

Full Length Research Paper

Comparative assessment of maternal and child health outcomes in communities with and without midwives service scheme in Osun State, Nigeria

Christiana Abidemi Adefi and Omolola Irinoye

Department of Nursing Science, Faculty of Basic Medical Sciences, Obafemi Awolowo University, Ile-Ife, Osun State, Nigeria.

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Midwives Service Scheme (MSS) was introduced in 2009 to reduce maternal and child mortality and morbidity in Nigeria. The study aimed to provide an independent appraisal of MSS, as it relates to expected activities of midwives and community members' judgment of the scheme, compared with non-MSS facilities. Exploratory study was conducted using systematic and purposive sampling method to select 400 mothers and 49 gatekeepers respectively. Questionnaire, interview guide and hospital checklist were used to collect data. Data were analyzed using descriptive (frequencies, percentages and tables) and inferential (Mann-Whitney U test) statistical methods. Findings showed that higher proportion (93.3%) of MSS mothers had positive perception of midwives' interventions compared to non-MSS mothers (53.3%). Also, there was a statistically significant difference in the perception of midwives' interventions by mothers in MSS and non-MSS communities ($U=239.00$, $p =0.001$). Study also showed that majority of MSS community members recognized the interventions of midwives, especially those that are community-based, compared to non-MSS community members. Conclusively, MSS community members positively perceived midwives' interventions better than their counterparts in non-MSS communities. Due to community-based MCH services, MCH outcomes were better in MSS communities than non-MSS communities, thus validating the positive impact of midwives' interventions in improving MCH.

Keywords: Midwives Service Scheme, MSS Mother, Non-MSS Mother, MSS Community, gatekeepers, maternal and child health outcomes, midwives' interventions, perception.

INTRODUCTION

Motherhood is often a positive and fulfilling experience for many women, but for others, it is associated with suffering, ill-health and even death. Maternal mortality is defined as death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of pregnancy, from any cause related to or aggravated by pregnancy or its management but not

from accidental or incidental causes, while infant mortality refers to the death of a child under 5 years of age (World Health Organization (WHO), 2013). High maternal and child mortality (MCM) is a global concern. Globally, more than 600,000 women die from childbirth or pregnancy-related complications annually. Though rates varied across developed and developing countries, the latter continues to contribute substantially to the burden. Sub-Saharan Africa alone accounts for 62% while Nigeria is solely responsible for about 10% of the deaths globally (WHO, 2015). The world mortality rate has declined by

45% since 1990, still about 800 women die every day while giving life, and for each of them at least another 20 women suffer injury, infection or disability (WHO, 2013; United Nations Population Fund (UNFPA), 2015). An estimated 250,000 newborn die annually in Nigeria and the neonatal mortality rate is 48 per 1000 live births. Just as with maternal mortality, the neonatal mortality rates in Nigeria have wide geographical variations; the highest rates are seen in the North-Eastern (NE) and North-Western (NW) zones whilst the lowest rates are seen in the South-Eastern (SE) and South-Western (SW) Zones (National Primary Health Care Development Agency (NPHCDA), 2010). In Jigawa State, an estimated 153 babies out of 1,000 die before their first birthday – this is the highest infant mortality rate of all states. The lowest infant mortality rate is 37 in Osun while the national average stands at 105. (United Nations Children's Fund (UNICEF), UNFPA, & Department of International Development [DFID], 2013). Consequently, every country in the world continues to evolve strategies to improve Maternal and Child Health (MCH) and reduce MCM. In Nigeria, one of the initiatives to reduce the burden of high MCM is the Midwives Service Scheme (MSS) inaugurated in 2009, which is the focus of this study.

Causes and Risk Factors of Maternal and Child Mortality

Globally, about 800 women die every day while giving life due to abortion (8%), embolism (2%), haemorrhage (27%), hypertension (14%), sepsis (11%), unsafe abortion (10%) and obstructed labour (28%). Other direct causes include ectopic pregnancy, and anesthesia-related complications. A rise in indirect causes like HIV/AIDS also contributes to a significant percentage of maternal deaths, particularly in Africa. Other indirect causes include anemia, malaria, and heart disease. Most newborn deaths are due to three causes; preterm birth complications (including prematurity and low birth weight), intrapartum-related complications (including difficulty in breathing) and infections (UNICEF, 2014).

Shortage of health workers is another major problem in Nigeria, especially in rural areas where more than 70% of the population lives (Ebuehi and Campbell, 2011). Most doctors and nurses will prefer to stay in the urban centers where they have easy access to social amenities and better condition of service. This leaves pregnant women to either deliver at home or go for the services of unqualified or untrained quacks. This exposes women in rural areas to crude and dangerous practices, thereby leading to fatal complications or death. Other factors contributing to the death of women and children are gender inequality, poor socioeconomic status, religious beliefs, poor accessibility of health care facilities, e.t.c. Okechukwu (2013) in his study projected that, providing skilled health care workers at delivery and emergency

obstetrics care could save nearly three-fourths of mothers' lives.

Underneath the statistics lies the pain of human tragedy, for thousands of families who have lost their women and children. Even more devastating is the knowledge that, essential interventions reaching women and babies on time would have averted most of these deaths. Although analyses of recent trends show that the country is making progress in cutting down infant and under-five mortality rates, the pace still remains too slow to drastically reduce MCM.

Interventions to Improve Maternal and Child Health Outcomes

Globally, since improvement of MCH has been recognized as an international public health priority, interventions were made at the international level to improve MCH. Some of those interventions are the Global Safe Motherhood Initiative launched in 1987, which was a worldwide effort aimed to reduce the number of deaths and illnesses associated with pregnancy and childbirth. The International Conference on Population Development in 1994 aimed at achieving Sexual and Reproductive Health and Rights for All, the Fourth World Conference on Women in Beijing in 1995, and the most recent (i.e.) The Millennium Development Goals (MDGs) of year 2000. Among the eight goals are the reduction of maternal mortality and child mortality, which calls for a 75% and two-thirds reduction in mortality, respectively by the year 2015 (UNFPA, 2015; WHO, 2015; and Roseman and Reichenbach, 2010).

From regional perspective, African Union Commission (AUC) and the United Nations (UN) launched the Campaign for Accelerated Reduction of Maternal Mortality in Africa (CARMMA) in May, 2009 to reduce maternal mortality in the Africa region. Eight countries (Ethiopia, Malawi, Mozambique, Ghana, Nigeria, Rwanda, Senegal and Chad) were selected to launch the programme to intensify ongoing efforts geared towards further implementation of the International Conference on Population and Development Plan of Action (ICPD PoA), the MDGs, the Maputo Plan of Action on Sexual and Reproductive Health and Rights in Africa and the Africa Health Strategy (African Union, 2015). Locally, Nigeria also made several efforts in formulating policies to address the problem of high maternal mortality (WHO, 2015). Examples of past efforts include the Reproductive Health Policy of 2001 aimed at reducing maternal mortality by half by 2006 (FMH, 2001); the Integrated Maternal, Newborn and Child Health Strategy of 2007 targeted at addressing 90% of causes of maternal deaths (FMH, 2007).

Perception of Interventions for Control of Maternal and Child Mortality

However, despite considerable efforts to reduce the MMR by three quarters from 1990 to 2015 in order to meet the fifth MDG (United Nations General Assembly, 2000;

Bustreo et al. 2013), a large number of pregnant women continue to die in many developing countries, including Nigeria (Doctor et al. 2012). Lawoyin et al. (2007) carried out a cross-sectional, community-based study to assess men's perception of maternal mortality in Nigeria. He found that efforts are required to improve men's attitudes and knowledge in order to make them active participants in the fight to reduce maternal mortality.

Furthermore, Ewa, et al, (2012) in their study on perceived factors influencing the choice of antenatal care (ANC) and delivery centres among childbearing women in Ibadan, revealed that childbearing women are aware of the need for antenatal care and assistance during labour. Majority of them use orthodox health facilities for ANC and delivery services, while a negligible proportion still use unorthodox institutions. The perceived factors that influence the choice of ANC and delivery centres are husband's decision or preference, inherent privacy, non affordability of care and distance. The study shows that though distance is a barrier to the full utilization of ANC and delivery services, affordability accompanied by perceived quality of service of a centre determines the utilization of a particular facility.

Doctor et al (2012), therefore commented that there is a need to improve the health system with an emphasis on interventions that will accelerate reduction in MMR such as the availability of skilled birth attendants (SBA) and emergency obstetric care, promotion of facility delivery and ANC attendance. Wairagala (2013) also reported that new measures, including a cohort of trained midwives deployed across the country, an affordable health insurance scheme, and possibly a new health law, could see the country achieve major improvements in maternal and reproductive health.

Midwives Service Scheme

The NPHCDA, under the 2009 Appropriation Act, was tasked with establishing the MSS. The MSS is a public sector initiative and a collaborative effort between the three tiers of government in Nigeria. The aim is to facilitate increase in the coverage of SBA to reduce maternal, newborn and child mortality. Objectives of the MSS are as follows;

- To increase the proportion of pregnant women receiving ANC from 38% to 80% by December 2015
- To reduce Maternal, Newborn and Child Mortality by 60% in the MSS target area by 2015.

The priority areas that MSS focuses to tackle in order to improve MCH in Nigeria are Safe motherhood, Family planning, Adolescent reproductive health, Gender issues, Harmful practices, Infertility and sexual health, and Sexually transmitted disease (Abimbola et al, 2012).

The structure

The scheme is organized in a cluster model. A group of four primary health care (PHC) centres and a general hospital form a cluster. Participating PHC facilities and general hospitals were selected based on rigorous criteria. Selected

PHC facilities are in hard-to-reach areas or among underserved populations with a population of 10,000 to 30,000 people (NigeriaMDG+10, 2013). The number of facilities in each of the six geopolitical zones was selected on the basis of maternal mortality burden. Nigeria was divided into three zones according to MMR: very high MMR (NE and NW), high MMR (north central [NC] and south-south [SS]), and moderate MMR (SE and SW). NE and NW have six clusters per state, SS and NC have four clusters per state, and SW and SE have three clusters per state. The project currently serves an estimated aggregate of 15 million people in Nigeria. (Abimbola, et al, 2012).

The midwives under the scheme were selected with adherence to the International Confederation of Midwives (ICM) global standards for midwifery education (ICM, 2010). The minimum entry level of students for midwifery education is completion of secondary education, and the minimum duration of A-Level-entry midwifery education is 3 years and 18 months for post-nursing midwifery education. The maximum age limit for recruitment is 60 years. Following an initial nationwide recruitment exercise of 2,622 midwives (NPHCDA, 2013), 2,488 (instead of the expected 2,608) successful midwives were deployed to 652 designated PHCs in the 36 states and Federal Capital Territory (FCT) on the scheme (Abimbola, et al. 2012; Second Global Forum on Human Resources for Health, 2011). To enhance the quality of their services, midwives are trained quarterly in life saving skills and integrated management of childhood illness. The competency-based training sessions are conducted at schools of midwifery in each state. Importantly, the initiative involves the three tiers of government and brings in strategic partners.

The federal and states government formalized their collaboration in a memorandum of understanding. The NPHCDA the lead in paying the salary of each midwife as well as providing complete midwifery kits, mama's kits, consumables and materials for distribution to MSS facilities. For their part, state and local governments provide accommodation for the midwives in the local community and a monthly allowance. Strategic partners provide technical support and help monitor the scheme and they include the WHO, UNICEF, Partnership for Reviving Routine Immunization in Northern Nigeria-Maternal and Newborn Child Health (PRRINN-MCH), Pathfinder International, ACCESS/JEPHIGO and Planned Parenthood Federation of Nigeria (PPFN). (NPHCDA, 2013).

Statement of the Research Problem

Midwives Service Scheme was documented to have contributed greatly to improvement in MCH outcomes in Nigeria. However, these outcomes were noted to be uneven in the six geopolitical zones. In a survey carried out to assess the progress of MSS one year after its establishment, i.e. 2009-2010, the national average of the facility based neonatal mortality rate (NMR) in 2010 dropped to 9.3 per 1,000 from 10.97 per 1,000 live births in 2009. Although, facilities in the NE, NW, and SW did not show decrease in NMR when compared to 2009. The maternal

health indicators show an overall improvement over baseline. The improvements were in family planning visits, pregnant women with at least four ANC visits, facility-based deliveries, and the number of women receiving two or more doses of tetanus vaccine (Abimbola et al, 2012).

For instance, there was no maternal death recorded in any of the MSS facilities in the SW zone between October, 2010 and March, 2011 compared to baseline of 11 maternal deaths (July-December, 2009). Only Ekiti and Ondo states recorded neonatal deaths in January to March 2011, but there was no maternal death recorded in October to December 2010. Also, there has been an increase in the attendance at family planning clinics in all MSS facilities across SW zone, with Lagos and Osun state having the highest number (NPHCDA, 2012). The white paper report by NPHCDA adjudged the scheme as having marked but uneven improvements on MCH outcomes. However, there is a need for an independent appraisal of the scheme, especially as it relates to the expected activities of the midwives, families, mothers and community's judgment of the MSS scheme with comparison to non-MSS facilities. This is the lacuna that this study intends to fill. It is equally important to empirically document specific benefits and changes in MCH outcomes among communities with MSS facilities and those without MSS facilities.

Purpose of the Study

Study was conducted to provide evidence that midwives' interventions have positive effect on the achievement of the objectives of the MSS initiative. Findings also provided evidence for service improvement in MSS communities and service planning in non-MSS communities for the improvement of MCH outcomes. It also provided data for reference for policy and programme reforms by stakeholders involved in the MSS programme.

Objectives

The specific objectives of this study are

- to explore the Community members' perception of interventions of midwives in improving MCH outcomes.
- to compare MCH outcomes in MSS and non MSS Communities.

Research Question

- What are the community members' perceptions of the midwives' interventions in improving MCH outcomes?
- Are the MCH outcomes the same across facilities?

Hypothesis

- There is no significant difference in the perception of midwives' interventions by mothers in MSS and Non-MSS communities.

Definition of Keywords

Midwives Service Scheme: this is a government initiative, established in 2009 aimed to facilitate an increase in the coverage of Skilled Birth Attendance (SBA) to reduce maternal, newborn and child mortality by deploying midwives to hard-to-reach areas.

MSS Mother: a woman of reproductive age with child(ren) aged 0-5 year resident in communities where MSS facilities are present

Non-MSS Mother: a woman of reproductive age with child(ren) aged 0-5 year resident in communities where no MSS facility is present

MSS Community: a community with at least a health facility where MSS is being implemented

Gatekeepers: these were members of the selected communities who served as key informants. They were drawn from among religious and community leaders, elderly women and community-based birth attendants.

Maternal and Child Health Outcomes: documented changes in MCH indicators related to midwives' interventions in the selected communities

Midwives' interventions: actions of the midwives directed at preventing MCM, promoting or improving MCH among community members, as depicted by their role behaviours.

Perception: how individuals in the communities understand and view MCH care services based on their beliefs, knowledge and experiences of the MSS

MATERIALS AND METHODS

Setting and Sample

The study adopted an exploratory design in order to explore relationships between variables of interest. Qualitative and quantitative methods were used to collect data from MSS and Non- MSS facilities. Data was collected from mothers and community-based MCH gatekeepers to explore the perception of midwives' interventions in the communities.

Multistage sampling technique was employed to select subjects for the study. From the six states of the South-Western zone of Nigeria, Osun State was purposively selected. This has three federal senatorial districts, from which 1 MSS and 1 Non-MSS community each were selected, totaling 6 communities (3 MSS; Faforiji, Olla and Dagbolu, and 3 Non-MSS; Igboya, Sekona and Aromiwe Communities).

Mothers' sample size was 400 with 5% attrition rate which was calculated using the W.G. Cochran's formula $n = \frac{Z^2 P(1-p)}{d^2}$ (Mfalomagoha, 2011). Using systematic sampling technique, a mother per household was selected from each of the communities until the sample size was reached. Purposive sampling technique was

used to select at least 8 key informants from among gatekeepers drawn from among religious, traditional, and community leaders, elderly women, community-based birth attendants (traditional birth attendants and attendants in mission houses) resident in each of the communities.

Data Collections and Analysis

In-depth interviews were carried out among a total of 49 gatekeepers to collect background information concerning the perception of the community members on Midwives' interventions in improving MCH outcomes (Boyce and Neale, 2006). Checklist was administered to assess MCH outcomes and services in each health facility. Qualitative data generated from the in-depth interview were recorded using a tape, transcribed and reported verbatim. Questionnaire was structured, pre-tested and then administered to mothers in the selected communities. This was made up of two sections: section A elicited mothers' demographic characteristics, section B assessed mothers' perception of midwives' interventions with regards to MCH using a two point likert scale questionnaire with options ranging from "agree" (1) to "disagree" (0), of 14 items, with a score range of 0-14. For this study, 50% is acceptable level of performance as found in the conventional university scoring grade. Therefore, data was interpreted thus; 0-6 (negative perception) and 7-14 (positive perception). Data was collected with the help of two research assistants who were pre-trained in the use of the questionnaires. Data was analyzed using descriptive (frequencies, percentages and tables) and inferential (Mann-Whitney U test) statistical methods at 5% level of significance, using the Statistical Product and Service Solution (SPSS-16).

Ethical Consideration

Ethical clearance was obtained from the Health Research and Ethics Committee, Institute of Public Health, Obafemi Awolowo University, Ile Ife (IPH/OAU/12/470). Gate keepers' permission was also obtained from the leaders of each community. In addition, informed consent was obtained from the all respondents.

RESULTS

Demographics

Data in table 1 revealed that majority of mothers in MSS (51.6%) and non MSS (43.5%) communities were in the reproductive age with the modal age category of 23-28 years with a mean score of 27.05±5.40 and 27.06±5.45 respectively. Majority of respondents in both communities were young, married, working class mothers with at least secondary school level of education. Also, majority of mothers in MSS (68.9%) and non-MSS (69.2%) communities were primigravidas and primiparas with at least 1 child that is under the age of 5 years. Forty-nine gatekeepers (24 and 25 gatekeepers in MSS and non-MSS communities respectively) also participated in the study.

Community members' perception of midwives' interventions

The summary of mothers' responses presented in Table 2, showed that all mothers in MSS communities (100%) agreed with the midwives interventions while majority of mothers in the non-MSS communities (81.8%) also agreed with the interventions. However, while no mother (0.0%) in MSS agreed with the statement that says midwives care for only healthy babies, some (32.2%) of the mothers in non-MSS agreed to the statement. Also, majority of mothers in MSS communities agreed that midwives health educate pregnant women, do follow up through home visits and encourage fathers to help their pregnant wives in house chores, but just more than half of non-MSS mothers agreed to these. Hypothesis tested using Mann-Whitney U test, showed that there was a statistically significant difference in the perception of midwives' interventions by mothers in MSS and non-MSS communities ($U = 239.00, p = 0.001$). Majority of MSS and non-MSS gatekeepers also supported the above responses of mothers in regards to their perception of midwives' interventions in their communities. When asked about whom they know are the ones involved in the care of mothers and their children, some of their responses are;



Grandmothers in the community and midwives in the maternity care for pregnant women and their children. A man may not have much to do, in the care of pregnant women, except to provide money for hospital (female, grandmother, Aromiwe/non-MSS community).

Midwives and the immediate family members, especially the grandmothers and the husband are involved.

They should all take care of pregnant woman by ensuring she eats well and give her money for hospital. Even the Quran frowns at any man that refuses to take care of his pregnant wife (Male, Religious leader, Olla/MSS community).

We have regular meetings with midwives where we discuss how the maternity can move forward. They also visit mothers during market days. Midwives don't do this before (Male, Member VDC, Dagbolu/MSS community).

Comparative assessment of Maternal and Child Health services in health facilities

From Table 3, it was deduced that

- MSS facilities have more midwives than non-MSS facilities
- Both electronic and paper data collection devices were available only in MSS facilities

Table 1. Socio-demographic distribution of mothers in MSS and non-MSS communities.

Variables	MSS Frequency (%) n=186	NON MSS Frequency (%) n=214
Age at last birthday (Range (R):19-40)	\bar{X} =27.05, SD=5.40	\bar{X} =27.06, SD=5.45
Below 22 years	5 (2.7)	23 (10.7)
23-28 years	96 (51.6)	93 (43.5)
29-34 years	39 (21.0)	44 (20.6)
35 years and above	46 (24.7)	54 (25.2)
Religion		
Christianity	77 (41.4)	92 (43.0)
Islam	109 (58.6)	122 (57.0)
Occupation		
House wife	25 (13.4)	31 (14.5)
Working women	148 (79.6)	167 (78.0)
Students	5 (2.7)	4 (1.9)
Apprentice	8 (4.3)	12 (5.6)
Education		
No formal education	1 (0.5)	3 (1.4)
Primary	66 (35.5)	77 (36.0)
Secondary	98 (52.7)	113 (52.8)
Post Secondary	21 (11.3)	21 (9.8)
Marital status		
Single	2 (1.1)	3 (1.4)
Married	183 (98.4)	210 (98.1)
Divorced	1 (0.5)	1 (0.5)
Number of pregnancy (R:1-10)	\bar{X} =2.87, SD=1.68	\bar{X} =2.85, SD=1.69
Primigravida	128 (68.9)	148 (69.2)
Multigravida	57 (30.6)	65 (30.3)
Grand multigravida	0 (0.0)	1 (0.5)
Number of times gone through labour (R:1-7)	\bar{X} =2.77, SD= 1.58	\bar{X} =2.75, SD=1.59
Primipara	132 (71.0)	155 (72.4)
Multipara	53 (28.5)	58 (27.1)
Grand multipara	1 (0.5)	1 (0.5)
Number of children under five years (R:1-3)	\bar{X} =1.51 SD=0.59	\bar{X} =1.52,SD=0.59
1	100 (53.8)	203 (94.9)
2	76 (40.9)	11 (5.1)
3	10 (5.3)	0 (0.0)

R : Range

 \bar{X} : mean

- Just two of all the selected facilities were adequately equipped to render Basic EmOC. These two were MSS facilities.

- Only MSS facilities had Mama's kits for registered mothers and midwife's kit for midwives.

- Just one out of each of the MSS and non-MSS facilities provides ambulance services.

- All selected facilities had accessible roads, permanent structures, community support and provide MCH services.

The following are the responses from gatekeepers that support the facts above;

Table 2. Distribution of mothers by their perception of midwives' interventions to improve MCH.

Interventions depicted by role behaviours	MSS Frequency (%) n=186		NON-MSS Frequency (%) n=214	
	Agree	Disagree	Agree	Disagree
Midwives health educate pregnant women on how to care for the coming baby	176 (94.6)	10 (5.4)	116 (54.2)	98 (45.8)
Midwives visit women who miss their antenatal clinic at their homes or work places for follow up	131 (70.4)	55 (29.6)	114 (53.3)	100 (46.7)
Fathers are encouraged by midwives to help in house chores in order to help reduce stress on their pregnant wives	173 (93.0)	13 (7.0)	114 (53.3)	100 (46.7)
Mothers are health educated by midwives on how to recognize signs of labour	182 (97.8)	4 (2.2)	136 (63.6)	78 (36.4)
Midwives allays mothers' fears during labour	186 (100.0)	0 (0.0)	145 (67.8)	69 (32.2)
Midwives ensures that mother and child are strong and well before they discharge them home	181 (97.3)	5 (2.7)	141 (65.9)	73 (34.1)
Midwives refer mothers with risk pregnancy to general hospitals	186 (100.0)	0 (0.0)	145 (67.8)	69 (32.2)
Midwives ensure mother rest well in bed following miscarriage or stillbirth	186 (100.0)	0 (0.0)	142 (66.4)	72 (33.6)
Midwives advice mothers on the importance of the use of family planning	186 (100.0)	0 (0.0)	149 (69.6)	65 (30.4)
Mothers are encouraged by midwives to feed their babies with only breast milk for the first 6months	186 (100.0)	0 (0.0)	139 (65.0)	75 (35.0)
Midwives teach mothers on how to prepare healthy and balanced diet for themselves and their family	186 (100.0)	0 (0.0)	147 (68.7)	67 (31.3)
Midwives care for only healthy babies	0 (0.0)	186 (100.0)	69 (32.2)	145 (67.8)
Midwives also care for sick babies	186 (100.0)	0 (0.0)	163 (76.2)	51 (23.8)
Midwives administer routine immunizations to mother and child	186 (100.0)	0 (0.0)	175 (81.8)	39 (18.2)

I know we have just one midwife in the maternity and we have been soliciting for more from the local government, but no response yet” (Male, Community Leader, Sekona/non-MSS community)

Civilization has made some people move from traditional to orthodox medicine, which has been in use in the care of pregnant women since the olden days. I can't blame them. It's due to what trend nowadays, although, many still deliver in churches, depending on their belief (female, Elderly woman, Aromiwe/non-MSS community)

Midwives now give free delivery materials to mothers who are in labour. Thank God for this present government” (Female, Elderly Woman, Olla/MSS community).

DISCUSSIONS

The majority of the mothers in both communities were young, working women with minimum of secondary school education. A number of factors have been associated with utilization of MCH services, among which are socio-demographic factors – age, religion, maternal education, husband's education, marital status, employment status and parity (Emelumadu, 2014). This is in agreement with Mboho and Bassey (2013) whose study on mothers'

Demographics

variables as determinants of nutritional status of children 0-5 years in Nsit Ibom Local Government Area of Akwa Ibom State showed that majority of mothers are in the reproductive age category with minimum of secondary school certificate (Table 1). Therefore, a woman's level of education is a very important independent determinant of whether she can access health care- services, which in turn determines her perception of health interventions (Fransen, 2003).

Table 3. Summary of Results of Facility Checklist.

Facilities	Acce- ssible	Perm. Structure	H ₂ O Source	Ambula- nce	Comm. Support	Mama's kit	Midwives' kit	Data Collection Device		No. of Midwives	MCH Services	Basic EmOC
								Paper	Electronic			
MSS												
Faforiji	√	√	√		√	√	√	√	√	5	√	
Olla	√	√	√	√	√	√	√	√	√	5	√	√
Dagbolu	√	√	√		√	√	√	√	√	5	√	√
N-MSS												
Igboya	√	√	√		√			√		2	√	
Sekona	√	√	√		√			√		1	√	
Aromiwe	√	√	√	√	√			√		2	√	

Community Members' Perception of Midwives' Interventions

Study revealed that higher proportion of mothers in MSS communities had positive perception of midwives' interventions compared to mothers in non-MSS communities. Positive perception was particularly higher in antenatal health education, home visiting, male involvement in MCH, family planning and good midwife-client relationship. Majority of MSS mothers agreed that midwives involve their husbands in their care. Graner, et.al. (2010), in their study described how men constituted important support for their pregnant wives and how the midwives encouraged men to be involved at childbirth. Communities of study were largely culturally influenced where men are not usually seen being involved in childbirth and child-care which are regarded as exclusively women's affairs or "female things". However, studies have observed that men play a vital role in the safety of their female partners' pregnancy and childbirth (Kakaire, Kaye, & Osinde, 2011; Kululanga, Chirwa, Malata & Sundby, 2011) which in turn has great influence in determining MCH outcomes.

Majority recognized home visiting, community participation, community involvement and distribution of "Mama's kit" as midwives' interventions to improve MCH in their communities. This is in agreement with roles expected of the Midwives in the MSS initiative (NPHCDA, 2011).

Comparative Assessment of Maternal and Child Health Services in Health Facilities

The study also investigated the status of the selected health facilities. The study showed that all, except Dagbolu's MSS

relationship. This is in tandem with expected duties of the Midwives in the MSS initiative as stated by Abimbola et al. 2012 and NPHCDA, 2013, that in addition to their clinical duties, midwives serve as change agents in target communities. This they do by working with Ward Development Committees (WDCs) to mobilize the people for health action, promote women and child health, and carry out home visits.

facility, provide 24/7 MCH services. The inability of Dagbolu community to provide 24 hours MCH services was due to unavailability of a place of residence for the midwives. This is not in agreement with the Memorandum of Understanding signed by the stakeholders in MSS, which mandates the LGAs to provide accommodation for the midwives (NPHCDA, 2010) Also, two out of the three MSS facilities had the capacity to provide basic emergency obstetric care (EmOC) while just one out of the three non-MSS facilities were equipped to provide this. This is in agreement with the result of the study carried out by Erim, Kolapo, and Resch (2012) on a rapid assessment of the availability and use of obstetric care in Nigerian healthcare facilities, which showed that most of the PHCs visited were unable to provide all basic EmOC services.

Also, study showed that there was no doctor attached to any of the facilities, both in MSS and Non-MSS facilities. It was reported that a doctor is attached to a local government area, which comprises of several PHCs. It was also evident that only MSS facilities had 5 midwives each, while in non-MSS facilities number of midwives was ≥ 2 . MSS midwives therefore were able to carry out more often, interventions that are not facility based, e.g home visits, ANC follow up, meeting with a functioning VDC, carrying out ANC everyday

of the week and making phone numbers available to clients to call whenever they have questions bothering on their health.

RECOMMENDATIONS

Based on the findings of this study, it is recommended that MCH interventions should be planned ensuring that they are community-based and involves active participation of the community members. Practice of home visits by midwives should be encouraged the more. An enabling environment that supports effective MCH care should be provided in all PHC facilities so as to ensure provision of at least Basic EmOC. Policies should be put in place to ensure that all stake holders involved in the MSS adhere to the memorandum of understanding signed. Also, campaigns should encourage less educated, older age group (especially as pregnancy risks increases with age and parity) and the unemployed to use the facilities since services are free. This will discourage patronage of TBAs.

Midwives Service Scheme has made indelible mark in improving MCH outcomes. Therefore, permanent monitoring and periodic evaluation should be carried out in order to ensure continuous effectiveness of the initiative. Also, the initiative should be used as a model for organizing all PHC facilities in the country in order to reduce maternal and child mortality on a larger scale.

Limitations

The researchers acknowledge the following limitations;

1. Perceived bias of some of the gatekeepers (Community-based birth attendants) on questions bothering on their practice.
2. Findings were deduced from subjective responses and only snap-shot perceptions which may change over time if study is repeated.
3. Study was conducted in just a state in the country, findings can therefore not be generalized to the whole country. However, findings can be used as basis for further research.

CONCLUSIONS

Findings revealed that Midwives Service Scheme has greatly influenced the perception of community members positively, which has in turn improved the MCH outcomes of the communities. These improvements were due to community-based MCH interventions carried out by the MSS midwives, but these community-based MCH care were very low or nonexistent in non-MSS communities and facilities. In conclusion, MCH interventions that are community based and involve active participation of community members can significantly reduce maternal and child mortality in Nigeria.

Conflict of Interest Statement

The authors have no conflicts of interest to report.

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