40,000 pregnancy-related deaths account for about 14% of the global total [6], placing it among the top 10 most dangerous countries in the world for a woman to give birth [7].

Table 1 Key reproductive health challenges facing women and girls in Nigeria

Before pregnancy	During pregnancy	During childbirth	After childbirth
44% of girls aged 15–19 years attend secondary school, compared to 52% of boys in the same age group*.	48% of mothers under age 20 receive antenatal care (ANC) from a skilled provider*†.	25% of girls under age 20 deliver their baby in a health facility*.	40% of mothers receive postnatal care (PNC) within two days of giving birth (32% among women under age 20) †*
28% of girls aged 15–19 are married, 23% of whom have begun child bearing; 17% have had a child while 5% are pregnant with their first child*.	Only 5% of pregnant women receive two doses of intermittent preventive treatment for malaria, a major killer of pregnant women†.	In 2013, traditional birth attendants were present in 22% of childbirths (unchanged from NDHS 2008)*	The proportion of infants (12–23 months) who are fully immunized by the age of one increased slightly to 25% in 2013 from 19% in 2008) †.
Only 6% of girls aged 15–19 use any contraception method.	11% of women aged 15–19 have received HIV counseling and testing during ANC visits (down from 13% in 2008) †*	In the north-west and north-east regions, a high proportion of births occur at home (88% and 79%, respectively)*.	250,000 babies die annually (25% of all under-five deaths) †.
Only 7.6% of 15–19-year-olds have been tested for HIV and given results*	The overall fertility rate in Nigeria is among the highest in Africa (5.5 births per woman overall and 6.7 in rural areas).	The poor quality of care is made worse by lack of facilities. Only 4% of public health facilities meet EmOC standards‡. Only 2% of women delivered by C-section (1% among women under age 20)* †.	Nigeria's provision of postnatal care reaches only 42% of those who need it†.
71% of women have a primary health care (PHC) facility within 5 km of their home†.		The WHO recommends 5 ‡ EmOC facilities for every 500,000 people. Only Lagos state meets this standard†.	

†Adapted from FMH (2011), Population Council (2010) & British Council (2012); *NDHS (2013)
‡ EmOC: Emergency Obstetric Care

Compared to men, women in Nigeria typically have lower levels of education and participate less in the labor force (see Table 2). They live five fewer years than the average sub-Saharan African woman and die 18 years earlier than the global average for woman (see Figure 1).

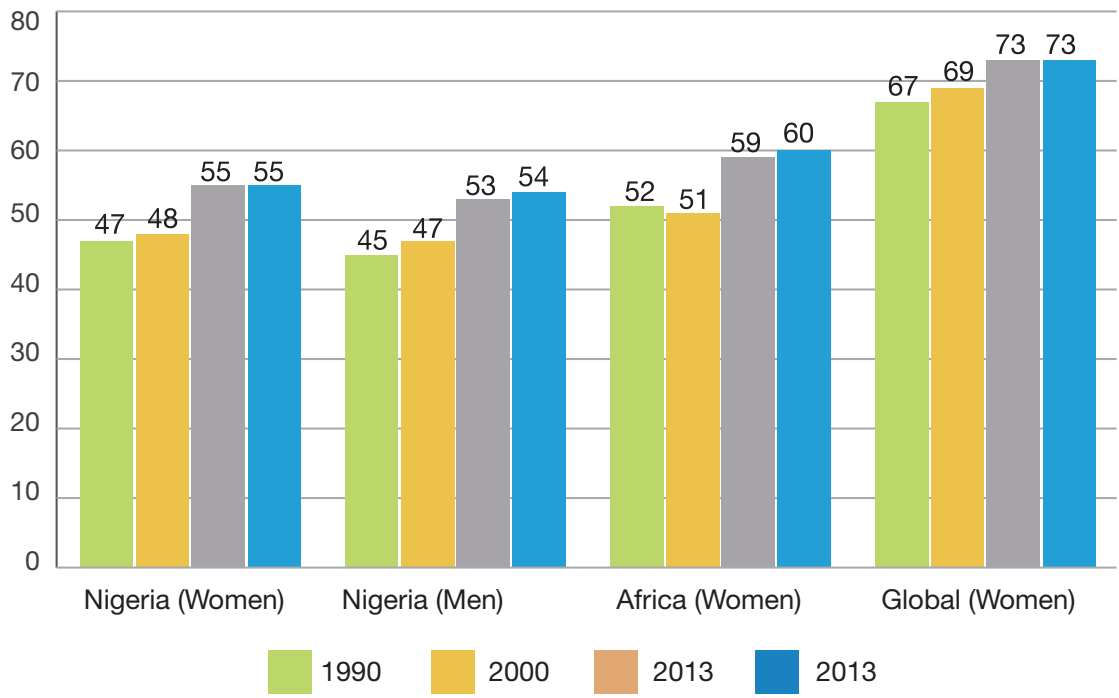
Table 2 Selected socioeconomic characteristics in Nigeria

Characteristics	Women in Nigeria	Men in Nigeria	Women in SSA
Adult literacy rates (above 15 years of age)	*41%	*61%	*59%
Mean years of schooling (for adults aged 25 years and above)	4.2#	6.3#	4.8#
Labor force participation rate (% of population ages 15–64)	**48%	**63%	**64%

Source: *UNESCO Institute for Statistics—Adult and Youth Literacy: National, regional and global trends 1985–2015; **The World Bank—The Little Data Book on Africa 2015; #UNDP Human Development Reports 2015

Further, a Nigerian woman's chances of dying during pregnancy and childbirth currently stand at one in 13 (compared to one in 31 for SSA), demonstrating that pregnancy and the period surrounding it are very precarious times for the approximately 9.2 million Nigerian women and girls who become pregnant annually [8, 9].

Figure 1 Life expectancy at birth (in years) 1990–2013: Nigeria, Africa and global



Source: WHO Global Health Observatory Data Repository 2015

Robust evidence is important for efforts to improve women's health status in Nigeria. However, the dearth of nationwide data continues to render evidence-based planning, policy formulation, and health systems management ineffective. This report summarizes the current state of maternal health in Nigeria. It is intended to inform future policy and planning on maternal health.

2. STRUCTURE AND LIMITATIONS OF THE REPORT

This report is a synthesis of published and unpublished literature and information, including research papers, datasets (e.g., from the Nigeria Demographic and Health Surveys), reports, and other key documents relating to maternal health care in Nigeria. The report is organized into the following sections: background; structure of maternal health service delivery; the state of and trends in maternal health indicators; the situation of vulnerable and special maternal groups; contemporary maternal health policies and programs in the country; and challenges in maternal health care delivery. The last section proposes an agenda for change. A major limitation of this report is the dearth of recent data on some of the key maternal health issues.

The country's estimated annual 40,000 pregnancy-related deaths account for about 14% of the global total, placing it among the top 10 most dangerous countries in the world for a woman to give birth.

3. ORGANIZATION OF MATERNAL HEALTH CARE IN NIGERIA

Nigeria operates a federal political system with 36 states and a Federal Capital Territory (FCT). Each of these states is further subdivided into Local Government Areas (LGAs). A total of 776 LGAs make up the country.

Figure 2 Political map of Nigeria

Source: Domenico-de-ga, https://upload.wikimedia.org/wikipedia/commons/d/d2/Nigeria_political.png

The maternal health care system in Nigeria is pluralistic, characterized by orthodox, faith-based and traditional health providers. Maternal health care can also be obtained from local injectionists, itinerant medicine hawkers and patent medicine sellers. Some of these providers administer injections to women for a fee, sometimes in buses, markets, streets, and motor parks, with patients fully dressed. Spiritual healing, often involving the laying-on of hands, ingestion of materials that have been prayed over, holy water, oil, incantations and prayer, is also a prominent therapeutic option among women [4, 10, 11]. Spiritual or faith healing sometimes takes place during open-air rallies and religious crusades, which are often advertised in the mass media as opportunities for barren women to conceive, the bewitched to be freed, the blind to see, and the demonized to be exorcised [2, 12].

The Federal Ministry of Health (FMOH) put the total number of formal health care facilities in Nigeria at 23,640 in 2005[1]. The majority (85.5%) of these were primary-level care facilities. Secondary- and tertiary-level facilities respectively comprised 14% and 0.2% of existing facilities. The health care facility level is a measure of functionality as defined by the Nigerian Ministry of Health. Primary-level care facilities provide the lowest level of care and tertiary-level facilities are the premier level of health care in the country. While only 38% of formal health care facilities are privately owned, about 77% of the population rely on the services of private providers for health care [13].

[1] More recent figures are not available.

The services of private medical providers are often on a pay-before-service or cash-and-carry basis. Before treatment commences, care-seekers are often required to make cash deposits. There are regular reports of pregnant women dying at the doorsteps of private hospitals and clinics for failure to meet the deposit requirements or while their companions are still haggling over deposits [11]. When such deposits are exhausted, treatment is frequently withheld or women and their babies held hostage until additional payment is made [14].

Turning now to the public maternal health care system, local government authorities, supported by the National Primary Health Care Development Agency (NPHCDA), are responsible for the development, operation and provision of public primary health care (PHC) services. Local governments also oversee preventive maternal health activities, including community health education, hygiene and sanitation. While secondary care is the remit of state governments, several states also operate primary and tertiary maternal health facilities. States train health personnel and provide technical assistance in health matters to local government health programs and facilities. States are also responsible for operationalizing national maternal health policies and enforcing guidelines for care in local governments.

Box 1 From national policy to state action: the case of Abiye in Ondo State

As successive national governments commit to different national and international programs, including the Safe Motherhood Initiative (SMI), state governments in Nigeria have developed a variety of local strategies to translate the SMI into reality for their citizenry.

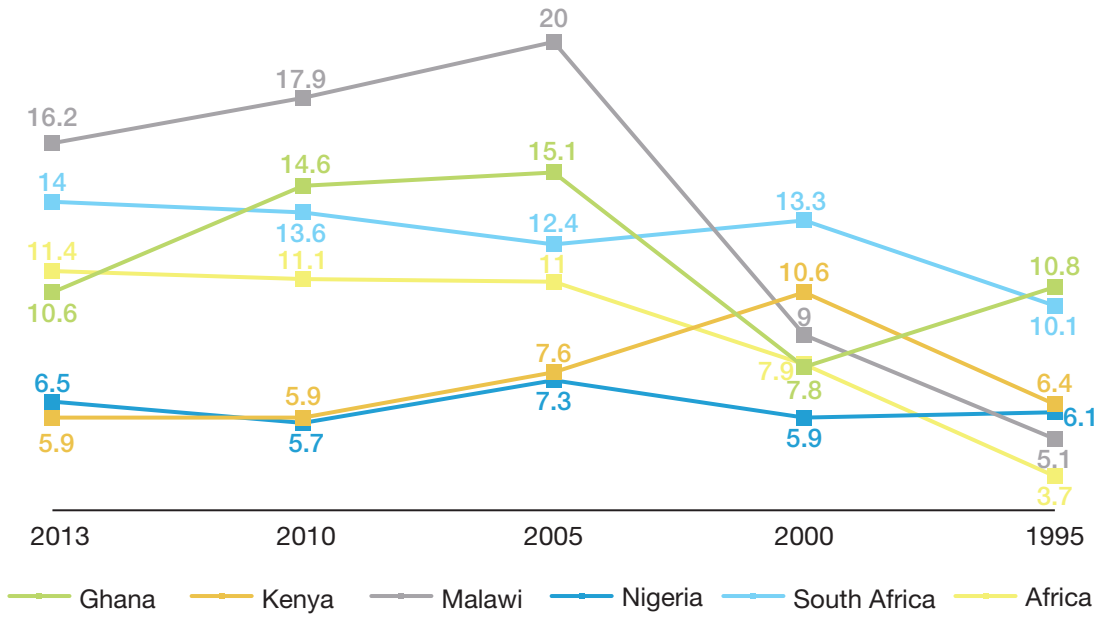
The SMI was launched in 1987 by the World Bank in association with the WHO and UNFPA with the aim of increasing attention to and reducing the devastating number of women that suffer death and illnesses during pregnancy and childbirth every year. SMI encompasses social and cultural factors, as well as addressing health systems and health policy. Indicators used to measure maternal health include skilled attendance at birth, contraceptive prevalence rates and maternal mortality and morbidity [15].

The Ondo State Government has initiated the Abiye project in its efforts to realize the lofty goals of the SMI. *Abiye* is the Yoruba literal translation of *safe motherhood*. Abiye has a three-part structure involving pregnant mothers and young children up to the age of five, health centers or clinics near them, and the Mother and Child Hospital (MCH) initiative; all are linked via Health Rangers (Abiye's community health extension workers), communication tools and various types of transportation. Abiye seeks to address the factors that predispose pregnant women and infants to death, including delays in seeking care when complications arise; difficulty reaching care when the decision to seek care has been made; and problems accessing care on arrival at a healthcare facility. As of June 2011, barely 15 months after its introduction, 26,150 patients had been treated and 5,879 babies had been safely delivered under the Abiye program. Over 905 of these deliveries were by Caesarean section. A comparison of maternal mortality rates in major medical facilities in four different states in Nigeria indicated that the Abiye program had significantly decreased maternal deaths during its first year of operation [16].

The Nigerian federal government is primarily responsible for tertiary-level care. It also formulates national maternal health policies and guidelines, oversees the standardization of maternal care delivery, trains health care providers, provides health-related technical assistance to states, monitors state-level implementation of national health policies and conducts disease surveillance, drug regulation and vaccine development and management [17]. However, the current maternal health service delivery structure in Nigeria is fraught with many challenges. For instance, while primary maternal health care (PMHC) is at the heart of the national health system, it is managed by local government authorities, which often do not have adequate resources to deliver it effectively. Unsustainable population growth also continues to exert pressure on the fragile maternal health care system at all levels of care [18]. Low retention of skilled maternal health professionals, the poor quality of maternal health care coordination, weak referral and regulatory systems, and inadequate funding are other key challenges [19].

Regional variations also exist in the distribution of formal maternal health facilities. For instance, while northern and rural areas of Nigeria host most of the public primary maternal health care facilities, the bulk of formal private medical facilities are located in the urban and southern parts [20-22].

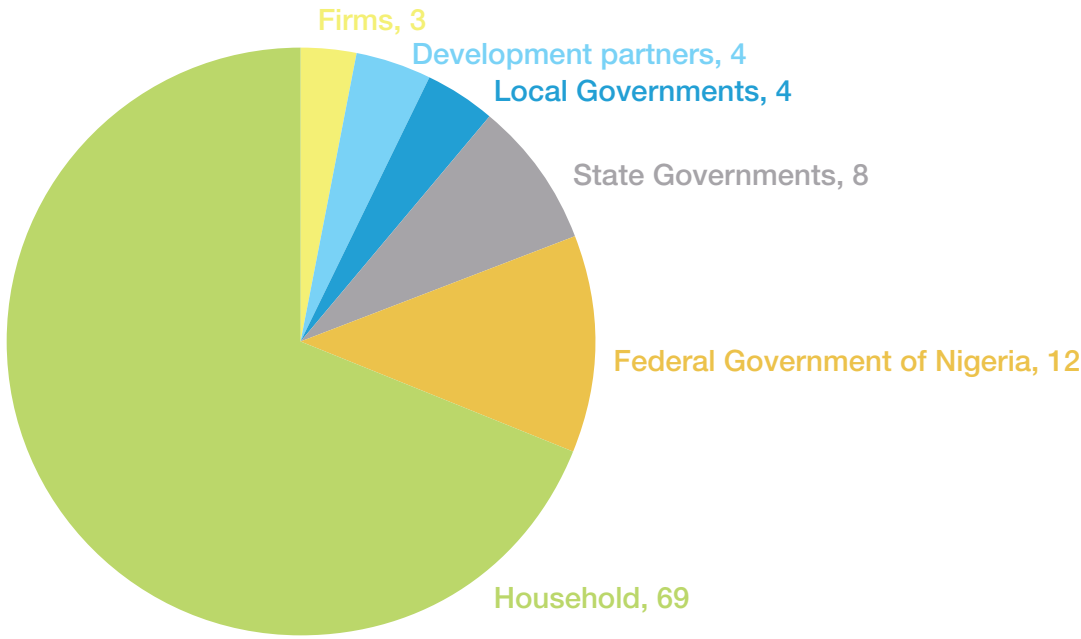
Figure 3 Government expenditure on health in Nigeria and selected African countries, 1995–2013 (as % of total government expenditure)



Source: WHO Global Health Observatory Data Repository, 2015

Further, although Nigeria is a signatory to the 2001 Abuja Declaration, which stipulates a minimum of 15% of annual national budgetary allocation to health, its expenditure on health as a percentage of total government expenditure has been persistently very low, averaging 6% of the annual national budget in the past 15 years (Figure 3), less than half the Abuja target expenditure. The annual per capita spending on health in Nigeria currently averages about US$1, far short of the international recommendation of US$34 [17]. Also, while Nigeria's health care system is funded mainly by the government, private firms and development partners, out-of-pocket (household) expenditure remains the largest source (69%) of health payments (Figure 4). This suggests that, among other things, the cost of health care continues to be borne directly by individuals and households.

Figure 4 Sources of health system expenditure, 2003–2005 (%)



Source: Federal Ministry of Health (Nigeria's National Strategic Health Development Plans, 2010–2015)

4. MATERNAL HEALTH SITUATION IN NIGERIA

4.1 MATERNAL MORTALITY AND MORBIDITY IN NIGERIA

As shown in Table 3, maternal mortality has been generally declining since the 1990s. However, the country's current maternal mortality ratio (MMR) of 560 per 100,000 live births [5] is still higher than the region's average of 510 per 100,000 live births.

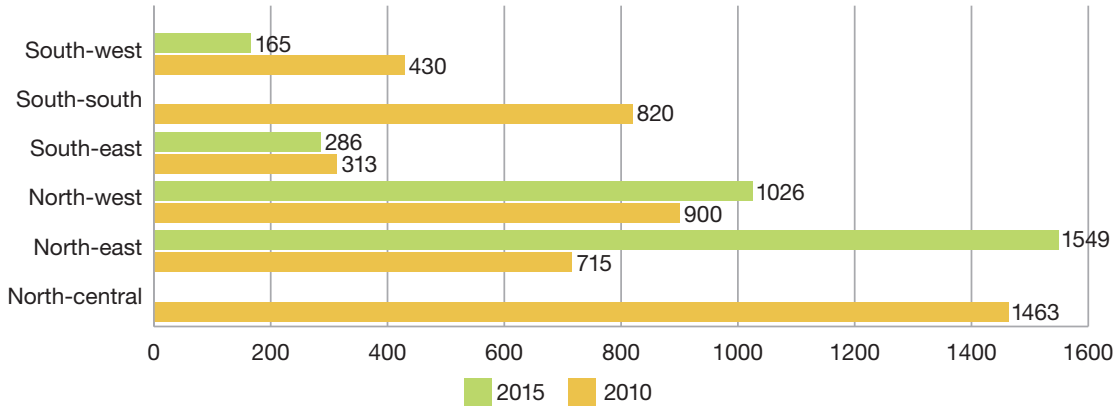
Table 3 Trends in maternal mortality in Nigeria and in SSA (1990–2013)

Country/ Region	Maternal Mortality Ratio (MMR)						% change in MMR between 1990 & 2013	Average annual % change in MMR between 1990 & 2013
	1990	1995	2000	2005	2008	2013	%	%
Nigeria	1,200*	1,100*	950*	740*	545**	560*	-52	-3.1
SSA	870†	850†	790†	710†	640†	510*	-26**	-1.7**

Source: *WHO et al., 2014; †WHO et al., 2010; **period between 1990 & 2008

Nationally aggregated estimates mask the substantial regional and other variations in maternal mortality in Nigeria. In 2010, for instance, MMR was as high as 1,549 per 100,000 live births in the north-east, while in the south-west it was as low as 165 per 100,000 live births (Figure 5). These variations are critical and derive, *inter alia*, from inequities in access to and utilization of competent maternal health services (see Tables 4 & 6).

Figure 5 Regional variations in maternal mortality ratio in Nigeria, 2010 & 2015



*2010 data for South-south and North-central regions are unavailable
Source: Federal Ministry of Health, 2011, 2015

Generally, women in northern Nigeria use skilled providers and formal health facilities far less than their southern Nigeria counterparts (Tables 4, 5 & 6). In 2013, 78% and 75% of women in the south-east and south-west, respectively, reported delivering their babies in a health facility, compared to only 20% and 11% in the north-east and north-west (see Table 5) respectively. There are also critical regional variations in the utilization of skilled postnatal care (PNC) (Table 6), with fewer women in regions in the north receiving a medical check within the 41-day postnatal period in a formal health facility.

Table 4 Use of skilled ANC provider, by region, 1990–2013 (%)

Year	North-central	North-east	North-west	South-east	South-south	South-west	Nigeria
1990†	-	26.5	31.2	35.0	-	58.1	36.3
1999†	-	4.5	6.9	39.0	-	50.9	24.7
2003†	23.8	10.9	5.4	50.8	38.8	56.0	21.3
2008	65.1	43.0	31.1	87.0	69.8	87.1	57.7
2013	67.0	49.3	41.0	90.6	73.0	90.4	60.6

†% receiving antenatal care from a doctor
Source: NPC & ICF Macro/ICF International: 1991, 2000, 2004, 2009 & 2014.

Table 5 Facility deliveries, by region, 1990–2013 (%)

Year	North-central	North-east	North-west	South-east	South-south	South-west	Nigeria
1990	-	10.4	9.7	46.3	-	63.6	30.9
1999	-	11.7	6.4	54.9	-	67.2	37.3
2003	45.4	17.1	10.4	84.1	53.2	77.6	32.6
2008	41.0	12.8	8.4	73.9	48.1	70.0	35.0
2013	45.7	19.5	11.5	78.1	50.1	75.0	35.8

Source: NPC & ICF Macro, 1991, 2000, 2004, 2009 & 2014

Table 6 Utilization of postnatal check within 41 days after giving birth, by region, 2003–2013 (%)

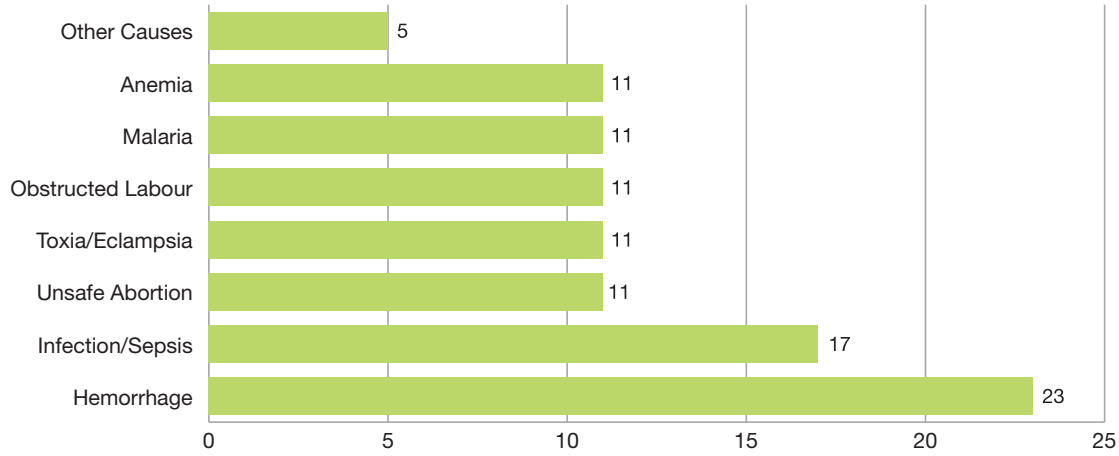
Year	North-central	North-east	North-west	South-east	South-south	South-west	Nigeria
2003	19.9	36.0	21.9	24.0	44.6	52.6	28.7
2008	43.3	29.7	19.9	48.9	70.0	75.5	43.7
2013	50.4	34.3	18.3	62.6	64.0	76.1	41.9

Source: NPC & ICF Macro, 1991, 2000, 2004, 2009 & 2014

4.2 CAUSES OF MATERNAL MORTALITY AND MORBIDITY

The top medical causes of maternal mortality in Nigeria are shown in Figure 6. Most of the deaths (23%) are due to obstetric hemorrhage. Other important causes include infections following childbirth (17%), unsafe abortion (11%), eclampsia (11%), and obstructed labor (11%). Experts agree that these causes are largely treatable and preventable [23]. For each of these maternal deaths, an estimated 30 to 50 cases of chronic maternal morbidities and disabilities occur [7]. For instance, between 400,000 and 800,000 Nigerian women currently live with obstetric fistula, and each year, an additional 50,000 to 100,000 new cases occur in the country [24].

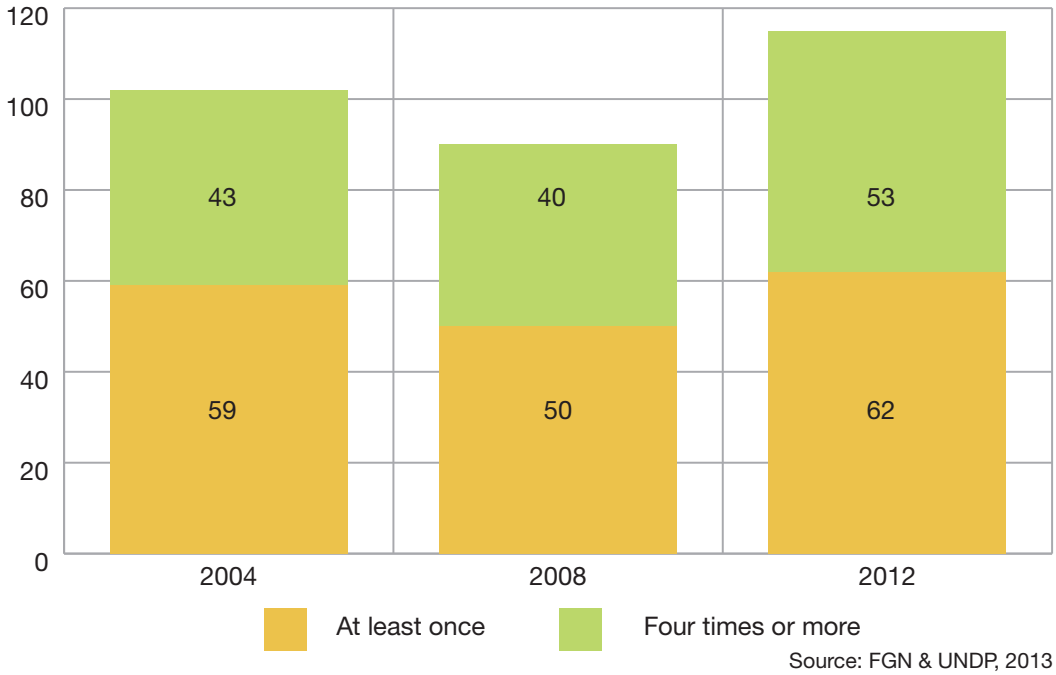
Figure 6 Causes of maternal deaths as a percentage of total maternal deaths in Nigeria



Source: FGN & UNDP, 2013

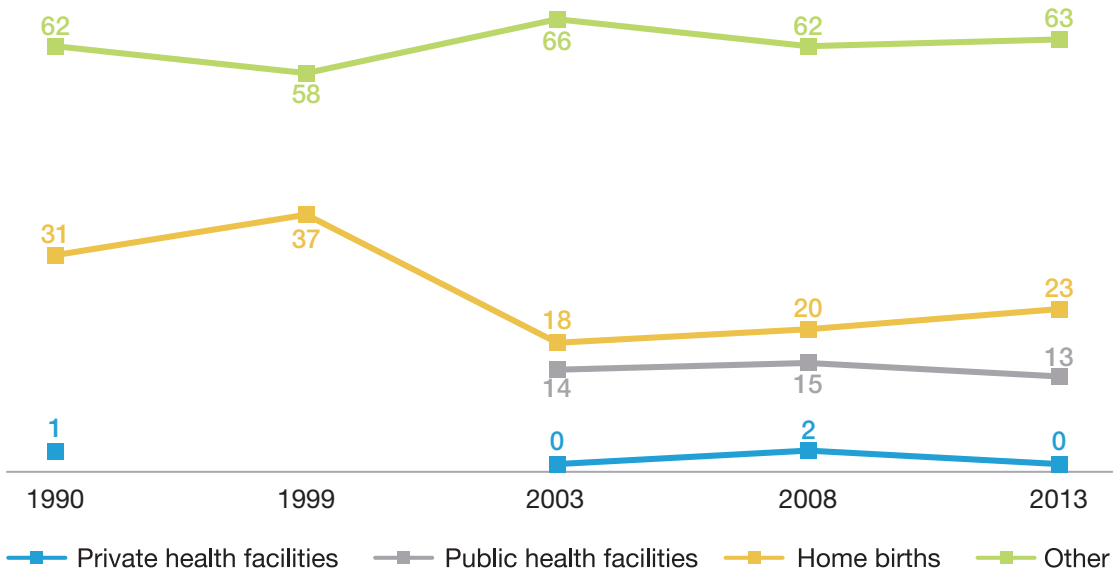
The root causes of high maternal mortality and morbidity in Nigeria (as in many other SSA countries) include weak development planning, poverty, illiteracy, and low utilization of formal maternal health care services (see Figures 7, 8 and 9). Generally, in the last decade, the completion of four or more ANC visits among pregnant women has been low, averaging less than 50% (see Figure 7). Home deliveries have been consistently high, at about 60% of all deliveries since the 1990s (see Figure 8). PNC utilization has also remained low, averaging only about 33% since 2003 (see Figure 9).

Figure 7 Utilization of facility-based antenatal care, 2004–2012 (%)



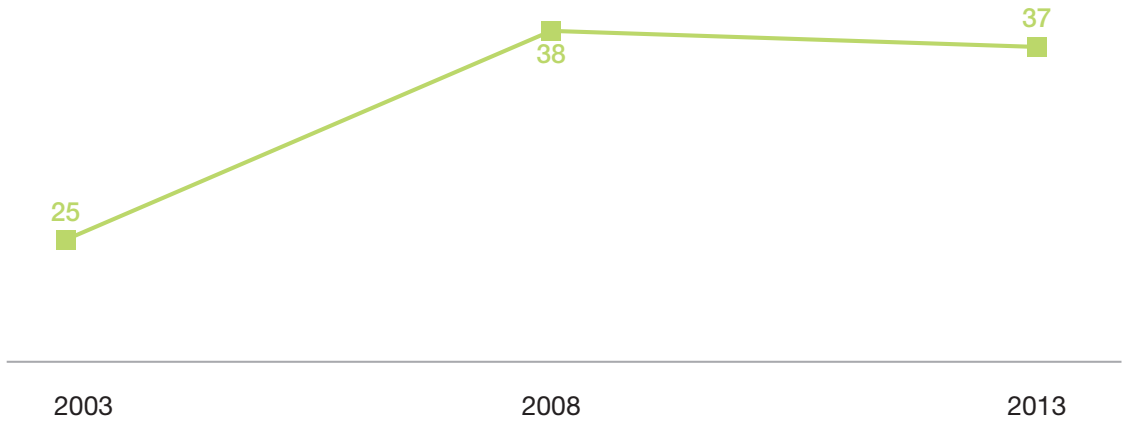
Source: FGN & UNDP, 2013

Figure 8 Facility/institutional deliveries, 1990–2013 (percentage of all deliveries in Nigeria)



Source: NPC & ICF Macro, 2013

Figure 9 Postnatal care utilization in Nigeria, 2003–2013 (%)



Source: NPC & ICF Macro, 2004, 2009 & 2013

Other drivers of poor maternal health outcomes in Nigeria include low literacy levels, high levels of violence against women and girls, early marriage and childbearing, unintended pregnancy, low use of contraceptives, the poor quality of maternity care, weak health systems and women's low socio-economic and cultural status in the country [25, 26]. For instance, in eight northern Nigerian states, over 80% of women are unable to read and over two-thirds of girls aged 15–19 in the same region are unable to read a sentence [27]. Further, violence against women is also common, with about one third of Nigerian women having experienced some form of gender-based physical and sexual violence (Table 7).

Table 7 Experience of physical and sexual violence among women aged 15-49, by region, 2013

Region	Physical violence	Sexual violence	Violence during pregnancy
National	28	32.9	5
Rural	24	8	5
Urban	33	7	6
North-east	30	16	6
North-west	7	7	2
North-central	31	10	6
South-east	38	8	8
South-west	37	5	5
South-south	52	10	9

Source: NDHS, 2013

Generally, in the last decade, the completion of four or more ANC visits among pregnant women has been low, averaging less than 50%. Home deliveries have been consistently high, at about 60% of all deliveries since the 1990s

4.3 ABORTION IN NIGERIA

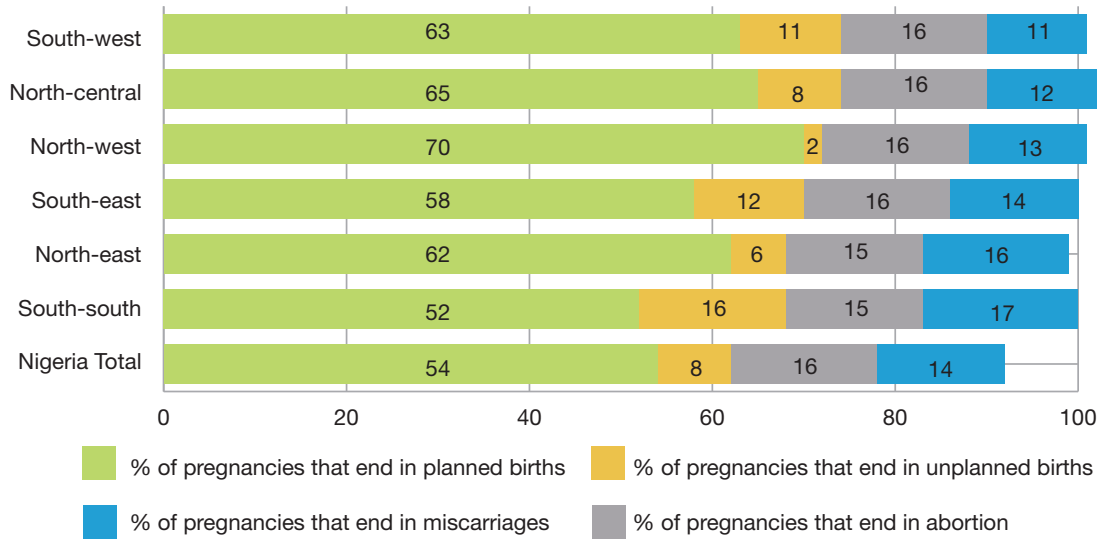
An estimated 9.22 million pregnancies occur annually in Nigeria [28]. A quarter of these pregnancies are unintended and 56% of the unintended pregnancies are aborted [9]. However, abortion is illegal in Nigeria and carries a heavy jail sentence—up to 14 years imprisonment—unless it is performed to save the life of the woman. The majority of the abortions performed in the country are therefore clandestine and unsafe; that is, terminated either by persons lacking the necessary skills or in an environment lacking the minimal medical standards, or both. Consequently, unsafe abortion is a leading cause of maternal mortality and morbidity in Nigeria [29-32]. In 1996, an estimated 610,000 abortions occurred in the country. The number of abortions rose to 760,000 in 2006, and to 1.25 million in 2012 (see Table 8).

Table 8 Abortion in Nigeria and sub-Saharan Africa, 1996–2012

Year	Number of induced abortion in Nigeria	Abortion rate in Nigeria (per 1000 women)	Abortion rate in sub-Saharan Africa
1996	610,000[+]	25[+]	33[+]
2006	760,000[+]	25[+]	31[α]
2012	1,250,000[+]	33[+]	31[α]

Source: [+]Bankole et al., 2015, Henshaw et al., 1998.
[α]WHO, Unsafe abortion: global and regional estimates of the incidence of unsafe abortion and associated mortality in 2008

Figure 10 Pregnancy outcomes, by region of Nigeria, 2012 (%)



*Percentages may not total 100 due to rounding
Source: Adapted from the Guttmacher Institute's Fact Sheet on Abortions in Nigeria, October 2015

The prevalence of abortion varies. Figure 10 shows that in 2012, 14% of all pregnancies were terminated. In the north-east and south-south regions, however, the proportion of aborted pregnancies is much higher, at 16 % and 17%, respectively. Currently, abortion rates are lowest in the north-central and south-west regions (27 per 1,000) and highest in the north-east and south-south regions, with estimates of 41 and 44 per 1,000 women, respectively [28].

An estimated 9.22 million pregnancies occur annually in Nigeria. A quarter of these pregnancies are unintended and 56% of the unintended pregnancies are aborted.

5. VULNERABLE AND SPECIAL MATERNAL HEALTH GROUPS IN NIGERIA

5.1 ADOLESCENTS

Nigeria has a very young population, with those aged 10–19 years comprising nearly a quarter of the country's population [33].These young people face enormous sexual and reproductive health (SRH) challenges and risks, including early marriage, poor SRH knowledge, low use of contraceptives, early motherhood, HIV/AIDS, and sexual violence [24, 34]. For instance, the median age at first marriage among women aged 25–49 in 2013 stood at 18 years (see Table 9). In the same year, 23% of girls aged 15–19 had begun childbearing (see Table 9). Adolescent mothers are particularly at risk for chronic anemia, obstructed labor, and vesicovaginal fistula (VVF). They also use skilled maternal health services less often (see Table 10) than adult mothers. A third of 15–19-year-olds in northern Nigeria have delivered a child without the help of a health professional, a traditional birth attendant, or even a friend or relative [27]. Currently, pregnancy-related complications are the leading cause of death among young women aged 15–19 years.

Table 9 Median age at first marriage and adolescent childbearing across regions, 1999–2013

	Year	Nigeria	North-central	North-east	North-west	South-east	South-south	South-west
Median age at first marriage: women aged 25 - 49 years	1999	18.3	-	15.0	14.6	20.2	-	20.2
	2003	16.6	17.7	15.0	14.6	21.8	19.2	21.3
	2008	18.3	18.3	15.6	15.2	22.8	20.9	21.8
	2013	18.1	18.9	16.3	15.3	22.7	21.5	21.8
Percentage of women aged 15 - 19 years who have begun childbearing	1999	21.9	-	51.3	54.7	8.3	-	7.9
	2003	25.2	16.4	44.4	45.2	6.2	14.3	4.7
	2008	22.9	22.2	39.3	44.6	8.1	11.9	8.8
	2013	22.5	18.8	32.1	35.7	8.2	12.3	8.2

Source: NPC & ICF Macro, 2000, 2004, 2009 & 2014

About one in four girls in Nigeria marry before the age of 15. In the north, over half of girls are married by age 16 and bear a child within the first year of their marriage [27] (also see Table 10). Adolescent fertility has also remained high in Nigeria and was estimated to be 124 per 1,000 girls aged 15–19 years in 2013 [5].

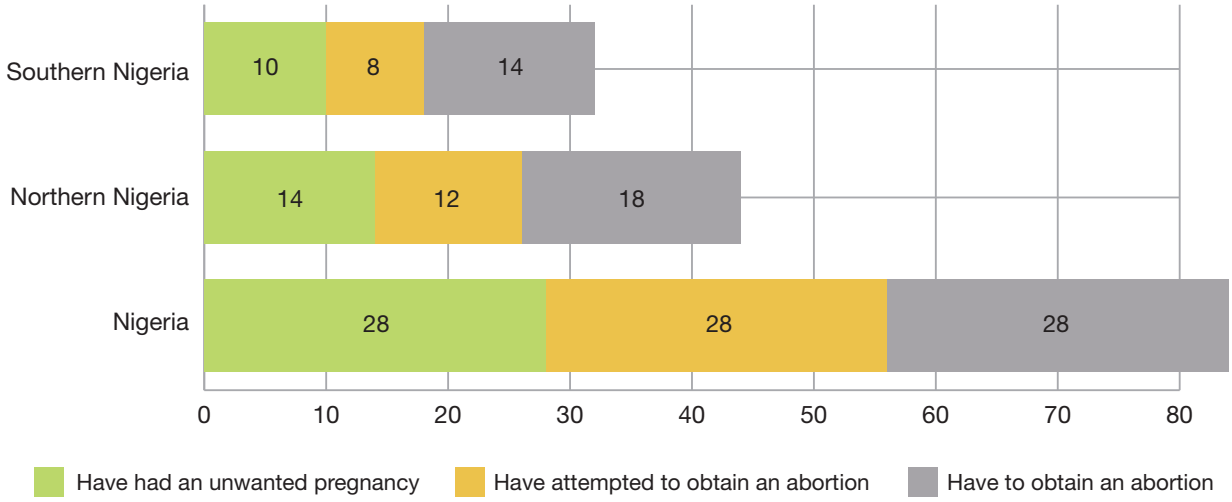
Table 10 Utilization of skilled antenatal care among adolescents and adult women, 1990–2013 (%)

Mother's age at child's birth	1990†	1999†	2003†	2008	2013
<20	30.7	13.1	12.4	43.0	47.8
20 - 34	38.5	28.0	24.0	61.3	63.0
35 - 49	31.8	22.5	20.8	55.2	61.0

†Received ANC from a doctor
Source: NPC & ICF Macro, 1991, 2000, 2004, 2009 & 2014

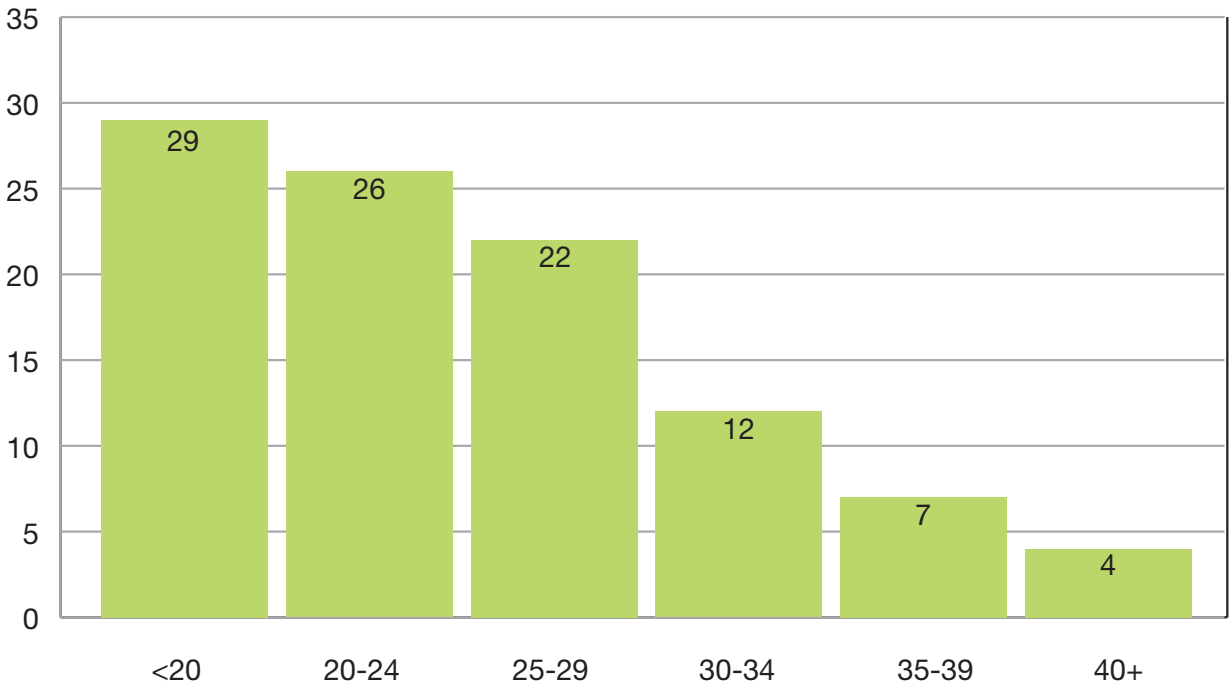
About 28% of adolescent girls in Nigeria experienced an unwanted pregnancy in 2003 (see Figure 11), and there is little evidence that this number has reduced substantially in recent times. Induced abortion is also highest (29%) among women aged under 20 (Figure 12).

Figure 11 Abortion seeking among women aged 15–19 who have had an unwanted pregnancy, 2003 (%)



Source: Guttmacher Institute and CAUP (2003)

Figure 12 Distribution of induced abortion, by age groups, 2003 (%)



Source: Guttmacher Institute & CAUP, 2003

5.2 RURAL WOMEN

About 53% of the population of Nigeria lives in rural areas [35, 36]. Women in rural settings are particularly at risk for poor maternal health outcomes, including maternal mortality and morbidity [37-39]. The maternal health challenges of rural women are heightened by the urban bias in the location of health facilities and the availability of skilled human resources for health [40, 41]. Currently, rural Nigerian women utilize formal maternal health services much less than their urban counterparts (see Tables 11, 12 &13). Only about 21% of rural women (compared to 29% in urban centers) have access to focused antenatal care [42, 43]. In 2013, while 84% of urban women sought ANC, only 47% of rural women did so. Rural women also use modern contraceptives less and have a higher incidence of abortion and severe complications from unsafe abortion than their urban counterparts. Figure 13 shows that, in 2013, only 6% of rural women in Nigeria were using modern contraceptives, in comparison to 17% of urban women. In 2003, 26% of rural women (compared to 22% of urban women) who sought care following an unsafe abortion presented with severe complications (see Figure 14).

Table 11 Rural-urban differences in antenatal care utilization in Nigeria, 1990–2013 (†%)

Place of residence	1990	1999	2003†	2008	2013
Urban	61.2	40.1	38.5	83.8	86.0
Rural	29.6	18.8	14.2	46.4	46.5

†% receiving antenatal care from a doctor;
Source: NPC & ICF Macro, 1991, 2000, 2004, 2009 & 2014

Table 12 Rural-urban differences in the use of delivery services in Nigeria, 1990–2013 (%)

Place of birth	1990		1999		2003		2008		2013	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
Public facility	23.6	58.2	31.5	52.5	14.0	28.5	15.4	30.9	15.8	35.1
Private facility					9.8	25.5	9.3	28.5	6.1	26.5
Home	69.7	32.8	64.5	42.2	75.1	44.8	73.1	35.9	76.9	37.4
Other	0.6	0.4	--	--	0.3	0.5	1.2	3.6	0.1	0.1

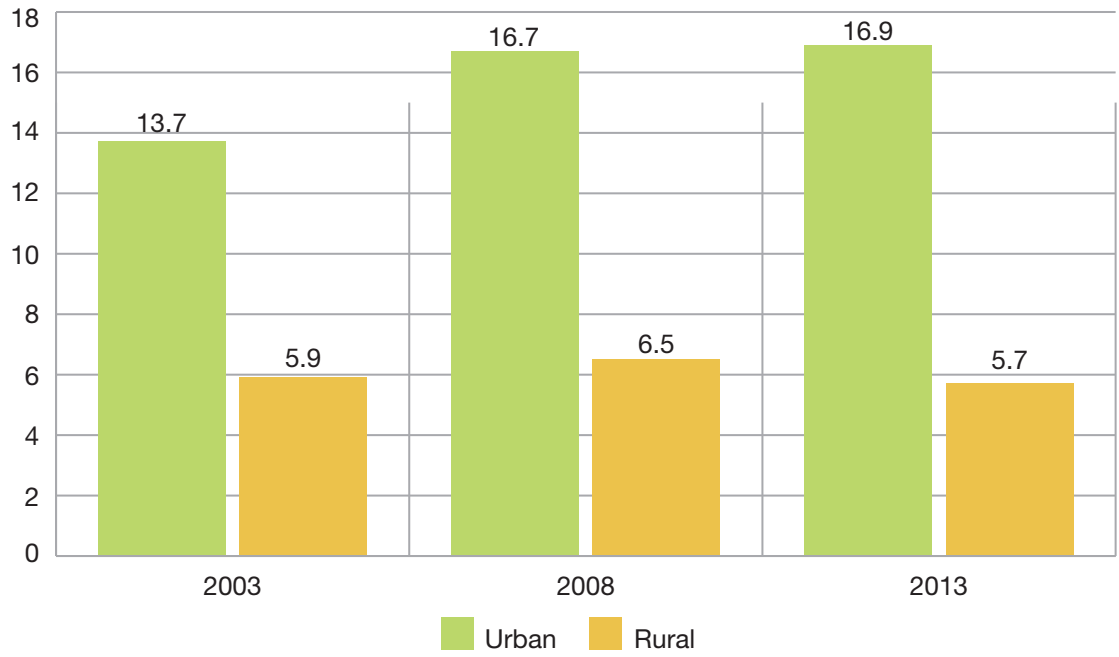
Source: NPC & ICF Macro, 1991, 2000, 2004, 2009 & 2014

Table 13 Rural-urban differences in utilization of postnatal care check-up, 2003–2013 (%)

Place of residence	2003	2008	2013
Urban	39.6	65.8	62.2
Rural	26.1	34.9	30.8

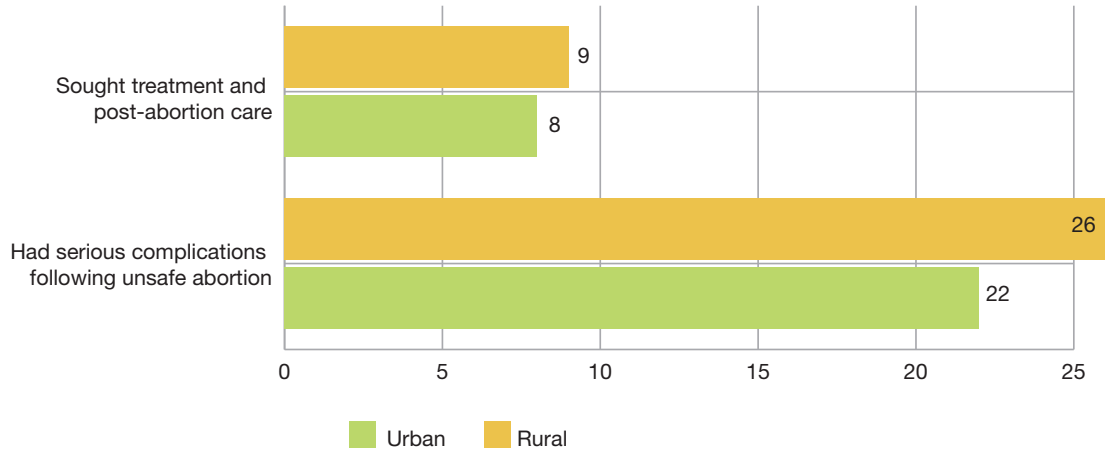
Source: NPC & ICF Macro, 2004, 2009 & 2014

Figure 13 Rural-urban differences in use of modern contraceptive methods in Nigeria (%)



Source: NPC & ICF Macro, 2004, 2009 & 2014, PRB, 2011

Figure 14 Abortion among rural and urban women in Nigeria, 2003



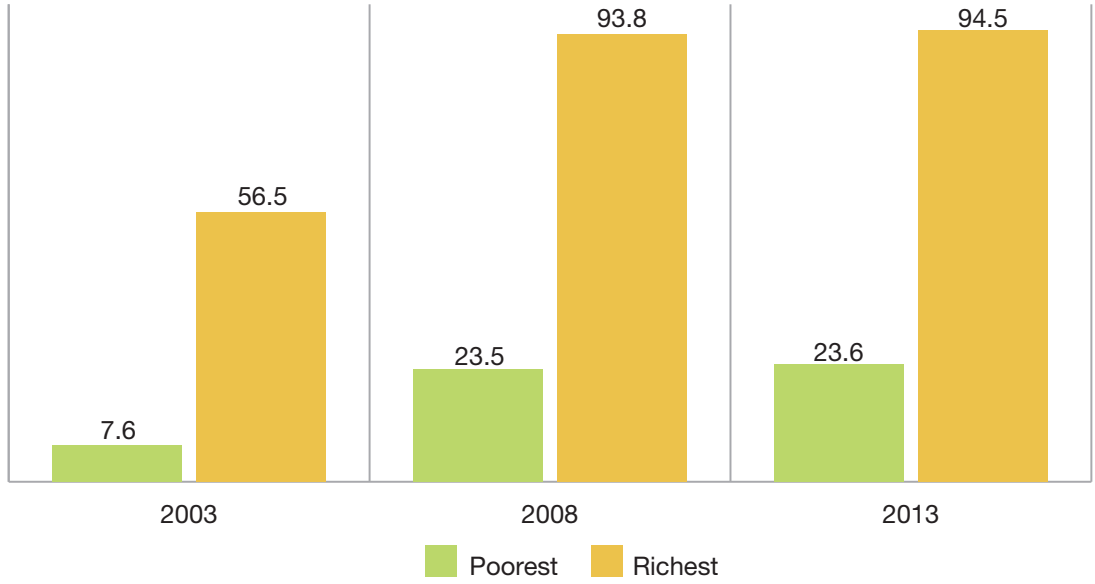
Source: Guttmacher Institute & CAUP (2003)

5.3 POOR WOMEN

Nigeria is ranked 152 out of 188 independent nations in the United Nations Human Development Index [35]. More than two-thirds of Nigeria's population live in extreme poverty [36] and nearly 50% of Nigerian women currently live below the poverty line [36]. The majority of these women live in rural areas. Compared to their wealthier counterparts, poor women in Nigeria are more likely to deliver their babies unattended [44], use informal ANC services and utilize unskilled obstetric care at birth [45-47].

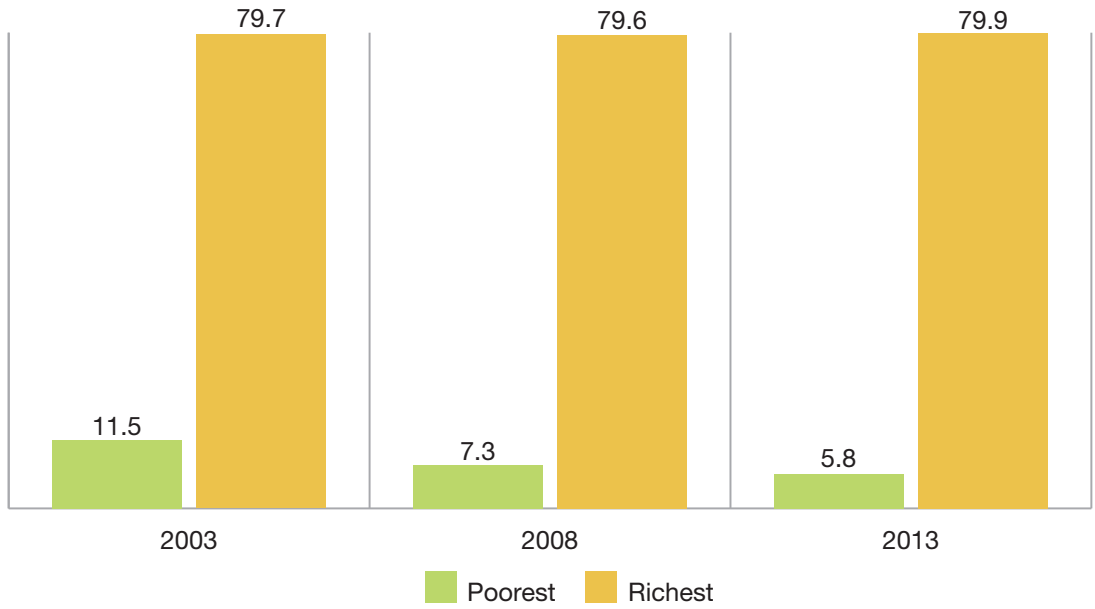
The utilization of health care services among women from the poorest and the richest households is shown in Figures 15–18 below. Facility-based delivery has generally been low among poor women, averaging 9% since 2003 (see Figure 16). In 2013, while about 95% of women in richer households utilized skilled ANC, only one in four poor women (25%) received ANC from a skilled provider. Use of postnatal care (PNC) is also low among poor women. In 2013, only 14% of poor women (compared to 79% of wealthier women) sought PNC within 41 days of delivery (see Figure 17).

Figure 15 Utilization of skilled antenatal care, by wealth status, 2003–2013 (†%)



†% receiving antenatal care from a doctor
Source: NPC & ICF Macro, 2004, 2009 & 2014

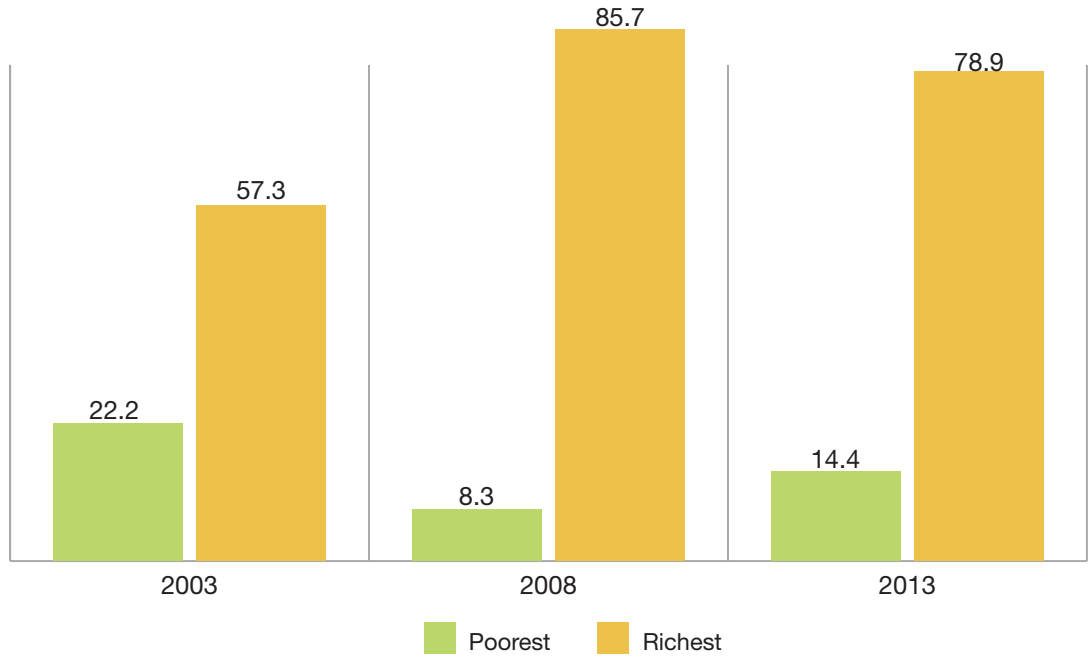
Figure 16 Use of health facility for delivery, by wealth status, 2003–2014 (%)



Source: NPC & ICF Macro, 2004, 2009 & 2014

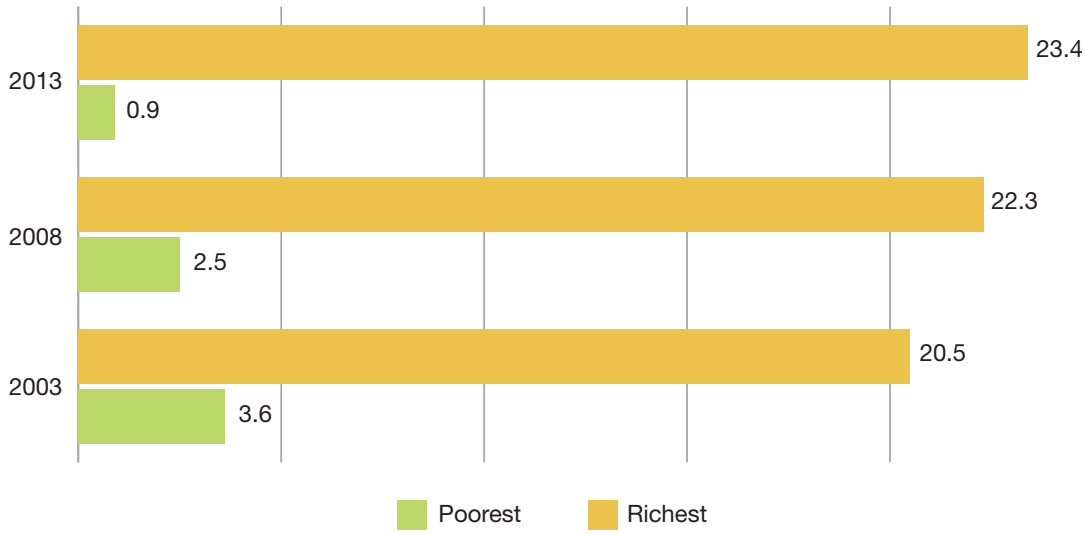
The uptake of modern contraceptives has historically been low among poor women in Nigeria, averaging 2% since 2003. In 2013, only 1% of rural Nigerian women were using modern contraceptives (see Figure 18). The low use of family planning services among rural women results in a high incidence of unintended pregnancy, procurement of unsafe abortion, and health complications due to unsafe abortion. For instance, only 9% of the 30% of the poor women that develop complications due to unsafe abortion seek treatment, compared to a similar number from among a smaller proportion (21%) of non-poor women (see Figure 19).

Figure 17 Attendance at postnatal check-up, by wealth status, 2003–2013 (%)



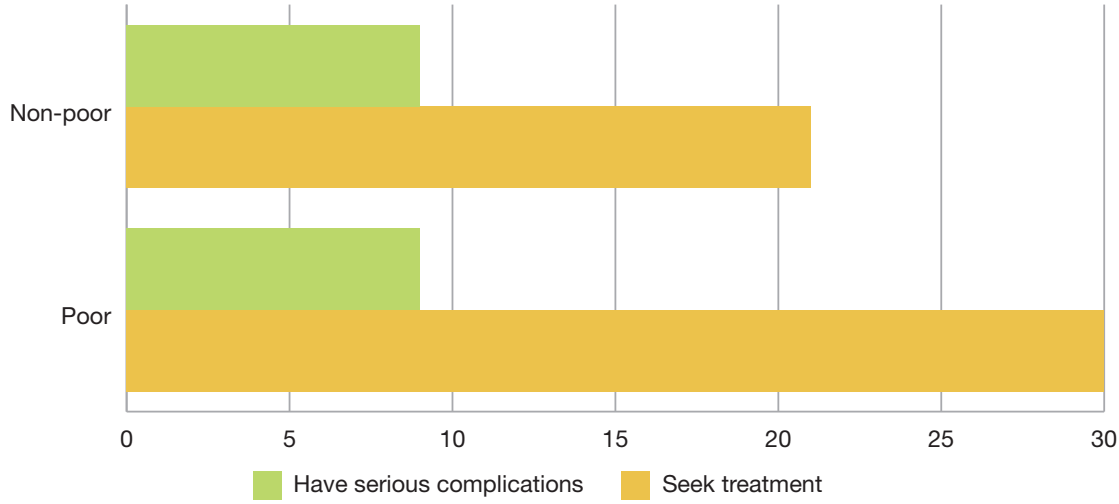
Source: NPC & ICF Macro, 2004, 2009 & 2014

Figure 18 Uptake of modern contraceptives, by wealth status, 2003–2013 (%)



Source: NPC & ICF Macro, 2004, 2009 & 2014

Figure 19 Post-abortion complications and treatment seeking, by wealth status, 2003

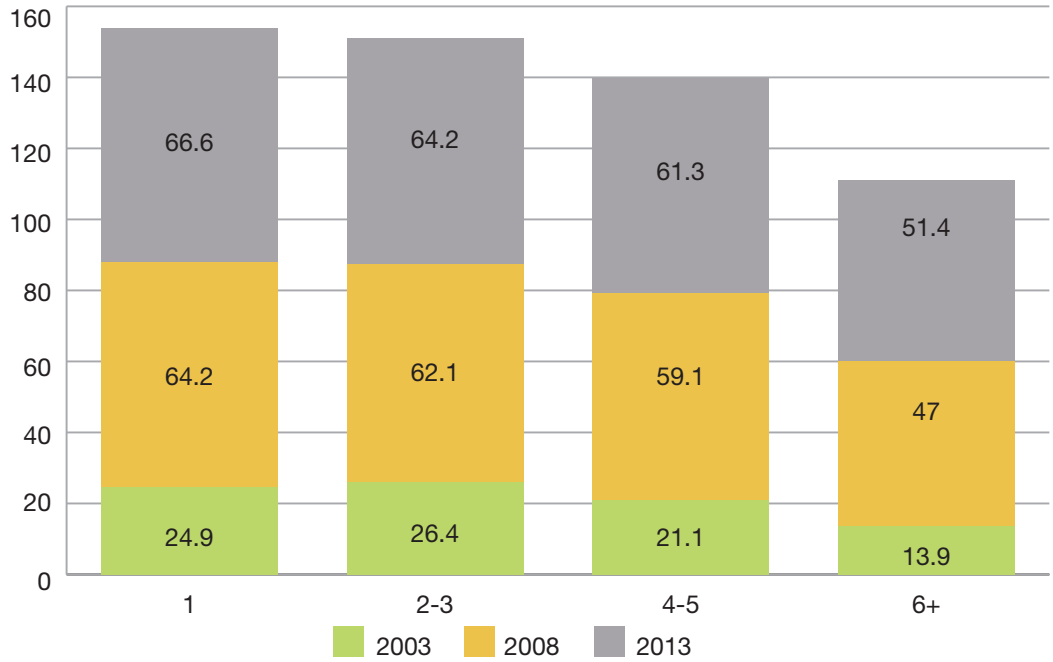


Source: Guttmacher Institute & CAUP (2003)

5.4 MULTIPAROUS MOTHERS

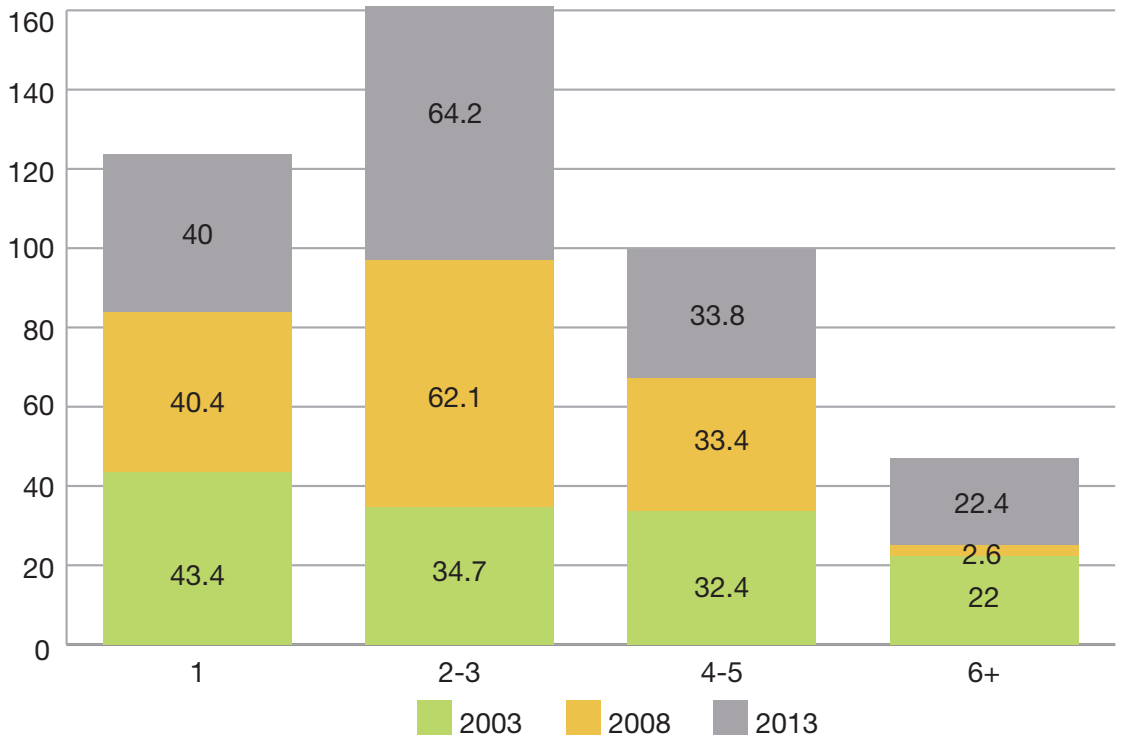
Multiparous (defined here as women who have had four or more children) also constitute a vulnerable maternal health group in Nigeria. Between 2008 and 2013, one in four of all births in Nigeria were among multiparous women [5]. Multiparous mothers have high maternal mortality risks due to multiple and poorly spaced births [32, 48]. Such women also have higher rates of induced abortion and a lower uptake of maternal health care services, compared to primiparous women (those giving birth for the first time) [44, 49-51]. ANC and postnatal check-up utilization (within 41 days of giving birth or later) have generally improved between 2003 and 2013 but are consistently lower among multiparous women, especially among those with six or more children (see Figures 20-21). In 2013, while only about half of women with six or more children used skilled ANC, 67% of first-time mothers and 64% of women with two to three children sought skilled ANC (see Figure 20). In the same year, postnatal check-up attendance within 41 days was also lowest (at 22%) among women with six or more children and those with four to five children (34%) (see Figure 21).

Figure 20 Skilled ANC utilization, by parity, 2003–2013 (%)

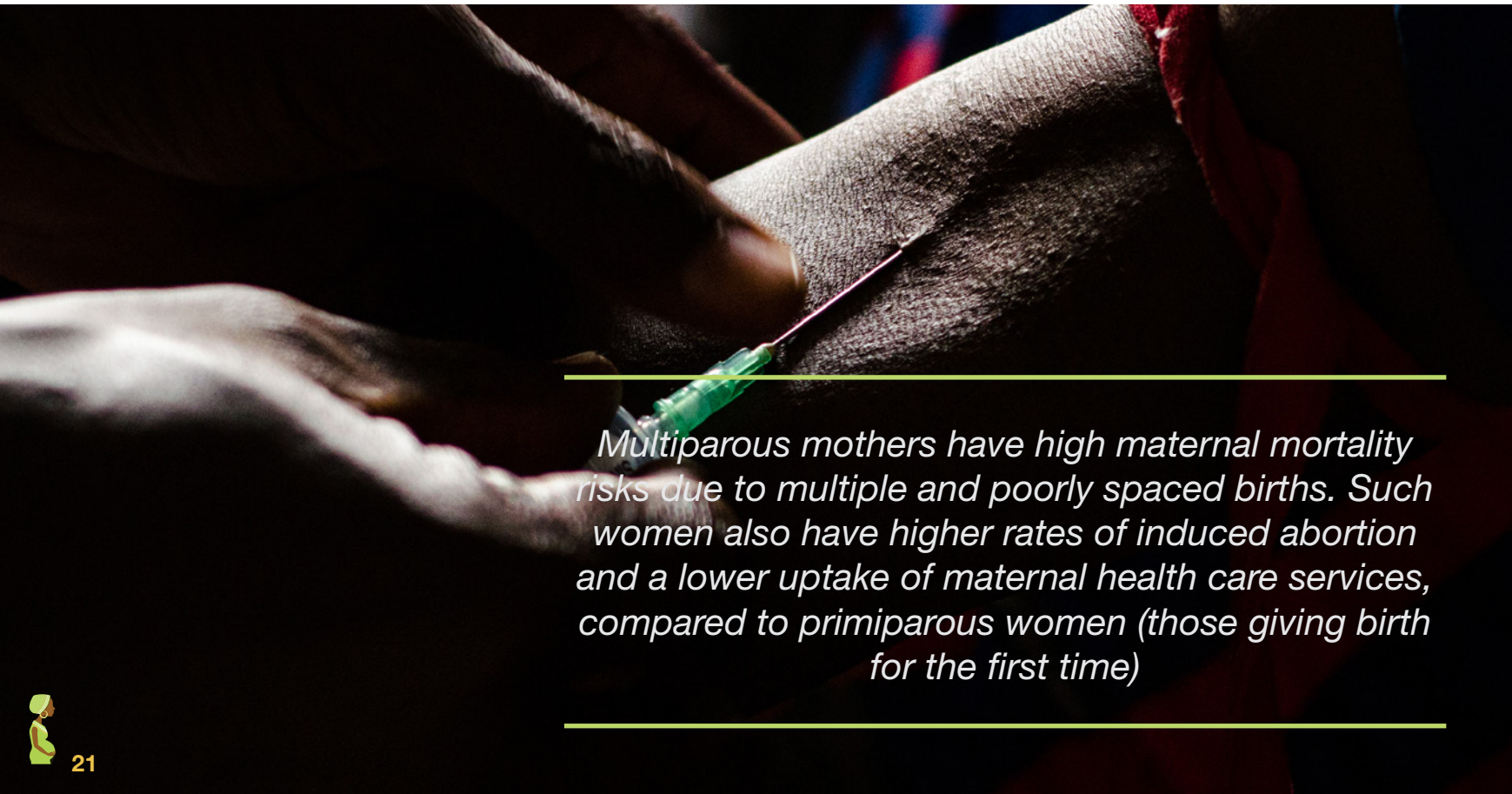


Source: NPC & ICF Macro, 2004, 2009 & 2014

Figure 21 Postnatal check-up attendance within 41 days, by parity, 2003-2013 (%)



Source: NPC & ICF Macro, 2004, 2009 & 2014



Multiparous mothers have high maternal mortality risks due to multiple and poorly spaced births. Such women also have higher rates of induced abortion and a lower uptake of maternal health care services, compared to primiparous women (those giving birth for the first time)

6. SOME RECENT MATERNAL HEALTH PROGRAMS IN NIGERIA

Building on various international maternal health initiatives as well as local felt needs, successive Nigerian governments have developed different programs and policies to address the country's poor maternal health outcomes. These programs have generally sought to improve the quality of maternal care at the facility level; strengthen women's access and uptake of services; eliminate barriers to accessing care; strengthen the skills of providers; and mobilize households and communities to utilize appropriate maternal services. In the section that follows, we highlight some recent maternal health care initiatives in Nigeria.

Box 2 Fatalism to hope campaign: the case of the MamaYe initiative

As a part of global efforts to address the poor state of maternal health in Nigeria, the Evidence for Action (E4A) project, with financial support from the UK Department for International Development, initiated the MamaYe[2] program in 2012. The project aims at improving maternal and child health in Nigeria, among other sub-Saharan African countries, through the use of evidence, advocacy and accountability.

The MamaYe program is intended to save the lives of women and babies through a campaign to change (i) fatalism to hope, (ii) helplessness to action and (iii) best guesses to concrete facts as well as (iv) spurring political action and commitment by government leaders. To achieve these aims, the program encourages the pursuit of specific targets to reverse the current gloomy maternal health statistics.

By providing evidence to those who have the will to make positive changes, the program hopes that Nigeria's poor maternal health situation can be changed [52].

6.1 MIDWIVES SERVICE SCHEME

The availability of qualified health care personnel with midwifery skills is crucial to improving maternal health outcomes. In recognition of this, Nigeria launched the Midwives Service Scheme (MSS) in 2009 [53]. The MSS seeks to address the shortage of skilled birth attendants [53] through the recruitment and deployment of qualified midwives to health facilities.

The MSS is designed to ensure that each primary health care facility under the scheme has at least four midwives who can provide 24-hour health care services to pregnant and nursing mothers [53]. In the first phase of the MSS, 815 health facilities, comprising 652 PHC facilities and 163 referral and teaching hospitals [19], were adequately staffed with midwives. To date, 2,622 midwives have been recruited and deployed to rural PHC centers across the country [19, 54].

There is evidence of improved utilization of facility-based maternal health services in Nigeria since the introduction of the MSS. For example, hospital deliveries increased across rural communities between 2009 and 2013 [54]. The facility-based MMR also reduced between 2009 and 2010 [53].

However, the MSS faces major challenges, including an inadequate supply of qualified doctors and midwives and their inequitable distribution across states and regions [55-57]. Other challenges are difficulties in retaining qualified midwives in rural communities; irregular payment of remuneration; inadequate water and power supply to some facilities; and lack of essential drugs [19, 54].

6.2 INTEGRATED MATERNAL, NEWBORN AND CHILD HEALTH (IMNCH) PROGRAM

The Integrated Maternal, Newborn and Child Health (IMNCH) program was launched in 2007 by the Federal Government of Nigeria to fast-track progress in the achievement of Millennium Development Goals (MDGs) 4 and 5 [58]. The IMNCH program supports activities such as immunization, family planning, malaria control, nutrition and prevention of mother-to-child transmission of HIV (PMTCT). The program also offers diarrheal disease control and maternal and child mortality surveillance, referral and audit services.

[2] MamaYe means "mother lives" in many languages in sub-Saharan Africa

Given its focus on prevention and treatment, the IMNCH program promises to accelerate progress in reducing child and maternal mortality and morbidity. It also presents a great opportunity for the integration and expansion of other services such as PMTCT. Despite this potential, the IMNCH program is hampered by poor support from government, the limited supply of drugs, the inadequate supply of qualified health care personnel and poor coverage of disadvantaged areas and marginalized communities.

6.3 SAVING ONE MILLION LIVES

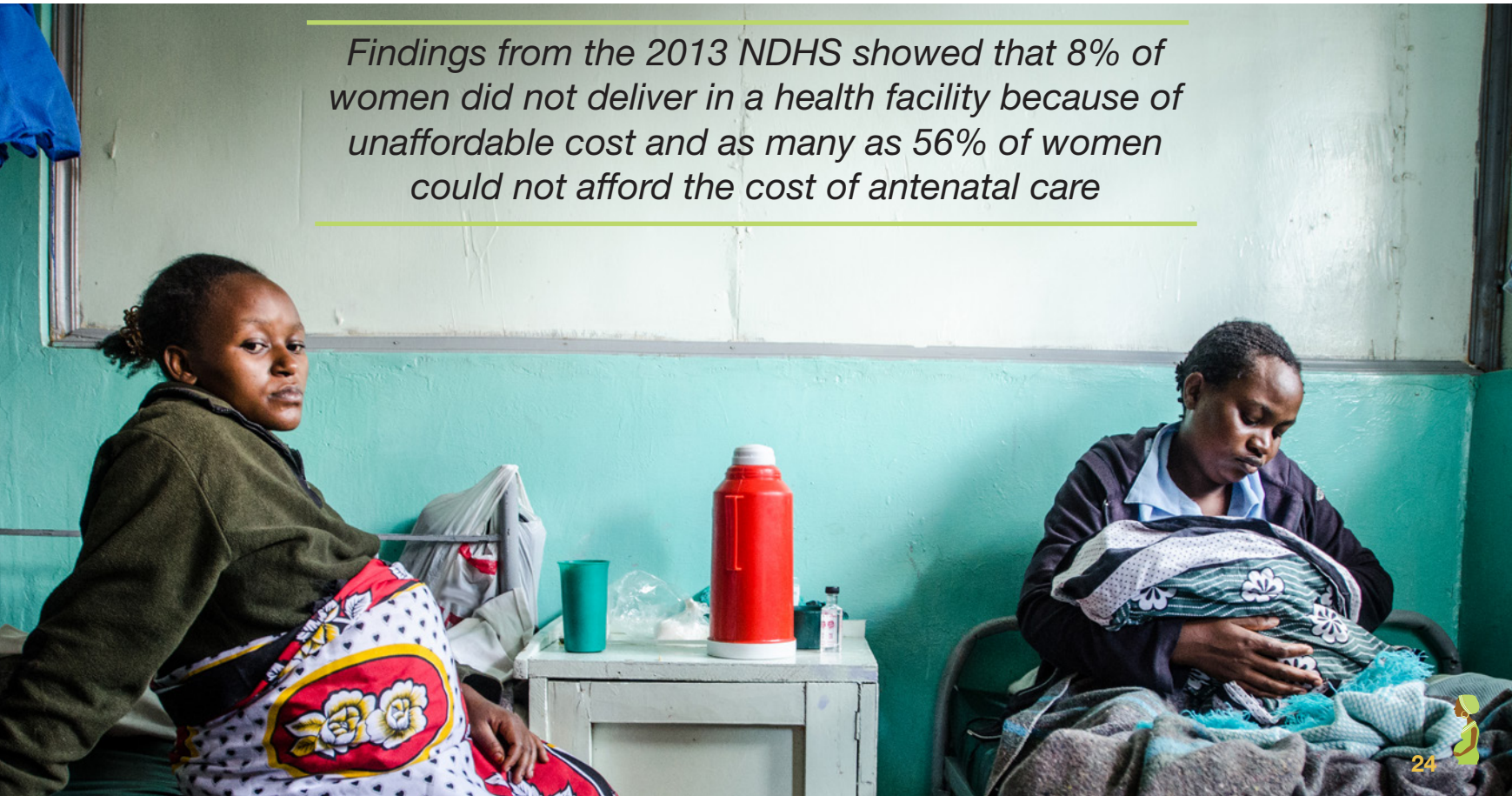
The Saving One Million Lives (SOML) initiative was launched by the Federal Government of Nigeria in 2012 with the overarching goal of increasing access to essential basic health care services for pregnant and nursing mothers and their children. The scheme comprises a number of components: improving maternal and child health through the delivery of an integrated package of cost-effective interventions; increasing the utilization of insecticide-treated nets for effective malaria control; expanding routine immunization; PMTCT; improving nutrition and promoting innovation and new technologies [28]. Laudable as the SOML initiative is, it would require sustained political commitment and adequate funding to deliver its anticipated goals.

7. CHALLENGES IN MATERNAL HEALTH CARE DELIVERY

Maternal health care delivery in Nigeria faces many challenges. These include the lack of acceptability, accessibility and affordability of existing services as well as poor quality control and poor regulation of services. Maternal health care is grossly underfunded. Less than 7% of Nigeria's annual budget has gone to the health sector since the 1990s [59]. Culture, poverty and illiteracy are also other issues of concern. In terms of accessibility, many women, especially in rural areas, still travel long distances to reach a formal health care facility [50, 60-63]. One recent national study showed that approximately two in five women in Nigeria lack transportation to facilities during labor [63].

The affordability of maternity care remains a critical issue in Nigeria, as more than two-thirds of citizens live below the poverty line. Findings from the 2013 NDHS showed that 8% of women did not deliver in a health facility because of unaffordable cost and as many as 56% of women could not afford the cost of antenatal care [5]. Further, the quality of maternity care in Nigeria remains largely poor by global standards. For instance, patients' waiting time is often unusually long and unsatisfactory, and the abuse and mistreatment of patients are widespread. The persistent lack of access to safe and effective sexual and reproductive health services among Nigerian women and girls is also a major barrier to maternal health and wellbeing [11]. The existing referral system is also weak and uncoordinated [7, 64]. There is also currently a huge gap between ANC attendance and delivery in health care facilities [65].

Due to inadequate funding, poor development, misplaced priorities on the investment of meagre resources, the inadequate supply of basic essentials, irregular power supply and a lack of modern health equipment pervade [63, 65-68]. The shortage of qualified health care personnel and negative attitudes of providers towards women have remained perennial features of maternity care delivery in Nigeria [66, 69]. There are widespread reports of women resorting to home delivery because of unfriendly health care providers in public facilities [50, 61, 65]. Further, cultural practices persist in inhibiting maternal health. In some parts of northern Nigeria, for instance, purdah (female seclusion) frustrates women's access to modern care. Practices like female genital mutilation also continue to affect maternal health outcomes negatively in several parts of Nigeria.



Findings from the 2013 NDHS showed that 8% of women did not deliver in a health facility because of unaffordable cost and as many as 56% of women could not afford the cost of antenatal care

8. CONCLUSION AND AGENDA FOR CHANGE

The recently launched SDGs offer an important opportunity to address the poor state of maternal health in Nigeria. Change would require the sustained commitment of political leaders, government at various levels, development partners and other stakeholders to ensure that pregnancy and childbirth become safer for women in Nigeria. At all levels of government, there is a need for greater attention to policies that improve women's and girls' access to safe sexual and reproductive health services, and to the expansion of human and material resources for maternal health. As the Abiye initiative shows, purposeful leadership and strong political will are key in translating the goal of maternal health and wellbeing into reality.

Nigeria's health care system also needs increased, sustained funding. The country's annual expenditure on health has averaged 7% of total government expenditure in the last 15 years. Adequate funding is critical for addressing the current shortage of high-quality human resources for maternal health at all skill levels. Increased government investment in multi-sectoral funding will help to address infrastructural deficiencies that characterize the Nigerian health system. In turn, it is expected that infrastructural improvements will lead to improved quality of and access to maternal health care. A precursor to increased government investment is addressing systemic wastage to ensure that scarce resources are optimally used and deployed.

9. REFERENCES

1. Adebayo, E.F., et al., Factors that affect the uptake of community-based health insurance in low-income and middle-income countries: a systematic protocol. BMJ Open, 2014. **4**(2).
2. Izugbara, C.O. and E. Krassen covan, Research on women's health in Africa: Issues, challenges, and opportunities. Health Care for Women International, 2014. **35**(7-9): p. 697-702.
3. World Health Organization., The world health report: 2006: working together for health. 2006.
4. Alubo, S.O., Debt crisis, health and health services in Africa. Social Science & Medicine, 1990. **31**(6): p. 639-648.
5. National Population Commission of Nigeria & ICF Macro., Nigeria 2013 Demographic and Health Survey, Abuja, Nigeria. 2014.
6. Hogan, M.C., et al., Maternal mortality for 181 countries, 1980–2008: a systematic analysis of progress towards Millennium Development Goal 5. The Lancet, 2010. **375**(9726): p. 1609-1623.
7. Global One., Maternal Health in Nigeria: A Statistical Overview. 2015.
8. World Health Organization & UNICEF., Trends in maternal mortality: 1990 to 2013: estimates by WHO, UNICEF, UNFPA, The World Bank and the United Nations Population Division: Executive Summary. 2014.
9. Prada, E., et al., Maternal Near-Miss Due to Unsafe Abortion and Associated Short-Term Health and Socio-Economic Consequences in Nigeria. African Journal of Reproductive Health, 2015. **19**(2): p. 52-62.
10. Alubo, S.O., Doctoring as business: a study of entrepreneurial medicine in Nigeria. Medical Anthropology, 1990. **12**(3): p. 305-324.
11. Izugbara, C.O., I.W. Etukudoh, and A.S. Brown, Transethnic itineraries for ethnomedical therapies in Nigeria: Igbo women seeking Ibibio cures. Health & Place, 2005. **11**(1): p. 1-14.
12. Alubo, S.O., Underdevelopment and the health care crisis in Nigeria. Medical Anthropology, 1985. **9**(4): p. 319-335.
13. Oyibocha, E., et al., Sustainable Healthcare System in Nigeria: Vision, Strategies and Challenges. Journal of Economics and Finance 2014. **5**(2): p. 28-39.
14. Alubo, S.O., Medical professionalism and state power in Nigeria. 1995: Centre for Development Studies.
15. Mahler, H., The safe motherhood initiative: a call to action. The Lancet, 1987. **329**(8534): p. 668.
16. Cooke, J. and F. Tahir, Maternal health in Nigeria: with leadership, progress is possible. Washington DC, USA: Center for Strategic and International Studies (CSIS), 2013.
17. Federal Ministry of Health Nigeria., Accelerating Progress to Achieve the Health MDGs in Nigeria: Harmonized Country Plan of Priority Intervention for 2014-2015. 2014: Abuja.
18. Federal Ministry of Health Nigeria., National Strategic Health Development Plan. 2010.
19. National Primary Health Care Development Agency. Nigeria Midwives Service Scheme. 2015; Available from: http://www.who.int/workforcealliance/forum/2011/hrhawardscs26/en/.
20. Ityavyar, D.A., Health services inequalities in Nigeria. Social Science & Medicine, 1988. **27**(11): p. 1223-1235.
21. Okafor, S., Inequalities in the distribution of health care facilities in Nigeria, in Health and Disease in Tropical Africa., R. Akhtar, Editor. 1987: London. p. 383-401.
22. Ogunbekun, I., A. Ogunbekun, and N. Orobaton, Private health care in Nigeria: walking the tightrope. Health Policy and Planning, 1999. **14**(2): p. 174-181.
23. Campbell, O.M., W.J. Graham, and L.M.S.S.s. group, Strategies for reducing maternal mortality: getting on with what works. The Lancet, 2006. **368**(9543): p. 1284-1299.
24. UNICEF, A strategy to reduce maternal and neonatal deaths in Nigeria. 2009, UNICEF.

25. Ononokpono, D.N. and E.C. Azfredrick, Intimate partner violence and the utilization of maternal health care services in Nigeria. Health Care for Women International, 2014. **35**(7-9): p. 973-989.

26. Garba, J.A. and S. Umar, Aetiology of maternal mortality using verbal autopsy at Sokoto, North-Western Nigeria. African Primary Health Care and Family Medicine, 2013. **5**(1).

27. British Council, Gender in Nigeria Report 2012: Improving the Lives of Girls and Women in Nigeria: Issues, Policies, Action. Department for International Development, British Council, Nigeria, 2012.

28. Akinrinola Bankole, I.F.A., Rubina Hussain, Olutosin Awolude, Susheela Singh, Joshua O. Akinyemi, The Incidence of Abortion in Nigeria. International Perspectives on Sexual and Reproductive Health, 2015. **41**(1): p. 170 - 181.

29. Okonofua, F., Reducing maternal mortality in Nigeria: an approach through policy research and capacity building: editorial. African Journal of Reproductive Health, 2010. **14**(Special Issue 3): p. 9-13.

30. Okonofua, F., Preventing unsafe abortion in Nigeria. African Journal of Reproductive Health, 1997: p. 25-36.

31. Oye-Adeniran, B.A., A.V. Umoh, and S.N. Nnatu, Complications of unsafe abortion: a case study and the need for abortion law reform in Nigeria. Reproductive Health Matters, 2002. **10**(19): p. 18-21.

32. Ujah, I., et al., Factors contributing to maternal mortality in north-central Nigeria: a seventeen-year review. African Journal of Reproductive Health, 2005: p. 27-40.

33. Cortez, R., et al., Adolescent Sexual and Reproductive Health in Nigeria, in Open Knowledge Repository. 2015, World Bank: Washington, D.C.

34. Federal Ministry of Health Nigeria., Saving Newborn lives in Nigeria: Newborn health in the context of the Integrated Maternal, Newborn and Child Health Strategy. 2011: Abuja.

35. United Nations Development Programme., Human Development Index, in Human Development Reports 2015.

36. The World Bank., The World Bank Open Data. 2015, The World Bank.

37. Adebowale, S.A., F.A. Fagbamigbe, and E.A. Bamgboye, Rural-urban differential in maternal mortality estimates in Nigeria, sub Saharan Africa. Journal of Medical and Applied Biosciences, 2010. **2**.

38. Zahr, C.A., et al., Maternal mortality in 2000: estimates developed by WHO, UNICEF and UNFPA. 2004: World Health Organization.

39. Ronsmans, C. and W. Graham, Maternal mortality: who, when, where, and why. The Lancet, 2006. **368**: p. 1189 - 1200.

40. Adetunji, J.A., Infant mortality in Nigeria: effects of place of birth, mother's education and region of residence. Journal of Biosocial Science, 1994. **26**(04): p. 469-477.

41. Adedini, S.A., et al., Regional variations in infant and child mortality in Nigeria: a multilevel analysis. Journal of Biosocial Science, 2015. **47**(02): p. 165-187.

42. Ajayi, I.O., D.C. Osakinle, and E.O. Osakinle, Quality assessment of the practice of focused antenatal care (FANC) in rural and urban primary health centres in Ekiti State. Open Journal of Obstetrics and Gynecology, 2013. **3**(03): p. 319.

43. Dairo, M. and K. Owoyokun, Factors affecting the utilization of antenatal care services in Ibadan, Nigeria. Benin Journal of Postgraduate Medicine, 2010. **12**(1).

44. Austin, A., et al., Trends in delivery with no one present in nigeria between 2003 and 2013. International Journal of Women's Health, 2015. **7**: p. 345.

45. Ononokpono, D.N., et al., Contextual determinants of maternal health care service utilization in Nigeria. Women and Health, 2013. **53**(7): p. 647-668.

46. Babalola, S., Women's education level, antenatal visits and the quality of skilled antenatal care: A study of three African Countries. Journal of Health Care for the Poor and Underserved, 2014. **25**(1): p. 161-179.

47. Izugbara, C.O. and J. Kinuabeye Ukwayi, The clientele of traditional birth homes in rural southeastern Nigeria. Health Care for Women International, 2003. **24**(3): p. 177-192.

48. Conde-Agudelo, A., J.M. Belizán, and G. Lindmark, Maternal morbidity and mortality associated with multiple gestations. Obstetrics & Gynecology, 2000. **95**(6, Part 1): p. 899-904.

49. Ononokpono, D.N. and C.O. Odimegwu, Determinants of maternal health care utilization in Nigeria: a multilevel approach. The Pan African Medical Journal, 2014. **17**(Suppl 1).

50. Etukudo, I.W. and A.A. Inyang, Determinants of use of Maternal Health Care Services in a Rural Nigerian Community. Research on Humanities and Social Sciences, 2014. **4**(18): p. 55-60.

51. Olayinka, O.A., et al., Awareness and barriers to utilization of maternal health care services among reproductive women in Amassoma community, Bayelsa State. International Journal of Nursing and Midwifery, 2014. **6**(1): p. 10-15.

52. MamaYe Nigeria Program. 2015; Available from: http://www.mamaye.org.ng/en/about-mamaye.

53. Abimbola, S., et al., The midwives service scheme in Nigeria. PLoS Medicine, 2012. **9**(5): p. 541.

54. Adogu, P., Midwifery and Midwives Service Scheme: A Panacea for Improvement of Some Maternal and Neonatal Indices in Nigeria—A Brief Review. Open Journal of Obstetrics and Gynecology, 2014. **2014**.

55. Awofeso, N., Improving health workforce recruitment and retention in rural and remote regions of Nigeria. Rural Remote Health, 2010. **10**(1): p. 1319.

56. Hargreaves, S., Time to right the wrongs: improving basic health care in Nigeria. The Lancet, 2002. **359**(9322): p. 2030-2035.

57. Adeyemo, D., Local government and health care delivery in Nigeria: a case study. Journal of Human Ecology, 2005. **18**(2): p. 149-160.

58. Garba, A.M. and S. Bandali, The Nigeria independent accountability mechanism for maternal, newborn, and child health. International Journal of Gynecology & Obstetrics, 2014. **127**(1): p. 113-116.

59. Igboanugo, G.M. and C.H. Martin, What are pregnant women in a rural Niger Delta community's perceptions of conventional maternity service provision? An exploratory qualitative study. African Journal of Reproductive Health, 2011. **15**(3): p. 63-77.

60. Babatola, O. and A. Uriri, Assessment of Maternal Health Intervention Programme of Delta State, Nigeria: Application of the UN Process Indicators. Public Policy and Administration Research, 2013. **3**(9): p. 62-71.

61. Envuladu, E., et al., Factors determining the choice of a place of delivery among pregnant women in Russia village of Jos North, Nigeria: achieving the MDGs 4 and 5. International Journal of Medicine and Biomedical Research, 2013. **2**(1): p. 23-27.

62. Adedini, S.A., et al., Barriers to accessing health care in Nigeria: implications for child survival. Global Health Action, 2014. **7**.

63. Fagbamigbe, A.F. and E.S. Idemudia, Barriers to antenatal care use in Nigeria: evidences from non-users and implications for maternal health programming. BMC Pregnancy and Childbirth, 2015. **15**(1): p. 95.

64. Oladapo, O.T., C.A. Iyaniwura, and A.O. Sule-Odu, Quality of antenatal services at the primary care level in southwest Nigeria. African Journal of Reproductive Health, 2008. **12**(3).

65. Idris, S.H., M.N. Sambo, and M.S. Ibrahim, Barriers to utilisation of maternal health services in a semi-urban community in northern Nigeria: The clients' perspective. Nigerian Medical Journal, 2013. **54**(1): p. 27.

66. Nnebue, C.C., et al., Constraints to utilization of maternal health services at the primary health care level in Nnewi, Nigeria. Orient Journal of Medicine, 2014. **26**(3-4): p. 99-106.

67. Galadanci, H., et al., Programs and policies for reducing maternal mortality in Kano State, Nigeria: a review. African Journal of Reproductive Health: Special Issue 3, 2010. **14**: p. 31-36.

68. Ezeonwu, M., Policy Strategies to Improve Maternal Health Services Delivery and Outcomes in Anambra State, Nigeria. Health Care for Women International, 2014. **35**(7-9): p. 828-844.

69. Onasoga, O., et al., Perceived effects of midwives attitude towards women in labour in Bayelsa State, Nigeria. Advances in Applied Science Research., 2012. **4**(2): p. 960-964.

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