

AN ASSESSMENT OF AVAILABILITY OF INFRASTRUCTURAL FACILITIES IN THE IMPLEMENTATION OF MATERNAL HEALTHCARE POLICY IN PHCS CENTER IN BORNO STATE

Ashilarju Solomon¹, Abubakar Musa² & Danladi Hamisu³

^{1,3}Research Scholar, Department of Public Administration, Faculty of Management Sciences, University of Maiduguri, Nigeria

²Ph.D Scholar, Department of Political Science and Defence Studies, Nigerian Defence Academy, Kaduna

Received: 12 Sep 2019

Accepted: 09 Oct 2019

Published: 31 Oct 2019

ABSTRACT

The study measures whether infrastructural facilities are adequate in Primary HealthCare Centres (PHCs) to reduce maternal health in Borno State to meet the target of Millennium Development Goal Five (MDG5). The target of MDG5 cannot be achieved without putting in place adequate infrastructural facilities in Primary HealthCare Centres (PHCs) for the implementation of maternal health policy. In this study, questionnaire was distributed to 363 beneficiaries (women of reproductive age), 352 questionnaires were returned as valid and used for the analysis of data, and forty-five (45) Health Officials were interviewed whether the infrastructural facilities for the implementation of maternal healthcare policy in Primary Healthcare Centres in Borno State are adequate to reduce maternal health among women of reproductive age. Tables 1.1 and 1.2 show the adequacy of infrastructural facilities in Primary Healthcare Centres. Out of 352 respondents (women of reproductive age), 5.7% strongly agreed that infrastructural facilities are adequate in primary Healthcare Centres in Borno State, 4.0% agreed, 9.5% are yet to decide while 37.5% disagreed and 47.4% strongly disagreed. Out of 45 Health Officials interviewed, 40% responded that infrastructural facilities are adequate in the Primary Healthcare Centres while 60% responded that it is inadequate. This means that infrastructural facilities are not adequate in Primary Healthcare Centres in Borno State. The implication of this finding is that, reduction in maternal mortality upto 75% as per MDG5 have not been achieved in Borno State. The study concludes that adequacy of infrastructural facilities in Primary Healthcare Centres in Borno State is not adequate. The study recommends that inadequacy of infrastructural facilities should be properly addressed by the Government to reduce the maternal mortality in Borno State.

KEYWORDS: *Infrastructural Facilities, Health Care Policy, Maternal, Borno State*

INTRODUCTION

Women of reproductive age have been suffering from lack of adequate infrastructural facilities when it comes to quality of place of delivery, access family planning, antenatal care, postnatal and abortion care just to mention a few to reduce maternal health. To address the issues of maternal mortality and the related complications which can be handled, such as communication systems, good roads, scanning machines, drugs, functioning operation facilities and functioning health system are required. In addition, human resources such as well-trained Midwives/Nurses, Doctors more especially

Gynaecology/Surgeon Doctors, Paediatricians to handle their new-borns are also required as well as provision of social services for their wellbeing. All these should be handled by the Government in making sure that the Policy Makers carry their functions very well by providing these facilities in all Primary Health Centres (PHCs) and the policy put in place to address the issues of maternal health is implemented and monitored.

LITERATURE REVIEW

In 2014, WHO issued a statement on the prevention and elimination of disrespect and abuse during facility-based child birth. The WHO statement positioned mistreatment during childbirth as a violation of rights and trust between women and their healthcare providers. It also called for greater action, dialogue, research and advocacy. According to Population Research Institute, maternal death is the death of a woman while pregnant or within 42 days of termination of pregnancy.

The trends maternal mortality by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division estimated that about 295,000 women were died during and following pregnancy and childbirth in 2017. The vast majority of these deaths (94%) occurred in low-resource settings, and most could have been prevented. In Sub-Saharan Africa and Southern Asia accounted for approximately 86% (254,000) of the estimated global maternal deaths in 2017. Sub-Saharan Africa alone accounted for roughly two-thirds (196,000) of maternal deaths, while Southern Asia accounted for nearly one-fifth (58,000). At the same time, between 2000 and 2017, Southern Asia achieved the greatest overall reduction in MMR, a decline of nearly 60% (from an MMR of 384 down to 157). Despite its very high MMR in 2017, sub-Saharan Africa as a sub-region also achieved a substantial reduction in MMR of nearly 40% since 2000. Additionally, four other sub-regions roughly halved their MMRs during this period; Central Asia, Eastern Asia, Europe and Northern Africa. Overall, the maternal mortality ratio (MMR) in less-developed countries declined by just under 50%. However, if the facilities for maternal health have been adequately put in place and properly implemented, the high maternal death would not have declined.

Women die as a result of complications during and following pregnancy and childbirth. Most of these complications develop during pregnancy and most are preventable or treatable. Other complications may exist before pregnancy but are worsened during pregnancy, especially if not managed as part of the woman's care. Most maternal deaths are preventable, as the health-care solutions to prevent or manage complications are well known. All women need access to high quality care in pregnancy, and during and after childbirth. Maternal health and newborn health are closely linked. It is particularly important that all births are attended by skilled health professionals, as timely management and treatment can make the difference between life and death for the mother as well as for the baby (WHO, 2014). The major complications that account for nearly 75% of all maternal deaths are severe bleeding (mostly bleeding after childbirth), infections (usually after childbirth), high blood pressure during pregnancy (pre-eclampsia and eclampsia, complications from delivery and unsafe abortion (Say L, et al, 2014).

According to the Nigerian National Health Conference (2009), inadequate health care facilities, inadequate and decaying infrastructure, inequity in resource distribution, access to care and very deplorable quality of care are the reasons why the health care system in Nigeria has remained weak. Public health infrastructure is organized in a hierarchical manner on the basis of both catchment population and administrative boundaries such as from General Hospitals PHCs down to Dispensary.

Most of the General Hospitals in Borno State are currently under renovation, some of them have aged, while some have been burnt or destroyed during the Boko Haram insurgency. In 2013, almost all the Primary Healthcare Centres were renovated by the State Government and Donor Agencies. The infrastructural facilities in all the maternal health Centres were all functioning but some were destroyed during the insurgency and some are not accessible due to the security challenges in the State, mostly in the Northern part of the State. According to the Borno State Coordinator, Maternal Health Centre, Hajja Kaltum, there are so many facilities piled in their store awaiting collection by personnel but nobody wants to risk his or her life to convey such facilities to the Local Government Areas. The Coordinator further said that the issue of four delay has not been addressed in 18 Local Government Areas and most of these Local Government Areas are in the Northern part of the State with few Local Government Areas in the Central.

What UNICEF did through the sensitization of the community in the Northern part of State are:

- In each Local Government, standby transport has been provided in every ward to transport women to assess health facilities on time during delivery but some of the buses are misused, some are not functioning and some has been burnt during Boko Haram insurgency.
- Networking of religious and traditional leaders in collaboration with NUAPE NGOs to sensitize them on the danger of not allowing women to attend clinics and of the danger signs of pregnancy. Ten Local Government Areas have been selected in the Northern part of Borno State for this awareness. This is because in most of the Local Government Areas in the State, more especially in the Northern part, if a woman falls in labour and the husband is not around or his male close relation to give her permission to go to hospital, she cannot go, and even if they gave her permission, when reaching the hospital and could not find female personnel, male personnel are not allowed to attend to her instead the woman will come home to be attended by untrained women or traditional birth attendance without adequate facilities, hence lead to maternal mortality.
- Awareness of the Traditional Birth Attendant (TBA) of the danger of resisting to manage complications at home without referral because they don't have adequate facilities at home even if they are trained. (State Ministry of Health, Department of maternal health Care (2014).

There is insufficient data on the quality and sustainability of care provided. The report in Countdown to 2015 concludes that not only in more health coverage imperative, but also there must be greater attention paid to “what care is actually provided during antenatal, childbirth and postnatal contacts.” One important aspect of the quality of care is its sustainability. While some improvements in access and coverage have been made through projects financed by international donors and NGOs, only projects that develop health system capacity to ensure sustainability will be able to continue achieving positive health outcomes once the implementing agency has left.

Empirical Studies

A study conducted by Kukawa, Mairiga, and Usman (2009) on the “Community perspective of maternal mortality: Experience from Konduga Local Government Area, Borno State, Nigeria” identified that there was a good understanding among the people of the area that women were dying during pregnancy, labour and puerperium. About 28 (93.3%) of the respondents recognized some obstetric complications. The study covers the areas in Konduga Local Government in Borno State with a view to finding constraints associated with maternal health in the area and to find out the number of women who died during pregnancy and child bearing within the year 2009. The methodology used for this study was an in-depth

interview guide developed by the network for the prevention of maternal mortality (NPMM), which contains mainly open ended questions, modified to suit our socio-cultural setting was used for the study. The finding of the study was that, the main constraints to access the hospital for emergency obstetric care were lack of fund and inadequate infrastructure. Equipping the health facilities, employment of qualified health personnel, community supported emergency funds for obstetric emergency and the provision of reliable, effective and affordable transport were identified as necessary measures to prevent maternal mortality. The Local Government Area and community leaders are to champion the cause for the provision of these facilities in their localities. The model used for this study was health beliefs model. The study concluded that there is a good understanding of obstetric complications in the community leading to maternal death. The main reasons for delay in seeking care are ignorance, poverty, lack of transportation and distance. They recommended that community enlightenment, health education, training of TBAs, poverty reduction and effective, affordable and reliable transportation are to be provided as means of obviating delays in the decision and transportation leading to maternal mortality. Upgrading and re-equipping of health facilities to provide emergency obstetric care services are mandatory. Encouraging community participation in the safe motherhood to drive using the traditional rulers, religious leaders and the Local Government Authority. The study has not filled the gap of the study in reduction of maternal mortality in Borno State as their study covered only Central part of Borno State, while this research covered the whole State with one Local Government Area representing each of the Senatorial Districts.

Yar'Zeveri (2013) conducted a similar study on "Knowledge and Barriers in Utilization of Maternal Health Care Services in Kano State, Northern Nigeria". The study reveals that the use of maternal health care in most African countries has been associated with several socio-economic, cultural and demographic factors, although contextual analysis of the latter has been few. Similarly, previous study in Kano showed that 64% of women with severe obstetric morbidity identified at different hospitals in Kano state Nigeria were in critical conditions upon arrival, underscoring the significance of pre-hospital barriers in this setting with free and accessible maternal health care. This cross-sectional descriptive study explored knowledge and utilization of maternal health services among Urban and Rural reproductive women. The study used descriptive cross-sectional study to assess the reproductive health knowledge and utilization of maternal health care services among reproductive women living in Kano State, Northern Nigeria using questionnaire with focus group discussion and in-depth interview. The study used behavioural model proposed by Andersen that seeks to account for and predict the use of health services by individuals Andersen (1995). According to the model, such utilization is dependent on the interaction between individual traits, population characteristics, and the surrounding environment. Andersen proposes that the relevant factors can be grouped into three main categories: an individual's predisposition to use medical services; enabling or impeding circumstances (such as infrastructure), and the need for health care. In some instances, it has been applied to behavioural aspects of childbirth and institutional change within obstetric care (Filippi et al., 2009, Suni et al., 2006). In the analysis below, we avail ourselves of this theory to examine how patterns of maternal healthcare utilization and inequalities in accessibility are products of accumulated dispositions.

This study is different from the studies carried out by the above researchers on maternal health because it was conducted in different approach. The empirical studies cited above did not cover the period of this study i.e. 2019, hence the relevance of the current study. The method of collecting data was different because this study has covered not only health workers, but also the beneficiaries (women of reproductive age) in the selected Local Government Areas and in collecting data through questionnaire which the researchers did not include in their studies.

Theoretical Framework

This study examined various theories that explained Maternal Health Policy with view to understand the phenomenon under investigation such as Health Belief Model, Efficiency theory, Implementation theory and Incremental theory. This study adopted incremental theory.

The incrementalism as a public policy model propounded by Bullock and Stallybrass (1988) is a model in its simplest terms “a representation of something else, designed for specific purpose.” To Hanekom, some models are descriptive in nature while others are of prescriptive nature. Descriptive models describe and analyse actual process of policy-making taking into account the questions why, who and how? Some of these models are the functional process model, the group model, systems model and the institutional model (Fox et al, 2006). The normative or the prescriptive model identified by Hanekom (1987) considers models such as the incrementalism model which this study used as its underpinning theory, the comprehensive rationality model and the mixed scanning model which takes into consideration both the incrementalism and comprehensive rationality model.

Incrementalism as an approach to policy-making is associated with Lindblom (1959) who used the term in his criticism of the rational comprehensive decision-making model to describe an approach usually followed in decision-making (Fox et al, 2006). It is a method of working by adding to a project using many small (often unplanned), incremental changes instead of a few (extensively planned) large jumps. In public policy, incrementalism refers to the method of change by which many small policy changes are enacted over time in order to create a larger broad based policy change. Programmes that can be introduced to some segments of a target population on a staggered basis, is acknowledged to be more desirable than introducing the program to the entire population at the same time as such an approach enables evaluators to make multiple comparisons of the same group and others overtime, in order to determine the success of the programme (Posavac and Carey, 1992). The rational comprehensive model critiqued by Lindblom (1959) implies that the policy maker has a full range of options from which to choose thereby assuming policy makers known all the preferences of society, know as many policy alternatives as possible, know as many results and consequences of each alternative as possible, know the ratio of achieved and abandoned aims and then select the policy alternative that will make the greatest contribution to the common good in terms of the available resources (Hanekom, 1987 cited in Fox et al., 2006).

The incremental model, on the other hand, postulates that a limited number of alternatives, differing marginally from the status quo and from which the policy maker has to make a selection is available. Thus, the need to take each policy incrementally to achieve expected results (Lindblom, 1959) argues not only is the model of incrementalism descriptively accurate but also normative. This is based on his belief that policy changes must first be accepted by existing organisations and client groups in order to take hold and be implemented. To Lindblom (1959), the test for the worth of a policy is its acceptance by the most relevant players and not its objectives as proposed by the rational model. Thus, to him not only is the comprehensive rationality model impossible to achieve but also policies are rarely changed radically as a result of even extensive reviews. He further argues in the real world decision makers change policies incrementally by successfully selecting alternatives that make marginal improvements to the status quo as this is more acceptable to those affected by them. The incremental model is being used for this study because the free maternal healthcare policy is not a new policy but is introduced due to the lapses with the national delivery exemption policy. In incremental model, public

policy is regarded as the continuation of existing government activities with only small (incremental) adaptations to provide for changes that may occur (Hannekom, 1987 cited in Fox et al., 2006).

Although incrementalism has enjoyed widespread acceptance within management sciences, it has not neither spawned a lively research tradition leading to cumulative refinement and amplification of the core concepts nor has it provided much guidance for policy making, in part because scholars never attempted to clarify how decision makers could become better incrementalists. This is due in part, we suggest, to the fact that understanding of the concept of "incrementalism" has become extremely muddled, conceivably to the point where the term may have outlived its usefulness, but the problems which motivated the early scholarship remain at the heart of political theory and practice.

Incrementalism which is the best to explain and enhance the maternal health policy has criticism that made the policy to be weak and lead to continuous death of women during pregnancy. Most of the enduring criticisms of incrementalism fall into four broad categories. First, it is alleged to be insufficiently goal oriented and ambitious, inviting "complacent acceptance of imperfections" Arrow and justifying "a policy of 'no effort'" (Dror, 1964:155). Incremental steps are said to mean proceeding "without knowing where we are going" (Forester, 1984) "leading nowhere" (Etzioni, 1967), guided by "ill-defined" themes (Pava, 1986). Moreover, incremental learning is "strictly a posterior and passive" (Grandori, 1984). Nothing in the logic of incrementalism would lead to such conclusions. Political participants obviously have goals, use analysis where convenient, formulate policy trials as best they can give their partisan aims and skills, engage in learning, and try to improve the outcomes that matter sufficiently to them. Yet something about Lindblom's formulation encouraged or allowed a large number of scholars to waste a great deal of time over a matter on which no thoughtful person could possibly disagree, a point to which we return (Dror, 1964:155).

A second criticism holds that incrementalism is an overly conservative approach, which would tend to neglect basic societal innovations (Etzioni, 1967:387), and would limit social scientists' ability to serve as a source of social innovation (Dror, 1964:155). It is said to favour organized elites over the poor and disorganized, because weaker actors are not able to protect values that stronger actors choose to discount (Lustick, 1980; Forester, 1984). More generally, incrementalism does not take sufficient account of crucial factors that are not powerfully represented in the bargaining process, e.g., the future (Logsdon, 1986). Those are very serious problems. But they are caused by prevailing distributions of political power, not by disjointed incremental analysis. No alternative decision strategy would be any less afflicted, given the institutions and authority relations of market-oriented polyarchal societies. The conservatism critique also seems mistakenly to suppose that incremental analysis and partisan mutual adjustment were imagined to be the only inputs to societal policy making. Along with incremental analysis of the type done by mainstream government officials and those who seek immediate influence over them, a complex society obviously needs a wide array of both professional social inquiry and lay inquiry. It should be broad-ranging, often highly speculative, and sometimes utopian (Lindblom, 1979; Lindblom and Cohen, 1979; Lindblom, 1990).

The aim of incremental theory is to produce a strong set of conceptual tools that enable researchers and practitioners to identify, describe and explain important elements of implementation processes and their outcomes. The theory presented here links together a set of constructs drawn from several theories. When integrated, these comprehensively describe and explain elements of a complex dynamical system (Sabatier and Mazmanian, 1979, 1980).

DISCUSSION OF FINDINGS

This research assessed the adequacy of infrastructural facilities in the implementation of maternal healthcare policy in Borno State. The three local government areas selected for the study are Kaga, Biu and MMC representing the three senatorial districts: Northern, Southern and Central.

From the respondent's view on adequacy of infrastructural facilities in Primary HealthCare Centres, out of 352 respondents 20(5.7%) strongly agreed that infrastructural facilities in Primary HealthCare Centres are adequate, 14(4.0%) agreed while 132(37.5%) disagreed, 167(47.4%) strongly disagreed and 19(5.4%) are yet to decide. The highest number of disagreement is from MMC with 56.8% responses, followed by Biu with 44.4% and Kaga 36.8%. This collaborates with the declaration of the wife of the Borno State Governor, Hajija Nana Kasheem Shettima who declared in the Workshop in 2009 that she has provided free facilities for maternal health in Primary Healthcare Centres, but women of reproduction age are not accessing it. The free maternal facilities were piloted at State Specialist Hospital, Yerwa Clinic, Monguno General Hospital, Damasak General Hospital, General Hospital Biu and Gwoza clinics, she had even organized a 3-day maternal mortality workshop for stakeholders in April 2009, but no positive result.

PRESENTATION OF INTERVIEW FINDINGS

The study used interview to obtain data from Health officials in the selected Local Government Areas, thus MMC, Biu and Kaga to assess adequacy infrastructural facilities in the implementation of maternal and healthcare policy in Borno State. Fifteen Health Officials were also selected from each of these Local Governments, making a total of 45 who know better about adequacy of infrastructural facilities.

From the respondent's view on adequacy of infrastructural facilities in PHC Centres, the study found out that 40% responded that infrastructural facilities are adequate in PHC Centres, while 60% are of a view that it is inadequate. This means that the infrastructural facilities are not adequate in PHC Centres in Borno State. The implication of this finding is that, reduction in maternal mortality upto 75% in 2015 by MDG5 has failed since it is still high in 2019.

METHODOLOGY

The Study Area

Borno State is a state in north-eastern Nigeria. Its capital is Maiduguri. The state was formed in 1976 from the split of the North-Eastern State. It is one of the 36 states in Nigeria with one Federal capital territory. The city was established a bit more than 100 years ago and used to be called Yerwa by the local population. In the middle of the 20th century it became the center of the region and the capital city of the state. It has a land mass of 57,799 km² and is occupying a larger section of the Chad Basin. It has an estimated population of 4,071,104 million people, with male 2, 163, 358 million and Female 2,007,746 million according to 2006 Census (National Population Commission, 2006). The population is multi-cultural and multi-religious, thus quite often some public Longitude misunderstandings arise. Maiduguri, the capital of Borno State is located at latitude 12.1205° N and 13.1740° E and 1300 m above sea level. Borno State was once a provincial capital in Northern Nigeria before and after independence. The city is mainly agricultural and commercial, with a number of large farmer's markets and so called "Monday Market" being especially popular. Maiduguri is also a home to one of the largest and the most modern university in the country, the University of Maiduguri.

Population of the Study

Population of the study is 1,990,036 as at 2006 Population Census (population of women) in Borno State. The target population of the study is 363 beneficiaries (women of reproductive age 15–39 years, NDHS, 2013) in which questionnaire were distributed to them to find out whether infrastructural facilities in their Primary HealthCare Centres (PHCs) are adequate to reduce the maternal death and 45 Local Government Health Officials in the 3 selected Local Government Areas for the study were interviewed as to whether the facilities to reduce maternal death in their Primary Healthcare Centres (PHCs) are adequate. The total population of the study is $363 + 45 = 408$.

Sources of Data

The sources of data for this study are primary and secondary sources. The primary sources were obtained from respondents which were beneficiaries (women of reproductive age 15–39 years) and Health Officials while the secondary sources, on the other hand, were review of documents from Ministry of Health, Department of Planning, Research and Statistics, Maternal Health Unit, Borno State, Information from Millennium Development Goal (MDG) Office, previous works on area of the study, textbooks, national dailies and magazines, academic journals, official publications, policies and reform books, internet materials and conference proceedings.

Method of Data Analysis

The data collected in this research was measured by both descriptive and inferential statistics. The descriptive statistics consist of frequency distribution tables, simple percentage table representation, etc. while the inferential statistics was guided by the use of Analysis of Variance (ANOVA) the *F*-test at 5% (0.05) level of significant. ANOVA is a parametric statistical technique used in testing relationship between two or more group means simultaneously. Thus, ANOVA is suitable for this research, hence, three Local Government Areas were tested in this research simultaneously. These perimeters were used in testing one hypothesis by measuring the relationship among different variables. ANOVA is a parametric statistical technique used for testing hypotheses of about two or more means (Ifah, 1996), while the *t*-test is the most powerful parametric technique for analyzing differences between sample means (Siegel, 1964).

Data Presentation and Analysis

A summary of the data collected and interview on the adequacy of Infrastructural Facilities in Primary HealthCare Centres (PHCs) in the implementation of Maternal Healthcare Policy in Borno State were here presented. The data were obtained through questionnaire and interview. A total of 363 copies of questionnaires were distributed and 352 were retrieved and 45 Health Officials were interviewed.

Table 1 shows the level of adequacy of infrastructural facilities in Healthcare Centre in Maiduguri Metropolitan (MMC), Biu and Kaga.

Respondents' opinion on Adequacy of Infrastructural facilities in PHCs

Research sought to know whether the infrastructural Facilities in PHC Centres are adequate to reduce maternal death. Table 1 shows the assessment of the respondents on five-point scale to ascertain whether the infrastructural facilities are adequate in PHCS.

Table 1: Respondents’ Opinion on Adequacy of Infrastructural Facilities in PHC Centres

Local Government Areas	Frequency (%)					Total
	Strongly Agreed	Agreed	Undecided	Disagreed	Strongly Disagreed	
MMC	2(1.4)	3(2.2)	0	55(39.6)	79(56.8)	139(100)
Biu	16(12.7)	6(4.8)	17(13.5)	31(24.6)	56(44.4)	126(100)
Kaga	2(2.3)	5(5.7)	2(2.3)	46(52.9)	32(36.8)	87(100)
Total	20(5.7)	14(4.0)	19(5.4)	132(37.5)	167(47.4)	352(100)

Source: Field Survey, 2019.

Table 1 shows the adequacy of infrastructural facilities in Primary HealthCare Centres. Out of 352 respondents 20(5.7%) strongly agreed that infrastructural facilities in Primary HealthCare Centres are adequate, 14(4.0%) agreed while 132(37.5%) disagreed, 167(47.4%) strongly disagreed and 19(5.4%) are yet to decide. The highest number of disagreement is from MMC with 56.8% responses, followed by Biu with 44.4% and Kaga 36.8%. This means that infrastructural facilities are not adequate in Primary Healthcare Centres in Borno State. The implication of this finding is that, women of reproductive age are at high risk of maternal death.

INTERVIEW FINDINGS

Respondents’ Opinion on Adequacy of Infrastructural Facilities in Primary Health Care Centres

The research sought to know whether infrastructural facilities in the Primary Healthcare Centres are adequate. The findings are presented in table 2

Table 2: Respondents’ Opinion on Adequacy of Infrastructural Facilities in Primary HealthCare Centres in Borno State

Local Government Area	Local Government Health Officials		Frequency (%)	
	Adequate	Inadequate	Adequate	Total
MMC	15	6(40)	9(60)	15(100)
Biu	15	7(46.7)	8(53.3)	15(100)
Kaga	15	5(33.3)	10(66.7)	15(100)
Total	45	18(40)	27(60)	45(100)

Source: Field Survey, 2019

Table 2 shows the adequacy of infrastructural facilities in PHC Centres. Out of 45 Health Officials interviewed, 40% responded that infrastructural facilities are adequate in the PHC Centres while 60% responded that it is inadequate. This means that the infrastructural facilities are not adequate in PHC Centres.

From the respondent’s view on adequacy of infrastructural facilities in PHC Centres, the study found out that 40% responded that Infrastructural Facilities are adequate in PHC Centres, while 60% are of a view that it is not adequate. This means that infrastructural facilities are not adequate in PHC Centres. The implication of this finding is that, the target of MDG5 has not been met in reduction in maternal mortality.

Hypothesis

HO₁: There are no significant differences among the respondents’ views on the adequacy of infrastructural facilities in PHCs to Reduce Maternal Mortality Rate.

Contingency Table 1 on adequacy of infrastructural facilities in PHCs in MMC, Biu and Kaga Local Government Areas to

reduce maternal mortality. The relevance of testing this hypothesis is to find out whether there are significance differences among respondents' rating the of adequacy of infrastructural facilities to enable women of reproductive age benefit from such facilities when they visit antenatal clinic.

Table 3: Rating on Adequacy Infrastructural Facilities

	X1	X2	X3	Cumulative Percent
Strongly Agreed	2	16	2	5.7
Agreed	79	56	32	47.4
Undecided	0	17	2	5.4
Disagreed	55	31	46	37.5
Strongly Disagreed	3	6	5	4.0
Total	139	126	87	100

Table 4: ANOVA Summary Table on the Adequacy of Infrastructural Facilities in PHC Centres in Borno State

Source of Variation	Sums of Square	Df	Mean Square	F	P
Between group (method type)	292.7	k-1 3-1=2	146.35	0.20	0.05
Within group	8577.04	N-k 15-3=12	714.75		
Total	8869.74				

Source: Field work 2019.

Decision: Based on Table 1, the f statistic at 2 and 12 degrees of freedom and at the 0.05 level of significance = 5.991 and 21.026. The calculated value of $f = 0.20$ and is higher than the critical (table) value, therefore, the null hypothesis is rejected and it is then concluded that there is a significant difference in the level of availability of drugs in PHC Facilities. The implication of the finding is that, if drugs are not provided for women of reproductive age, the rate of maternal mortality will keep on increasing because of complications and related diseases affecting women during pregnancy and delivery.

CONCLUSIONS AND RECOMMENDATIONS

The study also concludes that the infrastructural facilities in Primary Healthcare Centres are not adequate in Biu and Kaga Local Government Areas as MMC to reduce maternal mortality among women of reproductive age.

The study recommends that the infrastructural facilities, which is one of the constraints to the implementation of maternal healthcare policy in this study should be properly addressed by the Government to reduce the maternal mortality in the state. This can be reduced by improving adequacy in the infrastructural facilities and make sure that these infrastructures are utilized well and monitored to reduce maternal mortality in the State.

REFERENCES

1. Benneth, VR & Brown, LK (1999). *Myles Textbook for Midwives, 13th edition*. Livingstone: Edinburgh.
- Abdulraheem, B. I., Olapipo, A. R., & Amodu, M. O. (2012). *Primary health care services in Nigeria: Critical issues and strategies for enhancing the use by the rural communities*. *Journal of public health and epidemiology*, 4(1), 5–13.

2. Cooke, J.G & Tahir, F. (2013). *Maternal Health in Nigeria with Leadership, Progress is Possible. A Report of the Centre for Strategic and International Studies (CSIS) Global Health Policy Center. Washington, DC 20006. www.csis.org.*
3. Darmstadt, G.L., Bhutta, Z.A. & Consens, S. (2005). *Evidence-based, Cost-effective Interventions: How many newborn babies and mothers can we save? Lancet 2005; 365:977–88*
4. Ogunipe, S. (2011). "World Bank sees adoption of Ondo State's Abiye Project as Model for Africa", *Grassroots Vanguard on line, http://www.vanguardngr.com posted July 19, 2011 and accessed March, 20, 2013.*
5. R. V. Yampolskiy and A. EL-Barkouky, "Wisdom of Artificial Crowds Algorithm for Solving NP-Hard Problems," *International Journal of Bio-Inspired Computation (IJBIC)*, vol. 3(6), pp. 358–369, 2011.
6. Thaddeus S. & Maine D. (1994). "Too Far to Walk: Maternal Mortality in Context. In *Social Science Medicine*." <http://www.ncbi.nlm.nih.gov>.
7. *World Bank 2002 Integrating gender into the World Bank's work: A strategy for action. Geneva, World Bank.*
8. Yaukey, D. & Anderson, D. L. (2001) *Demography: The Study of Human Population. (Second Edition), Wave Land Press Inc. 13.*
9. Andersen RM: *Revisiting the behavioural model and access to medical care: Does it matter? (1995), 36:1–10.*
10. Dror, Y. (1964). *Muddling through "Science" or Inertia? In Public Administration Review, Vol. XXIV, No 3.*
11. Etzioni, A. (1967). *Mixed Scanning: A Third Approach to Decision Making. In Public Administration Review 275(Dec), pp. 385–92.*
12. Federal Ministry of Health (2019) Filippi V, Richard F, Lange I, Ouattara F: *Identifying barriers from home to the appropriate hospital through near-miss audits in developing countries. Best Practice Resources Clinic Obstetric Gynecology (2009), 23:389–400.*
13. Forester, J. (1984). "Bounded Rationality and the Politics of Muddling Through." *Public Administration Review 44: 23–31.*
14. Fox, W. (2006). *Public Policy in democratic societies. In A Guide to Managing Public Policy, Fox, W., Bayat, M.S., Ferreira, I.W. (Eds.), Juta & Co Ltd.*
15. Grandori, A. (1984). "A Prescriptive Contingency View of Organizational Decision Making." *Administrative Science Quarterly 29:192–209.*
16. Hanekom, S.X., (1987). *Public policy: Framework and instrument for action. Johannesburg: International Thomson.*
17. Ifah, S.S. (1996): *Introduction to social statistics. University of Maiduguri press*
18. I.S. Yar'zever (2013). *Knowledge and Barriers in utilization of Maternal Health Care Services in Kano State, Northern Nigeria. Published by European Centre for Research Training and Development UK (www.ea-journals.org).*

19. Kukawa M.B., Mairiga A.G. & Usman H.A. (2009). *Community Perspective of maternal Mortality: Experience from Konduga Local Government Area, Borno State, Nigeria. Annals of African Medicine. 2007; 6(3):109–114. Retrieved 2009–10–03.*
20. Lindblom, C.E. (1959). *The Science of "Muddling Through". In Public Administration Review, Vol. 19, No. 2. pp. 79–88.*
21. Lustick, I. (1980). "Explaining the Variable Utility of Disjointed Incrementalism: Four Propositions." *American Political Science Review* 74: 342–353.
22. *National Population Commission (Nigeria), National Population census (2006). Nigeria Demographic and Health Survey (2013).*
23. Pava, C. 1986. "New Strategies of Systems Change: Reclaiming Nonsynoptic Methods." *Human Relations* 39: 615–633.
24. Posasac, E.J. & Carey, R.G., (1992), *Program Evaluation: Methods and Case studies. Fourth Edition. Englewood cliffs, New Jersey: Prentice Hall.*
25. Say L, Chou D, Gemmill A, Tunçalp Ö, Moller AB, Daniels JD, et al. *Global Causes of Maternal Death: A WHO Systematic Analysis. Lancet Global Health. 2014;2(6): e323–e333.*
26. *Trends in maternal mortality: 2000 to 2017: estimates by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division. Geneva: World Health Organization, 2019. World Health Organization (WH), 2014.*