An Evaluation of Health Interventions of Maternal Neonatal Child Mortality Reduction in Kaltungo Local Government Area of Gombe State

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Certification

This is to certify that, this research project was carried out by RONAH YARO with matriculation number LCU/PG/001125 and has been read and approved as meeting the requirements of the Department of Public Health, Faculty of Basic and Applied Science, Lead City University Ibadan, Nigeria for the award of Masters in Public Health.

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Dedication

This Project is dedicated to Almighty God for His mercy and grace upon my life and to my family members.

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Firstly, I want to thank the Almighty God for the gift of life without Him I would not be able to do anything meaningful in life.

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Abstract

Maternal neonatal and child morbidity and mortality indices in Nigeria have been alarming particularly in Gombe state situated in the north East region. The maternal mortality rate in Gombe is 1002/100,000 live birth and infant mortality rate is 20.7/1000 live birth and under-five mortality is 104/1000. The primary Health care system is reduction of this indices through access to health care specific interventions. This study was therefore aimed to evaluate the effectiveness of interventions parameters. The study is descriptive non-randomised, non-controlled outcome evaluation of intervention packages rendered through the PHCs in Kaltungo LGA. A structured questionnaire in the form of an assessment sheet study instrument was used to collect data on documented intervention specific to maternal neonatal and child mortality control and it was measured against the outcome over a period of ten years (10) years intervention period (2012-2021). That out of the eight (8) interventions are: Malaria control, administration of Haematinics, Prevention/Immunization, Post-Natal care, Focus Ante Natal Care, Breast feedings Infection Control, and complimentary Feeding were correlated with outcome Morbidity and mortality and inference were drawn from statistical analysis as effective and non- effective. The documented measurable intervention packages inputs (in form of number of pregnant women, neonates and children that benefited from each category of the intervention) were correlated against the documented measurable outcomes (in form of number of deaths recorded that are specific to the categories of the intervention packages). The results show that of the eight (8) sets of interventions/outcomes for all the PHCs at level of significance of 0.05, only two intervention types (malaria control – p-value = 0.015 and administration of haemotonics – p-alue = 0.036), equivalent to 25% of total intervention sets are signinficant enough to be regarded as effective in reducing maternal mortality. In other words, all intervention packages for reduting Perinatal mortality, neonatal mortality and under 5 mortality are not significantly effective to reduce number of deaths.

CHAPTER ONE

INTRODUCTION

1.0 Background of the Study

Children and women who are close to having children are certainly the most disadvantaged demographics in our society since they are often more susceptible to the negative impacts of the majority of prevalent health issues[1]. The case is not any different in Nigeria as it features a maternal death rate (MMR) of approximately 580 deaths out of 100,000 actual births. More so it's expected to have new born mortality rates of 69 per 1,000 live births and children younger than 5 years mortality rates of 128 per 1,000 live births. The effects of pregnant women's poor health are much more severe in northern Nigeria, where the MMR is thought to be above 1000 fatalities per 100,000 live births.

Recent studies on Nigeria's sectoral maternal child and neonates' health conditions reveals a more worrisome health indices in some parts of the country: In the northern part of Nigeria for instance estimates that the maternal mortality rate in rural regions is 828 deaths per 100,000 live births, compared to 351 deaths per 100,000 live births in urban areas[2].

Gombe is one of the states with worse state maternal neonate and child health (with indices that is worse than the Nation's average), with mothers death rate of 1002/100,000 live births and an infant death rate of 20.7/1000 live births, an under5 mortality rate of 104/1000[3].

There is no gain saying that he health status of the mothers as well as that of children are of immense important to any nation. It is in the recognition of this that the United Nations adopted specific goals 2, 3, 4 and 5 in its Millennium Summit in 2000. Its Millennium

[1] Roelen and Sabates-Wheeler, "A Child-Sensitive Approach to Social Protection: Serving Practical and Strategic Needs."
[2] Lassi, Kumar, and Bhutta, "Community-Based Care to Improve Maternal, Newborn, and Child Health."
[3] "GOMBE STATE GOVERNMENT STRATEGIC HEALTH DEVELOPMENT PLAN Gombe State Ministry of Health March 2010 Table of Contents."

Development Goals hinges on the wellbeing of mothers and children[4]. The main focus of the nation's approach at the grassroot level is cantered at provision of health care programs and services to vulnerable communities in primary health care. This is basically introduced to cater for the most basic health needs that pertains to the mothers as well as children in the society[5].

An effective and efficient MCH Programmes for covering numerous health care needs of maternal, children and neonates are only implementable via a functional Primary Health Care system (PHCs) to if the needed goals must be achieved. The Primary Health Centres (PHC), which are typically built close to rural areas, are designed to carry out a variety of programs targeted at bringing down morbidity and death rates to a manageable level. In a similar vein, Only through active and generally functional PHCs can an integrated health care program for mothers and children—which includes vaccination, prenatal and post - natal care care, access to contraception, management of poor nutrition, early detection and treatment of disease, supply of safe water for drinking, and effective waste management—reach the target population and accomplish the desired goals4 Oh, uh. In get to deal with three delays the truth that prevent women via obtaining appropriate maternal medical care, plenty of studies proposed increasing the use of skilled birth being (SBA), notably due to better primary medical care(PHC). Because Nigeria has over thirtyfour thousand people primary health centres (PHCs), which provide care to all hospital wards and hard-to-reach places. Therefore, it is likely that enhancing PHC accessibility, availability, affordability, and service quality would be necessary to reduce Nigeria's high rate of new born and maternal mortality[5].

Primary healthcare, which serves the majority of the underserved rural population in the country—which accounts for more than 60% of the total population and is the level of treatment that is closest to the communities as a whole, is created to meet their most pressing

[4] "General Assembly President Says Millennium Summit Declaration 'one of The Most Important Document of our Time' Highlights Brahimi Report, New Scale of Assessments As Items Dominating Discussion During Fifty-Fifth Session | Meetings Coverage and Press Releases."
[5] Aigbiremolen et al., "Primary Health Care in Nigeria: From Conceptualization to Implementation."

medical prerequisites PHC is mostly applied through services. supplied through home visits and primary health centres. The minimum service requirements for PHC, which are particularly connected to these services, are outlined by WHO/UNICEF Alma-Ata Public statement on Primary Health Care of 1978[6]. Given the foregoing, it is safe to say that a program integrated into the operational structure and operations of primary health care will be able to reach a larger proportion of the country's population.

Additionally, any nation's primary healthcare system has a crucial duty to provide for the health of mothers and children[7]. The effectiveness and sufficiency of Primary Health Care infrastructure with a well-trained, motivated, and committed work force have a substantial impact on the quality of maternal and child health care and the amount of its coverage.

Any flaw in the primary healthcare system brought on by difficulties in its implementation will also have an impact on a nation's mother and child health outcomes.

Unquestionably, it is crucial to emphasize at this point that the high rates of maternal and infant mortality in poor nations, particularly in Nigeria, are an indication that the primary health care system may be underdeveloped and face certain difficulties[8]. Maternal death rates in Nigeria are still relatively high when compared to the average for the area and other affluent nations, at 350 per 100,000 and 120 per 1,000 live births, respectively.

A multiplier effect of the multiple irregularities experienced in the Primary Health Care system is this high mother and infant mortality[8]. Any nation's maternal and infant mortality rates may be lowered with the implementation of a primary healthcare system that has the bare minimum of infrastructure and is staffed by people who are well-trained and dedicated to their jobs.

[6] WHO, "Primary Health Care Systems (Primasys)."
[7] Adefolarin and Arulogun, "Need Assessment for Health Education Service Provision on Maternal Depression Among Primary Health Care Service Providers."

There are various degrees of evaluating a person's health, according to a review of the literature.

However, the experts concur on the Donabedian-originally proposed three primary levels (structure, process, and outcome)[8]. The WHO states that the structure-level components of the evaluation are made up of the resources, such as health personnel, facilities, and equipment. The personnel and equipment patterns across the centres varied significantly, according to studies carried out in India in 1966, Bahrain, Egypt, and Yemen in 1981. PHC may be unable to reach its objective due to a lack of sufficient resources.

On the other side, "process" evaluation includes evaluations of how resources are applied. It entails an evaluation of the style of communication between patients and other healthcare professionals, the degree to which care goals have been met, the particular technique or procedures used, and coordination amongst the team's medical members. However, research looking into "process" evaluation tended to focus on one or more process elements as well as the interaction between the patient and the medical staff.

According to Grundy and Craventein, outcome evaluation represents healthcare quality more precisely than process measures. The outcome approach takes into account factors that affect health, such as patient satisfaction, morbidity, and death rates.

The goal of this study is to evaluate the effectiveness of Basic Health Care (PHC) intervention packages in reducing Maternal Neonatal and Child Mortality in primary healthcare settings in the Kaltungo Local Government Area of Gombe State. We describe the technique for selecting the specific PHC intervention packages in the trial in order to lower maternal neonatal and child mortality. We also outline the technique used to assess how PHC intervention packages in Gombe State's Kaltungo Local Government Area affected indices of maternal, neonatal, and child mortality.

[8] Donabedian and Health, “The Quality of Care How Can It Be Assessed?”

1.2 Statement of the Problem

Since the early 1990s, Nigeria has seen widespread issues with poor mother And child health, too. The truth that Sustainable Creation Goals are established on several modern reviews on maternal, neonatal and children health(MNCH) and mortality, however, many broad array from interventions have really been implement within the previous couple of years in the PHC level to make sure the truth that Nigeria is within track to encounter these goals. The Gombe state from Nigeria has one particular of the worst type of maternal and new born mortality rates in the world . There are 43 innovative homes in the area born deaths per 1,000 live births, 260 children per 1,000, and 1549 mothers per 100,000[3].

Maternal, neonatal, and child health issues are among those being addressed in Gombe state through active engagement of all levels of government in health programs in order to achieve the MDGs, with a focus on objectives 4 and 5[9].

The disturbingly high MNC death rate suggests that despite the ongoing administration of intervention packages in PHCs, it is unclear if these packages are successful in lowering MNCH mortality in the research area.[10]. Therefore, the purpose of this study project is to evaluate the efficacy of PHC packages for MNCH at the primary healthcare facilities of Kaltungo Local Government Area in Gombe State.

1.3 Aim and Objectives of the Study

This study's main goal is to evaluate the success of Primary Health Care (PHC) intervention programs in lowering maternal, perinatal, and pediatric mortality in PHC facilities in Kaltungo Local Government Area, Gombe State.

The specific objectives are:

[9] "GOMBE STATE GOVERNMENT STRATEGIC HEALTH DEVELOPMENT PLAN Gombe State Ministry of Health March 2010 Table of Contents."
[10] Abera, "Effect of Community Level Intervention on Maternal Health Care Utilization."

1. To identify the different PHC intervention packages for lowering maternal, neonatal, and child mortality in Kaltungo Local Government Area of Gombe State's Primary Health Centres.

2. To assess the efficiency of various PHC intervention packages in terms of health outcomes over time on maternal, neonatal, and child mortality indicators in primary healthcare facilities in the Kaltungo Local Government Area of Gombe State.

1.4 Research Questions

1. What are the different intervention plans for lowering maternal, neonatal, and child mortality in Kaltungo Local Government Area of Gombe State's Primary Health Care Centers?

2. How successful are the intervention programs on the indices of maternal, neonatal, and child mortality in the primary healthcare facilities of Kaltungo Local Government Area in Gombe State?

1.5 Hypothesis of the study

1. Null Hypothesis: There is significant effect of PHC intervention programs on maternal neonates and child mortality in primary health centres of Kaltungo Local Government of Gombe State.

2. Alternative Hypothesis: There is no significant effect of PHC intervention programs on maternal neonates and child mortality in primary health centres of Kaltungo Local Government of Gombe State.

1.6 Significance of the Study

The majority of those publications are generic in character, despite the fact that PHC treatments have multiple recorded reports aimed at reducing the prevalence of MNCH mortality and morbidity. Additionally, there aren't many studies available that examine

the efficacy of specific intervention packages in the research area. Consequently, the following are important implications of this study:

1. This study evaluate the different available intervention packages in reduction of MNC mortality to be used by researchers, health practitioners, intervention partners and other stakeholders.

2. It has the potential to assess the cost effectiveness of the intervention programs and inference could be drawn of such could be replaced or improved upon in other local Government.

1.7 Scope of the study

This study covers an assessment of effectiveness of intervention packages rendered in PHC Centres in Kaltungo Local Government Area (LGA). In this study, five (5) documented intervention packages data specific in addressing the menace of high MCH mortality will be collected and analysed to determine the effectiveness the intervention indicators on MNC mortality. However, Interventions rendered in the PHCs whose objectives are not directly or indirectly linked to reduction of MCN mortality are however outside the scope of this study.

1.8 Limitation of the study

This study is limited to assessment of effectiveness of outcomes of interventions rendered in PHCs in Kaltungo LGA area that are specific to reduction of MNC mortality in the study area. Other types of PHC evaluations (Structural evaluation and Process evaluation) are outside the scope of this study work.

1.9 Term Operational Definitions

Child Health: The care and treatment of youngsters

Child health care is sometimes defined as the medical services that are given by health care experts to children who are ill or infected.

Community: The individuals who reside in a certain location or who are regarded as a single entity because of their shared hobbies, ethnicity, or nationality.

Effectiveness: The level of a thing's effectiveness. How effectively a certain therapy or medication performs in actual clinical settings as opposed to under strictly controlled laboratory circumstances

Health: Not merely the absence of sickness or infirmity, health may also refer to a condition of optimal physical, mental, and social well-being.

Primary healthcare is a crucial component of the nation's healthcare system. It serves as the main point of contact between individuals, families, and thus the community.

Neonatal: The first four weeks of a child's life are referred to as the time of life. Changes are happening now extremely quickly. Several crucial occurrences may take place at this time:

Maternal: When describing something that has to do with a baby's mother, the term "maternal" is used.

Mortality: The condition of being susceptible to death

Maternal Mortality: This term describes fatalities brought on by difficulties during pregnancy or delivery.

The care you receive from medical experts during your pregnancy is called **antenatal care.** It's also referred to as maternity care or prenatal care.

outcomes.

Antenatal Care Coverage: Protection for antenatal aligners a indication of use of and use of prenatal services. Women that are pregnant are educated about safe childbirth (facility- based

births), crisis during pregnancy, as well as how to handle them. This includes screening for health and socioeconomic problems that increase the possibility of certain bad pregnancy results.

A Rural Health Unit (RHU) or hospital that capable of performing emergency obstetrics and new born procedures.

The infant mortality rate is the proportion of new born that pass away before becoming one year old for every 1,000 live births in a given year. It is a significant factor in the death rate for children under five.

Integrated MNCHN Service is a collection of services for women and kids that includes a variety of clinical and public health management techniques that are known to be efficient and affordable. lowering the likelihood of, and severity of, maternal and newborn mortality risks, as well as preventing their root causes, which can be consistently provided for by the health system.

The Maternal Mortality Ratio (MMR) measures the proportion of women who die per 100,000 live births from any cause related to or worsened by pregnancy or its treatment (apart from accidental or incidental causes) during pregnancy, delivery, or within 42 days following termination of pregnancy.

Maternal, Neonatal and Child Health and Nutrition (MNCHN) is a collection of facilities and providers working within a provincial and (certificated) city health system that provides comprehensive MNCHN services in a coordinated way, as well as the supplementary financial, communication, and transportation systems.

The ratio of infant deaths within the first 28 days of life to every 1000 live births in a certain time period is referred to as the neonatal mortality rate. It acts as a sign of maternal health.

The term "service delivery gap" describes the "weak links" in the chain of MNCHN service providers that considerably increase maternal and new born fatalities in a given area.

The "service usage gap" refers to obstacles to receiving medical care, and it significantly worsens health outcomes.

An expert in managing pregnancy and childbirth, including the proper management of potential difficulties, is referred to as a skilled health professional.

Traditional Birth Attendants (TBAs) are self-employed, non-trained community-based caregivers that deliver care conventionally during pregnancy labour, and the postpartum period. As participants in the official health system, they are the community-based Women's Health Teams and serve as advocates for skilled professional care.

Endnotes

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CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Conceptual Studies

2.1.1 General Review

Notably in many sub-Saharan African nations, the high rate of maternal, neonatal, and infant death continues to be a significant problem for global health. The largest average maternal mortality rates (MMRs) in the continent, for instance, are found in 18 other sub-Saharan nations, such Sierra Leone (1360/100000 live births). MMRs in African countries, including Nigeria, are thought to range from 500 to 9993. Due to the region's poor health systems, which are made worse by, among other things, conflicts, disasters, and forced relocation, mothers and children are more at danger of dying there[11].

Despite these advancements, more than 500,000 women still pass either during pregnancy or within a few weeks after giving birth, with the majority of them residing in developing nations.[13]

Today, more women and kids live than ever before. However, despite significant advances every 11 seconds, somewhere in the globe, a pregnant woman or a baby passes away; these fatalities may be prevented with the use of specialized care before, during, and after childbirth. [13].

About 75% of all maternal fatalities are caused by the following four main issues: acute bleeding, primarily bleeding during delivery.

Seventy-five percent of all maternal fatalities are attributable to the following four main issues: infections; acute bleeding, mainly during delivery; acute bleeding (usually after childbirth)

- increased BP during pregnancy (pre-eclampsia and eclampsia)
- issues associated to delivery, including unsafe abortions.

[11] Say et al., "Global Causes of Maternal Death: A WHO Systematic Analysis."

The remaining ones are brought on by or connected to chronic illnesses like heart disease or diabetes, as well as infections like malaria.[12].

Many of these fatalities take place in remote, neglected communities in the area, especially among illiterate and uneducated women. It is becoming more and more clear that the high rate of maternal and infant mortality in many regions of sub-Saharan Africa is a result of socially disadvantaged women's limited access to high-quality healthcare. Evidence from Demographic and Health Surveys in sub-Saharan African nations suggests that a significant number of pregnant women with no formal education and those with only primary education give birth with unskilled traditional birth attendants instead of with skilled attendants in the formal health system, exposing them to higher risks of maternal and neonatal morbidity and mortality. [13].

2.1.2 Primary Health Care

Primary healthcare is a type of necessary medical treatment that is widely accessible to individuals and families in the neighbourhood via full involvement, at a cost that the society and the nation can afford to sustain, and in an atmosphere of self-reliance and self-determination. It is founded on useful, ethically sound scientific principles and contemporary technologies[14]

PHC is a crucial component of the nation's healthcare system and a focal point for the social and economic growth of every town. It is the first point of contact with the national health system for people, families, and communities as a whole. Despite being the first stage of a continuing healthcare process, PHC strives to provide healthcare services as close as possible to individuals, regardless of where they reside or work[4].

[12] Lassi et al., "The Interconnections between Maternal and Newborn Health – Evidence and Implications for Policy."
[13] Sakuma et al., "Determinants of Continuum of Care for Maternal, Newborn, and Child Health Services in Rural Khammouane, Lao PDR."
[14] Sanders, Schaay, and Mohamed, "Primary Health Care."

The Federal, State, and Local Government levels make up the three tiers of government in theThe Federal Republic of Nigeria Similar to this, the health system in Nigeria offers preventive care at the local levels and secondary treatment at the state level.

at the Federal level, including secondary and tertiary care. The primary point of interaction with the health care system for the majority of Nigerians is Primary Health Care (PHC), which is the cornerstone of the country's health policy. As a result, standards must be established in order to manage healthcare services effectively and provide high-quality MNCH care. According to the World Health Organization, establishing health standards has two main goals: to be a tool for managing health services and to work toward achieving the highest level of care[15]. primary, secondary, and tertiary healthcare at the federal level. Primary Health Care (PHC), the cornerstone of the nation's health strategy, is the main point of contact for the majority of Nigerians with the healthcare system. As a result, in order to efficiently manage health services and achieve high standards of care for MNCH, standards must be set. The World Health Organization states that the purpose of setting health standards is to serve as a tool in the management of healthcare services and to strive for the highest standard of care.

The Ward Minimum Health Care Package implements the following health measures. The following would be provided in order to facilitate the delivery of health services at the ward level: Control of communicable diseases (including HIV/AIDS, TB, malaria, and STIs) The following are listed in order of importance: (b) Child Survival (c) Maternal and Neonatal Care (d) Nutrition (e) Preventing Non-Communicable Diseases (f) Health Education and Community Mobilization.

2.1.2.1 PHC Infrastructure: Facilities and Equipment

[15] WHO, "Primary Health Care Systems (Primasys)."

Health facilities are stationary or portable buildings where a range of health professionals offer a range of services. The NPHCDA's creation and Nigeria's 30,000 PHC facilities present a chance for PHC to be implemented successfully in Nigeria. In order to develop Nigeria's healthcare system, governments must make the most of the potential afforded by current PHC facilities to make PHC sustainable PHC facilities would operate more efficiently effective if local governments were replaced by federal and state governments in charge of their administration.[16].

These healthcare facilities are categorized and given different titles based on the design of the facility, the quantity of staff, the equipment available, the services provided, and the ownership. Over the years, various names for these facilities have been employed the following three institutional kinds as recognized: (1) Health Post (2) Primary Health Clinic and (3) Primary Health Care Centers[17]. the proper physical buildings, locations, and equipment comprising pharmacies, medical offices, clinics, primary care facilities, maternity homes, health posts, and broader medical facilities. The Ward Health System does list permanent infrastructure, though. To lower maternal, neonatal, and paediatric mortality in these three main categories, I will make use of the basic healthcare resources provided by the Kaltungo local government.

One arena that has consistently promoted PHC development and implementation is the International Conference on Primary Health Care.

Even when health care systems are extended, there may still be a lack of resources or facilities may be inconvenient for expanding segments of the population. Mortality and morbidity among expectant mothers, newborns, and toddlers continue to be major issues, particularly in rural regions. People's health is impacted by a variety of factors, including political turmoil, economic difficulties, cultural barriers, and subpar educational systems.

[16] Aregbeshola and Khan, "Primary Health Care in Nigeria: 24 Years after Olikoye Ransome-Kuti's Leadership," March 13, 2017.
[17] Primary, Care, and Agency, "MINIMUM STANDARDS FOR."

A successful community is required to improve routine maternal, neonatal, and child health (RMNCH).

The importance of community-based platforms will increase as PHC works to accelerate various initiatives to achieve the Sustainable Development Goals. Primary care is crucial for integrating personal health care, performing public health duties, and facilitating ongoing hospital referrals since it is the first point of contact between the people and the health-care system[18].The Within the next 15 years, significant SDG objectives including reducing inequality and assisting excluded populations must be achieved. There must be remedies for this. 40 years have passed since the Alma Ata "health for all" stance.

WHO members publicly accepted primary healthcare as their nation's national health strategy in 1978. The Alma-Ata Declaration placed a strong emphasis on the value of patient involvement in healthcare. In developing countries, women often give birth, recover from childbirth, and go through the postpartum period in their communities rather than in hospitals. Improving mother and child health should engage the community in order to meet with the Fourth Article of the Declaration, which stated that "people have the right and obligation to participate individually and collectively in the planning and execution of their health care."

Furthermore,[19] In order to tackle this, the World Health Organization has highly suggested Primary Health Care (PHC) as a means of increasing access for women to the level of care required to treat the most of mild ailments that result in easily preventable morbidity and mortality in pregnant women, young parents, and children, the statement claims. People can acquire evidence-based care through primary healthcare by using the government-run healthcare system. To lower morbidity and mortality, promotional, preventative, and curative care are necessary. Primary healthcare is a type of accessible, cost-efficient, and economical medical treatment. It requires, at the at least, teaching women about current health concerns

[18] Chotchoungchatchai et al., "Primary Health Care and Sustainable Development Goals."
[19] Smith et al., "Misoprostol for Postpartum Hemorrhage Prevention at Home Birth: An Integrative Review of Global Implementation Experience to Date."

and how to prevent and control them, encouraging enough food supplies and proper nutrition, offering safe water and essential sanitation, and ensuring the health of both mothers and their offspring. These nations make PHC the core of their healthcare systems in an effort to reach the most marginalized individuals. For instance, Nigeria has made significant progress in providing primary healthcare through a comprehensive health extension program that, especially for remote populations, has had a remarkable impact on maternal and child health. A PHC considerably decreased childhood mortality when compared to areas without one in the 1980s, according to findings from the Gambia.

The formation of Primary Health Care Development Agencies in Nigeria's 36 States was recommended, and nine indicators were identified to determine the strategy's effectiveness. If implemented properly, the "Primary Health Care Under One Roof (PHCUOR)" initiative might considerably improve PHC's ability to effectively provide mother and child health care to disadvantaged populations in Nigeria.[20]. 2010 saw the introduction of the Sustainable Development Goal 3 and Universal Health Coverage as policy by the Federal Ministry of Health of Nigeria (FMHN) via the National Primary Health Care Development Agency (NPHCDA)[21]. The PHCUOR was accepted as a new paradigm by the NPHCDA during the National Council on Health's 54th session in 2011. There is no proof that PHC is successful in enhancing prenatal, new-born, and child health in sub-Saharan Africa, a region with the greatest prevalence of mother and child mortality and morbidity. it holds. The best methods for creating and executing PHC strategies to enable them to address the health needs of women and children are also poorly understood[22].

[20] "Primary Health Care Under One Roof - An Overview."
[21] Ugwu et al., "Primary Health Care under One Roof: Knowledge and Predictors among Primary Health Care Workers in Enugu State, South East, Nigeria."
[22] G, "Maternal Health."

A few systematic reviews on the most effective PHC delivery methods in sub-Saharan Africa have been done, but their scope was constrained. For illustration [23] analyzed research on the success of community-based initiatives in sub-Saharan Africa. Their study had a limited focus, focusing primarily on the health of children and three countries in the area. Benin, Ghana, and the Gambia Communities and families may be encouraged to adopt healthy habits and seek out care. Community-based interventions may also recruit and educate people of the local community to assist certified health care professionals in providing care, including diagnosis, treatment, and referral. however other approaches are used. PHC, TBAs, health campaigns, school-based health promotion, home-based care, and even neighborhood franchise-operated clinics are just a few of the varied methods that come under these broad categories.[24].

2.1.3 Health Sector Overview Structure

The 774 Local Government Areas (LGA) of Nigeria, which encompass the country's 36 states and Federal Capital Territory, are home to more than 10,000 health facilities, both officially and privately held (FCT). The public health care system is represented by the three levels of government, with local government entities managing primary care, the states handling secondary care, and the federal government handling tertiary care. Low literacy rates, a shortage of primary health care (PHC) facilities, an inadequate and unbalanced distribution of trained human resources for health, poor government support of the health sector, and insecurity are all problems. significant obstacles impeding the delivery of public health services and development in Nigeria.[25.]

[23] Okereke et al., "Reducing Maternal and Newborn Mortality in Nigeria—a Qualitative Study of Stakeholders' Perceptions about the Performance of Community Health Workers and the Introduction of Community Midwifery at Primary Healthcare Level."
[24] Medhanyie et al., "The Role of Health Extension Workers in Improving Utilization of Maternal Health Services in Rural Areas in Ethiopia: A Cross Sectional Study."
[25] Koce, Randhawa, and Ochieng, "Understanding Healthcare Self-Referral in Nigeria from the Service Users' Perspective: A Qualitative Study of Niger State."

Nigeria is one of the developing countries coping with the "double burden" of growing non-communicable illness prevalence and chronically high communicable disease prevalence[26]. The bulk of the Sustainable Development Goals (SDGs) for health are not on pace to be achieved by Nigeria by 2030, and significant health indicators including maternal and infant mortality are worse than average for Sub-Saharan Africa. Every single day, Nigeria loses approximately 2,300 children under the age of five, and 1454 of them were female. As a result, the country ranks second in the world in terms of its contribution to the rates of maternal and r-five mortality[28]

Infectious disorders such as malaria, pneumonia, diarrhea, measles, and HIV/AIDS are to blame for more than 70% of the anticipated one million under-five fatalities in Nigeria. Malaria, which is also responsible for 60% of outpatient visits to medical institutions and 30% of child mortality, is Nigeria's worst public health problem. Although the quality, availability, and accessibility of healthcare services continue to present substantial challenges, infant mortality rates and under-five death rates have continuously but slowly reduced (from 127 per 1,000 live births in 1990 to 70 in 2016). (from 214 per 1,000 live births in 1990 to 120 in 2016). Even though mortality rates are dropping, Nigeria is not on track to reach SDG 3[27].

2.1.4 Community Based Care

Community-based care (CBC) is a strategy employed by health programs to extend curative and preventive healthcare services outside of medical facilities and even into individual homes. Despite the fact that there are many different approaches, community-based interventions may support families and communities in engaging in healthier behaviors and seeking care, in hiring and training local residents to assist skilled health care professionals, and in delivering services to the community such as identification, therapy, and referral.

[26] Meredith, Salameh, and Banks, "Intranasal Delivery of Proteins and Peptides in the Treatment of Neurodegenerative Diseases."
[27] Agunwa et al., "Determinants of Patterns of Maternal and Child Health Service Utilization in a Rural Community in South Eastern Nigeria."

These broad categories cover a variety of strategies, such as health school-based education traditional birth attendants (TBAs), residence care, and even neighborhood clinics run by franchisees[28] .

It is commonly accepted that communities should actively participate in enhancing their own health outcomes, and primary health care providers (PHCW) may play a crucial role in this process[29]Since many communities now understand how important PHCWs can be in achieving child survival objectives, these communities must think about expanding their PHCW health programs. For instance, Ethiopia has educated hundreds of local health extension personnel since 2003 with an emphasis on maternity, new born, and child health.

Furthermore,[30] suggested that a continuum of care for low-resource populations should include community-based therapy. The health and wellbeing of women, infants, and children are intricately linked. If their mothers are malnourished, sickly, or given poor care, their newborns are more likely to grow sick and pass away before their due date. In low-income areas, the probability that a newborn won't survive if a mother dies after giving birth rises significantly.

For women's and children's health to keep improving, it is essential that they have access to high-quality services from gestation and childbearing through delivery, the postpartum period, and beyond. era, as well as childhood. The human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS), sexually transmitted infections (STIs), malaria, malnutrition, complications during labor and childbirth, and inadequate newborn and child care are all challenges that can be addressed via vertical programs. The

[28] "Manson's Tropical Diseases E-Book - Jeremy Farrar, Peter Hotez, Thomas Junghanss, Gagandeep Kang, David Lalloo, Nicholas J. White - Google Books."
[29] Aregbeshola and Khan, "Primary Health Care in Nigeria: 24 Years after Olikoye Ransome-Kuti's Leadership," March 2017.
[30] Perry et al., "Comprehensive Review of the Evidence Regarding the Effectiveness of Community–Based Primary Health Care in Improving Maternal, Neonatal and Child Health: 6. Strategies Used by Effective Projects."

best results will come from addressing these issues through programs that concentrate on maternal, neonatal, and child health care as a whole. From conception to delivery and child health, care coordination may significantly improve the health and welfare of women. enhance the health outcomes for future pregnancies and births of children[31]. A Community-based intervention is a public health approach that is being developed to deal with diseases and issues that may affect the mother and child. If necessary, a referral is made for additional treatments.

2.1.5 Community Based Health Care Services

The expansion of service delivery at the local level is possible in a variety of ways. This necessitates coordinated change across a range of domains, including education and medication supply. Other health professionals' attitudes must change as community-based health workers' roles change. At the local level, a wide range of services are offered, particularly those that deal with NCDs. This raises a number of issues, including how many health professionals are needed to safely provide a range of specific services, how to strike a reasonable balance between preventive, curative, and promotional activities, and how to ensure that patients receive effective continuity of care as they move between different levels of the healthcare system. A realistic evaluation about referrals and the degree to which patients may access higher-level treatments is required, and the type and length of training must fit the skills to be learned[32].

More than just picking up a new skill, introducing services in new clinical settings might also change how various cadres interact. NCD services, for instance, differ from more conventional the ones relating to MCH and infectious diseases include that they frequently call for a very intricate chain of circumstances: referral for formal recognition at the

[31] Prost et al., "Women's Groups Practising Participatory Learning and Action to Improve Maternal and Newborn Health in Low-Resource Settings: A Systematic Review and Meta-Analysis."
[32] Ajay et al., "A Cluster-Randomized Controlled Trial to Evaluate the Effects of a Simplified Cardiovascular Management Program in Tibet, China and Haryana, India: Study Design and Rationale."

grassroots level diagnosis and initiating treatment, followed by ongoing community follow-up and sporadic facility-based medical visits. Sear Lanka, where a cadre of Community Health Nurses (CHN) will soon be launched, is an example of a new kind of community worker. These nurses will be based in hospitals and provide domiciliary (home-based) care for patients with NCDs while operating under the supervision of medical professionals. They will educate families on how to care for clients and follow it up on resistance development and non - compliance. The achievement of this current design depends on the building cooperation between the professional and the CHN, who will be given the chance to discover out how sick people are effectively manage their situations as part of their daily lives. This model is substantially different from an unconnected community health worker distant from general practitioners[33].

It might be difficult to change the services offered by the community-based health system. It is necessary to plan training for current community-based workers and their managers, and to alter the pre-service curriculum. The community may need additional medications as a result of the new services, which might set off a different series of financing, distribution, prescription, and dispensing events. It's also possible that the Essential Drugs List will need to be modified. Sometimes laws or policies need to be amended, for instance to change who is permitted to handle particular medical equipment [22].

Coordination of planning is necessary for these types of adjustments. However, as we have seen, community-based health services sometimes suffer from fragmentation and are even "invisible," which means that change frequently occurs by accident (for example, as a result of[34].

[33] Braun et al., "Community Health Workers and Mobile Technology: A Systematic Review of the Literature."
[34] Bradley et al., "Disrespectful Intrapartum Care during Facility-Based Delivery in Sub-Saharan Africa: A Qualitative Systematic Review and Thematic Synthesis of Women's Perceptions and Experiences."

2.1.5.1 Aims of Community Health Care Services

Community health centres, also known As community health services (CHSs), which can be found all over the state, they work to provide a wide range of services and health promotion initiatives to local populations, particularly for those that have the terrible wellbeing or are most at danger of experiencing it as well as the most urgent financial and social needs. The Community Health Program of the Ministry of Health provides funding to CHSs. Community health services, normal procedure, privately funded services, and other health and community services make up the majority of the primary health sector. nursing, counseling, dentistry, allied health, and health promotion are the main components of state-funded primary health care. Community health services are hard to describe since they encompass such a wide range of activities. Services[35]

The services provided are determined by the needs of the neighbourhood's citizens as individuals, families, and a community. The majority of funding for community health initiatives promotes flexibility in service provision and enables CHSs to develop care models that are tailored to the requirements of their local populations. However, some initiatives provide specific services to disadvantaged population groups. Disease control and prevention are given priority in community health care management, and health promotion with the goal of enhancing local inhabitants' health and wellbeing and relieving demand on the acute care healthcare system. [17].

• Furthermore, community health services promote active patient involvement in their own healthcare and team up with other primary healthcare professionals, like general practitioners (GPs), to deliver coordinated treatment. Additionally, they collaborate with other healthcare organizations and service providers to bridge service gaps, encouraging people and

[35] "Community Health Centres - Better Health Channel."

neighborhood organizations to take an active role in the center's operations like service planning, fundraising, and volunteer work.

Enhancing social and physical settings in the community by creating health care programs and activities. Promoting prevention of lifestyle-related diseases and conditions.

2.1.5.2 Services offered

Different community health services provide different services based on the requirements of the area. Examples of primary health care include counselling and support services.

- Health-promoting activities
- Nursing and medical assistance
- Dental wellness
- Allied health fields including audiology, dietetics, exercise physiology, speech therapy, and occupational therapy.
- One example of extra services and help is aged care services.
- Services for alcohol and drug rehabilitation
- Services for maternal and paediatric health; caregiver breaks.
- Mental health programs
- Adaptive services
- Outreach initiatives; Rehabilitation initiatives; Problem gambling initiatives
- Support for self-help

Accessible healthcare is offered through CHSs, especially to individuals with little financial resources. Services are available to all area inhabitants, regardless of their financial position.[37]. These costs can be discussed or negotiated and are determined by the client's financial capacity.

2.1.6 Quality of Care during Delivery

In order to improve maternal and infant health outcomes, institutional delivery is encouraged. The majority of births currently take place in hospitals around the world, while good coverage is not universal. Nigeria's institutional delivery coverage, which was 39 percent in 2018, is still subpar. Women frequently reported worries about a perceived lack of service quality as one of the reasons they did not give birth in a health institution. a synthesis of the Users' perceptions of care are influenced by the quality of the treatment provided and how they felt about the services they received, which in turn affects how they seek out health care[36].

Access to prompt and proper obstetric treatment is still crucial given that maternal problems are a possibility for all pregnant women. Healthcare organisations should consequently strive to enhance the quality of care provided to women during health services, including terms of the treatment's procedural quality and to safeguard women's fundamental human rights and the experience of receiving it[37].

The difficulties in defining and measuring the problem has made it difficult to address the subpar treatment experience. However, due to the descriptions of disdain and abuse by hospital staff, the investigation of the provision of quality care as it relates to women's experiences with or views of the treatment they received during health services has progressed recently[21]. These advancements enable comparisons to be made with the expected standard of care, and they identify areas for improvement where the care given falls short of those standards. Nigerian evidence is still hard to come by, though.

[36] Puett et al., "Protecting Child Health and Nutrition Status with Ready-to-Use Food in Addition to Food Assistance in Urban Chad: A Cost-Effectiveness Analysis."
[37] Alkenbrack et al., "Immunization Financing Assessment."

2.1.7 Community-Based Intervention Packages

According to data, the implementation of neighborhood intervention programs may reduce maternal and newborn mortality[38]

2.1.7.1 The intervention: Enhanced health care package (EHC)

- Diagnosis and treatment of any underlying or coexisting illnesses in pregnancy, including infections, anemia, and malaria.
- Early diagnosis and neonatal and pregnant mother monitoring Pre-eclampsia, hemorrhage, premature membrane rupture, and infection are particularly important to identify and treat during pregnancy.
- The administration of vitamin supplements, the use of long-lasting insecticide-treated nets, the administration of tetanus toxoid, immunization, deworming, iron and folic acid supplements, and intermittent preventative therapy (IPT) of malaria in pregnancy are all preventive measures (LLITNs)
- Developing a birth and emergency readiness strategy, vaccinating children all newborns and children under five who were born during the research period, including giving vitamin A at six months and once a year.
- providing weighing scales, collecting weights for all newborns, babies, children under five, and expectant mothers in the community and in medical facilities are some of the other steps that were taken (infant, adult).

• Rapid diagnostic tests are used to diagnose malaria in the community and in medical facilities.

• Hemoglobin estimate at facilities and in the community using Haemocue.

[38] Sensalire et al., "Saving Mothers, Giving Life Approach for Strengthening Health Systems to Reduce Maternal and Newborn Deaths in 7 Scale-up Districts in Northern Uganda."

Community-based care may enhance breastfeeding habits and raise the number of pregnant women who are referred to medical institutions for treatment of issues linked to their pregnancy as well as for other prenatal care services like iron and folic acid supplementation. According to11, results from a systematic review show that implementing community-based intervention care packages resulted in an increase in early breastfeeding rates of 94%, a 40% increase in referrals to medical facilities for pregnancy-related complications, and a45% increase in neonatal illness care seeking, which decreased both neonatal and maternal morbidity. The following are a few of the community-based intervention plans:

Malaria : Community-based programs could aid in the fight against malaria. Additionally, according to a review by13, receiving sulfadoxine-pyrimethamine intermittently as a preventive measure during pregnancy and administering it via community-based methods is linked to a larger mean (weighted mean difference: 108.6 grams; 95 percent confidence interval: 55.67-161.54). Insecticide-treated nets (ITNs) have seen a 116 percent increase in ownership and a 77% increase in usage, according to the analysis. The probability of giving birth to a newborn who was LBW was 23 percent lower when ITNs were used. The results of a meta-analysis, which confirm the findings of 11, show that ownership of an ITN has a significant impact on morbidity outcomes, such as parasitemia, malaria prevalence, and anemia. To reduce malaria-related mortality, a program called Roll Back Malaria was launched that compared birth weight with case management[39] An infected mother is likely to serve as a significant reservoir for Plasmodium infection during pregnancy, endangering both the mother's health and that of her growing fetus[41].

The number of yearly malaria deaths globally is higher now than it was in 1998, according to a graph provided at the most recent Roll Back Malaria board meeting in New York, which is

[39] Sekkides, “Putting Malaria in Pregnancy Back in the Spotlight.”

based on information from the World Health Reports 1999-2003[40] The most prevalent species of malaria in Africa, P. falciparum, is the main cause of the disease among pregnant women. Effective coordination, however, didn't start until the Division of Malaria and Vector Control was established in the early 1960s. The National Malaria Control Committee was established as the culmination of this process, and it prepared a five-year plan (1975–1981) with the primary goal of reducing the malaria load by 25% by that year. Strong partnership funding over the past ten years has enabled the Nigeria National Malaria Control Programmed (NMCP) to significantly scale up treatments like insecticide-treated mosquito nets (ITNs), rapid diagnostic tests (RDTs), and artemisinin-based combination medicines (ACTs). 2005,2007and 2010. The general public has access to more than 50 million ITNs, while health facilities all around the nation have received 70 million RDTs. The World Health Organization advises using insecticide-treated nets (ITNs) as one of the primary methods for preventing and controlling malaria. The nets lessen human interaction with mosquitoes, which significantly lowers the prevalence of malaria, the accompanying morbidity, and mortality, as well as the negative effects on fetuses in areas of high malaria transmission. The use of intermittent preventive therapy is a crucial intervention for preventing malaria and its consequences during pregnancy (IPT). This entails giving pregnant women a complete therapeutic course of antimalarial medication at regular prenatal appointments, regardless of whether they[41]. Pregnancy-related malaria infections can have [43].

Maternal and neonatal tetanus: The major public health issue of maternal and neonatal tetanus (MNT) persists. Twenty-one countries, mostly in Africa and Asia, did not have the illness eliminated by July 2015, despite the World Health Assembly's demand to do so in 1988. A handful of the validated countries with interruptions in services were also at risk of "relapsing," according to the WHO. The poorest and least educated communities are most

[40] Yamey, "Roll Back Malaria: A Failing Global Health Campaign: Only Increased Donor Support for Malaria Control Can Save It."
[41] Ali et al., "Impact of Insecticide Treated Nets and Intermittent Preventive Treatment in Reducing Malaria Morbidity among Pregnant Women in Gombe, Nigeria."

affected by MNT, which mostly endures in extremely difficult-to-access locations where service delivery is frequently impaired. In light of this, MNT is a potent indication of equality in the delivery of health care like immunization and other related services[42].

The disease continues to be a serious public health issue despite decades of efforts to manage and eradicate it, especially in rural regions with inadequate access to healthcare and among the poor uneducated populations, etc. It has been determined that factors contributing to the burden of neonatal tetanus in Nigeria include unfavorable cultural views, primal cord care, a lack of economic and decision-making empowerment of the target community, underutilization of prenatal care, non-immunization with tetanus toxoid vaccinations, a lack of government commitment to eliminating newborn tetanus, and Because it is highly common in rural locations with poor access to health care as well as among the disadvantaged and uneducated sectors of the population, maternal and neonatal tetanus (MNT) is often recognized as one of the important measures of fairness in the provision of health services. To stop MNT, bacterial spore contamination of wounds must be decreased by clean delivery[41],[44] ,[13].

Nutrition. There is evidence that community-based nutrition initiatives can improve health outcomes. For example, the Tamil Nadu Integrated Nutrition Program in India provided nutrition services that included deworming, vitamin supplementation, teaching on managing diarrhea and feeding, short-term supplementary feeding for starving children, and brief supplemental feeding for expectant mothers. Village women's clubs in a neighbouring state provided around 25% of the project's food needs; this arrangement helped local women earn more money and taught them how to prepare inexpensive weaning food[44]. A systemic evaluation of community-based attempts to promote child nutrition status by 32 found a correlation between nutrition education and an increase in height-for-age in both food-secure and food-insecure settings. According to the statistics, straightforward therapies like

[42] ZS, R, and ZA, "Community-Based Care to Improve Maternal, Newborn, and Child Health."

individual and group counseling can raise a woman's likelihood of exclusively nursing her child. It would be crucial to provide scientific proof assessment of the previously developed treatments in terms of volume, coverage, and efficacy in terms of developing MNCH interventions for Nigeria beyond 2015[43].

2.1.8 Maternal Health

The term "maternal health" describes the condition of women throughout pregnancy, childbirth, and the immediate postpartum period. To guarantee that women and their unborn children enjoy each stage, attain their highest level of health and well-being. Maternal death, as defined by the WHO, is the dying away of a woman while she is pregnant or six weeks after the end of her pregnancy owing to any reason connected to the pregnancy or its care, excluding unintentional causes. Because it has the potential to save the lives of millions of women who are of reproductive age, maternal health is a global priority. Maternal mortality is a problem in the majority of developing nations despite efforts to improve maternal health care services. Every[44.]

The most prevalent immediate causes of maternal mortality include excessive bleeding, infections, high blood pressure, botched abortions, and difficult deliveries. Maternal mortality is also influenced by indirect factors such anemia, malaria, and heart disease. One of the most crucial topics in public health for a long time has been maternal and child health (MCH). During the 1990s, the worldwide community made significant efforts to decrease the morbidity and mortality of new mothers and infants. Currently, there are both Millennium Development Goals (MDG) and Sustainable Development Goals (SDG) (MDG) that support

[43] Kana et al., "Maternal and Child Health Interventions in Nigeria: A Systematic Review of Published Studies from 1990 to 2014."
[44] Kifle et al., "Maternal Health Care Service Seeking Behaviors and Associated Factors among Women in Rural Haramaya District, Eastern Ethiopia: A Triangulated Community-Based Cross-Sectional Study."

the health and welfare of women and children are highlighted.[45] The first major measures for improvement were enhancing access to health services, the number of births in hospitals, and the number of births handled by medical professionals. professional medical staff. Although there was a comparable drop in maternal and newborn morbidity and death as a result of the improved accessibility[46].

One of WHO's major goals is improving maternal health, and the entity is trying to lower maternal death by extending technical assistance, establishing international standards, and disseminating evidence-based clinical and programmatic guidance. WHO also develops training manuals and recommendations for medical professionals, promotes more affordable and effective medical treatments, and assists countries in implementing policies and programs and monitoring outcomes. With the WHO Strategies toward ending preventable maternal mortality, which set a supplementary target to SDG 3.1 that no country should have a maternal mortality ratio greater than 140 per 100,000 live births, and the UN Global Strategy for Women's, Children's, and Adolescent's Health (2016-2030), which calls on nations to end preventable maternal mortality, there was a push to end preventable maternal mortality[47]

The WHO prioritizes improving maternal health, and in order to reduce maternal mortality, the organization offers evidence-based clinical and programmatic guidance, establishes international standards, and provides technical support. WHO also develops training manuals and guidelines for medical professionals, encourages the use of less expensive and more effective medical procedures, and helps governments implement policies and programs and monitor their successes. With the UN Global Strategy for Women's, Children's, and Adolescent's Health (2016-2030) and the call for nations to stop preventable maternal

[45] Saturno-Hernández et al., "Indicators for Monitoring Maternal and Neonatal Quality Care: A Systematic Review."
[46] Sensalire et al., "Saving Mothers, Giving Life Approach for Strengthening Health Systems to Reduce Maternal and Newborn Deaths in 7 Scale-up Districts in Northern Uganda."
[47] Rahman et al., "A Controlled Before-and-After Perspective on the Improving Maternal, Neonatal, and Child Survival Program in Rural Bangladesh: An Impact Analysis."

mortality as outlined in the WHO Strategies toward ending preventable maternal mortality, which set a supplementary target to SDG 3.1 whereby no have a country should maternal mortality ratio greater than 140 per 100,000 live births, there was a push to end preventable maternal mortality[48]

The quality of maternal care and nutrition has a substantial impact on infant survival; infections in the mother and other unfavorable circumstances typically raise newborn indicators of morbidity and mortality (including stillbirths, neonatal deaths and other adverse clinical outcomes). the The prevalence of death and illnesses is unbearable given that the majority of maternal and neonatal fatalities may be prevented with the knowledge we now possess. most motherly fatalities, which occur during pregnancy, labor, delivery, and the first few weeks after birth, are caused by obstetric hemorrhage[49].

While several high-mortality nations in Sub-Saharan Africa and South Asia have already achieved Millennium Development Goal 4, there are indeed 58 low- and middle-income countries (LMICs) that need to do the same. Poverty-related obstacles to treatment and equity are exacerbated by a shortage of qualified health personnel and ineffective health systems. The most popular paradigm for analyzing the factors contributing to a maternal mortality is the Thaddeus and Maine's three delays model. They are 1) delaying making the decision to seek help, and 2) delaying traveling to a medical facility. 3) a wait time before receiving treatment at the hospital. The decision-making process, sociocultural influences, financial expenses, and opportunity costs all have an impact on type 1 delays. such factors offered after

[48] "Muhammad, Basheer Yahya, and Pumpaibool Tepanata (2017): 'Factors Affecting Women-Willingness to Pay for Maternal, Neonatal and Child Health Services (MNCH) in Gombe State, Nigeria.' Journal of Women's Health Care, 2017. - Google Search."

[49] Lassi et al., "Essential Interventions for Maternal, Newborn and Child Health: Background and Methodology."

a woman enters a medical facility; a lack of supplies, tools, and qualified employees; the caliber of the staff that is on hand; and.[50]

Maternal mortality is a result of several interconnected variables. These include inadequate knowledge of the key warning signs of obstetric complications among women and their families, inability to access medical care when complications arise, inability to get to a suitable facility for care in time, and factors related to medical services such as treatment delays—specifically, the three (3) delays—which can result in higher maternal mortality rates than anticipated[51]. More specifically, sociocultural elements like women's inferior standing and lack of decision-making authority[53].

The severity of the issue was underestimated since people were ignorant of the warning indicators. The main warning signals of pregnancy risk are as follows: bleeding from the cervix, swelling hands or cheeks, and hazy eyesight [52]. The main warning signs of labor and delivery include severe vaginal bleeding, protracted labor (lasting more than 12 hours), convulsions, and retained placenta (lasting more than 30 minutes). Severe vaginal bleeding, foul-smelling vaginal discharge, and high fever are the primary warning signals during the postpartum period. The expectant mother and her family need to get ready for the birth of the child and deal with any unexpected [53]complications. Birth preparation and action-planning for potential difficulties during labor are combined into a strategy known as birth preparedness and complication readiness. The following components make up an emergency preparation and birth plan: conserving money for birth-related and other connected expenditures, such as transportation to a health facility for the delivery and obstetric emergency and identification

[50] Mgawadere et al., "Factors Associated with Maternal Mortality in Malawi: Application of the Three Delays Model," July 12, 2017.
[51] Preslar et al., "Effect of Delays in Maternal Access to Healthcare on Neonatal Mortality in Sierra Leone: A Social Autopsy Case–Control Study at a Child Health and Mortality Prevention Surveillance (CHAMPS) Site."
[52] Mwilike et al., "Knowledge of Danger Signs during Pregnancy and Subsequent Healthcare Seeking Actions among Women in Urban Tanzania: A Cross-Sectional Study."
[53] Tsegaye et al., "Knowledge of Obstetric Danger Signs and Associated Factors among Pregnant Women Attending Antenatal Care at Selected Health Facilities in Illu Ababor Zone, Oromia National Regional State, South-West Ethiopia."

of suitable blood donors in case of emergency. Finding and contacting a skilled birth attendant.[54].

Although some medical procedures successfully stop postpartum bleeding (PPH). One of these is the active control of the third stage of labor, which uses oxytocin as the preferred uterotonic. However, because administering oxytocin needs the help of a trained birth attendant (SBA), women who give birth at home unattended are unable to do so, either out of choice or due to a lack of access to SBAs. Misoprostol, an oral prostaglandin that can be used to prevent PPH in low-resource settings and during home deliveries when oxytocin is not accessible or where its usage is impractical, offers a significant alternative. It is possible to deliver misoprostol without the use of injectable supplies or a skilled expert. Because misoprostol does not require refrigeration, programs for the prevention of PPH that employ it may be able to achieve high coverage and usage, especially by women who live far from a medical institution. Misoprostol has been shown to be both safe and efficacious for this use, according to compelling evidence[20]. The WHO was influenced by this collection of research. (WHO) to amend its model list of essential medicines in March 2011 to include misoprostol for the prevention of PPH in settings "where oxytocin is not available[55].

In 2015, the MDGs were replaced with the Sustainable Development Goals (SDGs). Although there are still concerns about maternal, neonatal, and child health, SDGs are all-encompassing, therefore the health target will need to be closely linked to other SDGs that contribute to it[57]. Poor health outcomes are linked to complex issues like mother participation, sociocultural taboos, and care-seeking habits and behaviours patterns during pregnancy and birth, even though a significant portion of the problem is a shortage of skilled birth attendants and health professionals. It is necessary to develop strategies for encouraging community demand as well as effective outreach through. To improve MNCH, community health workers

[54] Sabageh et al., "Birth Preparedness and Complication Readiness among Pregnant Women in Osogbo Metropolis, Southwest Nigeria."
[55] Oyekale, "Assessment of Primary Health Care Facilities' Service Readiness in Nigeria."

and volunteers should address the burden of maternal and neonatal sickness in rural areas and among urban poor people. SBAs are qualified medical practitioners (such as nursing, doctors, or nurses) who have experienced the required education and training to skillfully maintain typical (i.e., relatively simple) pregnancies, childbirths, and the prompt postnatal period as well as identify, handle, and refer women's and infants' obstacles. SBAs can significantly lower mother and newborn mortality by avoiding or treating the majority of obstetric problems[56].

2.1.8.1 Maternal and Child Survival

Maternal health is the term used to describe women's health throughout pregnancy, delivery, and the postpartum period. To guarantee that pregnant mothers and their unborn children only receive the greatest possible levels of health and wellbeing, each stage should be enjoyable. Today, it is an important global problem to increase the chances of survival for mothers, children, and newborns3. The author of 6 argued that women and children now have a better chance of surviving than they had just 20 years ago. But each year, millions of mothers and children lose their lives to illnesses like malaria, pneumonia, and diarrhea in addition to problems associated to pregnancy and childbirth.

According to the World Health Organization3, 295 000 women died in 2017 during, immediately after, or during pregnancy. Unacceptably high is this number. Also,[57] 6.2 million children under the age of 15 perished in 2019 alone, including 5.2 million children under the age of five, according to a report. Nearly half of these infants passed away during the first month of life. More than 20% of infant deaths are caused by birth abnormalities, making them one of the main factors in newborn fatalities. In addition, 810 women are thought to pass

[56] Kibria et al., "Factors Affecting Deliveries Attended by Skilled Birth Attendants in Bangladesh."
[57] Okafor, Ugwu, and Obi, "Disrespect and Abuse during Facility-Based Childbirth in a Low-Income Country."

away each day from illnesses connected to pregnancy or childbirth. 10 Many of these birth abnormalities can be prevented or discovered early on, improving both the delivery process and postpartum care. Wellness check-ups and newborn screenings for diseases and serious health conditions, such sickle cell disease or hearing loss, that can have a significant impact on a child's health over the course of a lifetime can be detected and infrequently prevented. It's critical that children under 2 years old get the required vaccines on time since they are most susceptible to catching infectious illnesses including meningitis, sepsis, and pneumonia[58].

- Most maternal deaths take place during or soon after birth. The first 28 days of a child's life are when they are most likely to die, accounting for 2.85 million deaths or roughly 3.5 percent of all under-five mortality.
- Children in LMICs have a nearly 56-fold higher chance of dying before the age of five than do children in high-income nations.
- Up to 50% of infant mortalities occur in the first 24 hours of life, and 75% happens during the first week (HICs)

- During first 28 days of life, approximately 2.85 million deaths up to 0.5 percent of all deaths, or 3.5% of under-five deaths, occur, a child's risk of dying is highest. 75% of neonatal fatalities happen in the first week, and 100% happen within the first 24 hours of life.
- Compared to high-income countries, children in LMICs have a nearly 56-fold greater chance of passing away before turning five (HICs).
- Maternal infections and other adverse circumstances frequently raise the indices of neo-natal morbidity and mortality (including stillbirths, neo-natal infections, and neonatal deaths).

[58] "Maternal, Infant, and Child Health | Healthy People 2020."

• The burden of mortality and morbidities is unacceptable given that the majority of maternal and child fatalities can be avoided with the knowledge we currently possess.

• Obstetric haemorrhage is the primary medical cause of maternal death, and it usually happens during labour, delivery, and the first few weeks after giving birth.

The other causes of maternal mortality include infections, hypertensive diseases, labor obstructions, and complications from abortions.

Most maternal deaths take either during or shortly after delivery. During the first 28 days of life, when around 3.5% of under-five fatalities occur, or 2.85 million deaths, a child has the highest risk of dying. Up to 50% of neonatal deaths could be put down to the first day and 75% to the first week. Children in LMICs had roughly 56 times more chance of dying before turning five than children in high-income nations (HICs).

For a child to survive, proper nutrition and mother health care are crucial. Neo-natal morbidity and mortality indices, such as stillbirths, neo-natal deaths, and other poor clinical outcomes, are usually caused by maternal infections and other adverse situation.

Additionally, 24 claims that in many regions of the world, the majority of these fatalities can be avoided. One of the reasons for these deaths is that underfunded health systems find it difficult to provide essential treatments that can save the lives of women and children. However,4 half of warned that if current patterns continue, 48 million children under the age of 5 will perish between 2018 and 2030, with those deaths occurring in neonates. The world still faces a pressing problem in increasing the chances of survival for infants, kids, and their mothers.

In addition to indirect concerns including anaemia, malaria, and heart disease, the most prevalent direct causes of maternal injury and fatality include excessive blood loss, infections, high blood pressure, botched abortions, and obstructed delivery. Most maternal fatalities can be prevented with quick action by a trained health professional working in a supportive

environment.[52]. Therefore, ending avoidable maternal deaths must remain a top goal for the entire globe. But just surviving pregnancy and delivery cannot be used as a yardstick for providing adequate maternal health care. To promote health and wellbeing, it is crucial to step up efforts to lessen maternal injury and impairment because every pregnancy and delivery is unique. To guarantee that all women have access to fair and excellent pregnancy and birth, it is critical to address inequities that have an impact on health outcomes, particularly those related to sexual and reproductive welfare and health and gender.

The Sustainable Development Goals (SDGs) offer a chance for the international community to collaborate and create projects to enhance maternal health for all women, in all nations, and in all situations[59].

Two of the 17 Sustainable Development Goals are SDG 3.1, which calls for a worldwide average of less than high mortality and morbidity per 100,000 live births, and SDG 3.8, which aspires to offer universal health coverage. they're both connected to mother's health.

Without universal coverage for reproductive, maternal, neonatal, and pediatric health, these cannot be reached[60].

2.1.9 Essential Care for New Born to Improve Neonatal Care

Newborns require a lot of care after delivery. All providers should be competent of caring for both moms and newborns at the time of birth and should be skilled, trained professionals. This entails avoiding the needless separation of mother and infant, encouraging warmth, early and uninterrupted nursing, hygiene, and, if required, resuscitation.

For full-term newborns, these treatments are essential, but for preterm infants, omitting any of them can swiftly cause deterioration and death.

[59] Hák, Janoušková, and Moldan, "Sustainable Development Goals: A Need for Relevant Indicators."
[60] Kumar, Kumar, and Vivekadhish, "Millennium Development Goals (MDGs) to Sustainable Development Goals (SDGs): Addressing Unfinished Agenda and Strengthening Sustainable Development and Partnership."

The following should be given to all newborns. necessary care

Early and exclusive breastfeeding, Thermostatic protection (such as encouraging skin-to-skin contact between the mother and child), clean and safe umbilical cord and skin care, assessment for clinical manifestations of severe health problems or need for additional care (such as those who are underweight, ill, or have an HIV-positive mother), and prophylactic care are all important (E.g immunization BCG and Hepatitis B, vitamin k and ocular prophylaxis). Families should be advised to: • seek emergency medical attention if necessary (risk indications include feeding difficulties, or if the baby has decreased activity, breathing issues, a fever, fits or convulsions, or feels chilly); • enroll the child with the appropriate government agency.

Low-birth-weight and preterm babies:

If a lowbirth weight infant is discovered at home, assistance should be given to the family in finding a doctor or other facility to care for the kid.

more focus on maintaining the infant warm, particularly avoiding skin-to-skin contact unless administering medication grounds to postpone contact with the mother;

Assisting the mother to express breast milk so the child can be fed from a cup or another container, paying more attention to hygienic practices, especially hand washing, raising awareness of factors associated and the need for caution, and providing additional assistance in monitoring growth and breastfeeding are all examples of aid with breastfeeding beginning.

Sick new born

- The family of an ill new born should be helped in locating a hospital or other institution where the child may be cared for.

• The new born should be sent to the appropriate department for further diagnosis and care as soon as danger indicators are identified in healthcare facilities or at home[61].

a. Thermal Care

Immediately after birth there are number of simple techniques to keep the infant warm, including drying and wrapping, increasing the skin-to-skin contact with the mother, the temperature of the room, covering the baby's head (for example, with a knit cap), and wrapping you both in a blanket. Even though waiting the first bath is advised, there isn't much information on how long to wait, particularly if the water is warm and in a warm location. For newborns weighing under 2,000g, Kangaroo Mother Care (KMC) has been shown to reduce neonatal mortality. These methods, however, need greater skill and constant supervision from the caregiver. Although these studies have only been done thus far on very preterm infants in neonatal care, they have shown that plastic wrappings may be advantageous[65]

b. Feeding Support

Infant mortality is shown to be reduced when nursing is initiated within an hour of birth. In terms of nutrition, immunity, and developmental benefits, breast milk is advantageous to premature infants. The short- and long-term benefits over formula feeding are well documented, with a decreased prevalence of disease and necrotizing enterocolitis and better neuro-developmental results[62]The majority of preterm newborns need extra assistance while using a cup, spoon, or other feeding tool, including gastric tubes (oral or nasal). The mother also needs assistance while expressing milk. Donor milk is recommended in populations with a high HIV prevalence when this is not practical. Effective pasteurization methods are crucial. Many nations have milk-banking facilities, but they must be inspected for quality and

[61] "Newborns: Improving Survival and Well-Being."
[62] Mullany et al., "Breast-Feeding Patterns, Time to Initiation, and Mortality Risk among Newborns in Southern Nepal."

infection control. Complete parenteral feeding or intravenous fluids may be necessary for infants who are very ill or who were born prematurely, but this needs meticulous attention to volume and flow rates[63].

c. Infection Prevention

Tetanus risk and infection-related maternal and newborn mortality and morbidity are reduced by clean delivery practices. Premature newborns are more susceptible to developing bacterial sepsis. It's crucial to always wash your hands in newborn care facilities. Even though they are widely recognized, simple hygiene practices like hand washing and maintaining a clean atmosphere are rarely followed. If at all possible, avoid using shared incubators or removing newborns from their mothers since these procedures hasten the spread of infectious illnesses. It has been shown that utilizing clean birth kits and more effective processes can reduce mortality for expectant mothers from the lowest backgrounds. at home. With increased handwashing by both maternal and neonatal mortality have significantly decreased because to the use of clean delivery kits and labor and delivery specialists.

Recent studies show that topical chlorhexidine therapy of the umbilical cord has certain advantages and no known drawbacks. Almost half of trials revealed a significant infant mortality. Due to the impact, particularly for preterm babies and with early application, it may be challenging for women to give birth at home. The ability of chlorhexidine to influence behavior is another benefit. Something is applied to the cord in many cultures across the world, and a chlorhexidine application policy might hasten change by swapping out a harmful chemical with an advantageous one[64].

[63] Greer, "Feeding the Premature Infant in the 20th Century."
[64] Zaman et al., "Chlorhexidine for Facility-Based Umbilical Cord Care: EN-BIRTH Multi-Country Validation Study."

Skin is more sensitive in premature newborns because vernix provides less protection than it does for term babies. Emollient lotions, such Aquaphor or sunflower oil, can be topically administered to preterm newborns to reduce the risk of dermatitis, sepsis, and dehydration[65].

d. Neonatal Resuscitation

All newborns, even those who are born prematurely, require assistance breathing after delivery. Basic resuscitation techniques such as an Ambo bag-and-mask or mouth-to-mask can help four out of every five infants who need to be revived survive; the majority of neonatal deaths (75 percent) take place within the first week of life, and about one million newborns die within the first 24 hours. Preterm delivery, intrapartum-related problems (birth asphyxia or lack of breathing at birth), infections, and birth anomalies account for the bulk of newborn mortality in 2017. Only a tiny fraction of infants delivered without breathing require more difficult procedures like endotracheal intubation, and they are also more likely to need ongoing care. Community-based initiatives will reduce neonatal mortality. Resuscitation training, as will neonates who were delivered prematurely should have some basic resuscitation to check their heart rates and breathing efficiency. How soon you advance to the next level will depend on your breathing and heart rates.[66]

e. Kangaroo Mother Care

In order to address shortage of incubators to reduce high infection rates, and the abandonment of premature babies in his hospital, Colombian physician Edgar Rey established Kangaroo Mother Care (KMC) in the 1970s. In contrast to incubator care, early, prolonged, and ongoing direct skin-to-skin contact with the mother or another family member, if initiated in the first week, helps reduce neonatal mortality for reliable babies weighing 2000 g. This is done to promote frequent and exclusive breastfeeding and to offer consistent warmth. Additional

[65] "Premature Birth: Complications, Management & Causes."
[66] Perlman et al., "Part 7: Neonatal Resuscitation."

advantages included improved weight growth, mother-baby connections, breastfeeding rates, and developmental outcomes. Skin-to-skin contact between a mother and her infant is a key element of KMC. The KMC's other two components are widely employed.[67].

Preterm children who are born before the age of 32 weeks are more likely to encounter difficulties and will probably need to be admitted to the hospital. Babies who are moderately preterm but have no problems can be cared for with their mothers on standard postnatal wards or at home. Premature birth is rarer than 28 weeks of pregnancy, and the majority of these newborns require critical care[68]

f. Care of Infants Showing Infection Symptoms

Early recognition of these warning signals and prompt infection treatment while, if at all feasible, continuing nursing are essential to providing better care. The likelihood that sick preterm neonates have a low temperature rather than a fever makes identification more difficult. The guidelines for the Integrated Management of Childhood Illness have recently added first level management of newborn risk factors. Any infant exhibiting warning signals should be taken to the hospital, according to the WHO[65.] When referral is not an option, primary care facilities may be used to deliver therapy. Early recognition of these warning signals and prompt infection treatment while, if at all feasible, continuing nursing are essential to providing better care. The likelihood that sick preterm neonates have a low temperature rather than a fever makes identification more difficult. The guidelines for the Integrated Management of Childhood Illness have recently added first level management of newborn risk factors. Any infant exhibiting warning signals should be taken to the hospital, according to the WHO.[65] Primary care clinics can offer therapy if referral is not an option[69].

[67] Conde-Agudelo and Díaz-Rossello, "Kangaroo Mother Care to Reduce Morbidity and Mortality in Low Birthweight Infants."
[68] Charpak et al., "Kangaroo Mother Care: 25 Years After."
[69] Dramowski et al., "National Neonatal Sepsis Task Force Launch: Supporting Infection Prevention and Surveillance, Outbreak Investigation and Antimicrobial Stewardship in Neonatal Units in South Africa."

g. Care of Babies with Jaundice

Neonatal jaundice, which manifests as a yellowing of the skin, sclera, and mucous membranes, is caused by a build-up of the insoluble in water, lipid-soluble, and unconjugated biliary pigment in the skin. Because it is the most common leading cause of infant re - admissions during the early stages of life and because neglecting it can result in an unpreventable clinical issue that leads to neonatal mortality, jaundice in new born has become the most frequently diagnosed condition that requires thorough consideration, treatment, and attention[70]

Premature new born are more likely to develop infections and jaundice, which increases their chance of dying or being disabled. By day 3, the infant can already be at home due to severe jaundice. frequently peaks around that time. Preventing difficulties or encouraging care seeking could be accomplished by implementing a routine pre-discharge check of women and their infants and educating mothers on common issues, basic home care, and when to refer their child to a professional. [65].

2.1.9.2 Determinant of Maternal Neonatal and Child Health

Numerous variables have an impact on both the health of the people and the environments in which they live. Numerous interrelated factors, such as a person's manner of life, circumstances, and environment, have an impact on their health. While some determinants are easier to alter than others, some are more difficult. Some researchers distinguish between social and non-social health determinants[71].

According to some authors, because maternity, neonatal, and child health (MNCH) services are perpetually underutilized in developing countries, programs that simply rely on antenatal

[70] Lake et al., "Magnitude of Neonatal Jaundice and Its Associated Factor in Neonatal Intensive Care Units of Mekelle City Public Hospitals, Northern Ethiopia."
[71] Hamal et al., "Social Determinants of Maternal Health: A Scoping Review of Factors Influencing Maternal Mortality and Maternal Health Service Use in India."

care as a delivery mechanism are likely to have insufficient coverage and compliance. Alternative tactics must be developed because to the alarming prevalence of maternal, neonatal, and paediatric mortality in the most of emerging nations[72]

To promote mother and newborn health (PNC), it is required to strengthen the current evidence-based antenatal care (ANC) and postnatal care programs. Campaigns for tetanus immunization, syphilis diagnosis and treatment, and initiatives to avoid malaria are all covered in this topic. In developed nations, experienced professionals attend 99 percent of deliveries women are given one prenatal visit in 97 percent of cases, at least one postnatal visit in 90percent of cases[73]. At 69 percent in Sub-Saharan Africa and 54 percent in Asia, coverage of at least In developing countries, one ANC visit is quite common. Only 13% of all women in Sub-Saharan Africa receive a post-natal visit within two days, according to statistics from 23 African nations' Demographic and Health Surveys (DHS). Two-thirds of women in this region give birth at home. There seem to be shortages in the services that are offered, and ANC attendance has the potential to be uplifting. The problem is that some women have only had single ANC visit, even though it is recommended that they will have four. The majority of issues are related to PNC use, which women frequently ignore. Nigeria continues to rank second globally in terms of maternal fatalities. Most assessments of maternal deaths in Nigeria are isolated reports from a single healthcare facility[74]

If women are kept in the dark regarding the factors that affect the health care choices they make for themselves and their children, the high mortality rate brought on by a lack of resources will persist. Without identifying the factors that influence service utilization in these countries' rural areas, it will be difficult to intervene in a way that addresses the mismatch

[72] C, "Improving Access to Quality Maternal Health Services."
[73] Rosário et al., "Determinants of Maternal Health Care and Birth Outcome in the Dande Health and Demographic Surveillance System Area, Angola."
[74] Babalola and Fatusi, "Determinants of Use of Maternal Health Services in Nigeria - Looking beyond Individual and Household Factors."

between the demand and supply of health services that occurs in Nigeria and other developing countries[75].

2.1.9.2.1 Socio Demographic factors

Numerous socio-demographic traits of the person have an impact on the underlying propensity to seek care. The inability to pay has been identified as a significant obstacle for migrant women seeking prenatal care. The majority of studies have demonstrated a favourable correlation between socioeconomic position and the use of ANC. Examples of factors that have been studied frequently as influences on maternal health care include maternal age and parity, educational attainment, and family income. High parity women may be more likely to rely on their prior pregnancies' experiences and disregard the value of prenatal care. These women may feel more at ease and less concerned about antenatal care because of their higher degree of experience.[76]

One of the most powerful predictors of being trained is maternal education.

help with delivery. Women with higher levels of education are usually more knowledgeable about ANC services and the advantages of using them. Because they are more aware of health issues, more aware of the availability of health care services, and more aware of how to use it, it is proposed that educated women use the information more skillfully than illiterate women. Additionally, higher levels of education typically have a positive effect on behaviors related to seeking health, and they may provide women more control over their pregnancies. According to research done in Ethiopia, China, and Nigeria, educated women are more likely

[75] Agunwa et al., "Determinants of Patterns of Maternal and Child Health Service Utilization in a Rural Community in South Eastern Nigeria."
[76] "Factors Affecting the Utilization of Antenatal Care among Pregnant Women: A Literature Review."

to have received help with giving birth from a medical professional. Pregnancy issues, not understanding the value of these services, and other individual-level factors can all have an impact on the use of maternal health services.[83].

According to numerous research, the primary reasons for not participating in ANC were not understanding its objectives, not knowing them well enough, and not being satisfied with prior ANC.

The health issues for women are anaemia and underweight. When women have access to health care, their eating habits and nutritional status can be improved. The responses from the respondents will be assured to be used in analysing the exposure to health services and women's eating behaviours in certain other locations[77]. Structure-based elements like distance to healthcare facilities have been linked to low coverage of maternal and neonatal health services in rural and remote areas. the availability of healthcare facilities, cultural norms, household income, mothers' means of subsistence, and aspects of the healthcare system such a lack of competent healthcare personnel and a poor standard of care. It is challenging to attain both the Sustainable Development Goals and universal health coverage in most developing countries due to a human resources for health problem.

2.1.9.2.2 Socio Cultural Factors

In some states, like Sokoto state, sociocultural and traditional practices are linked to maternal health. These customs are important in the lives of women. According to some studies, Nigeria has over 300 distinct ethnic, linguistic, and dialect groups. Unattended labor and delivery, low educational levels, baths (Wankan jego) during childbearing, the use of herbal plants, arranged marriages, underage marriage, child spacing, female genital mutilation, and traditional gender inequality are just a few of the traditional practices and norms that have a significant impact on women's health and are assumed to be the reason for the high maternal

[77] Yaya et al., "Inequalities in Maternal Health Care Utilization in Benin: A Population Based Cross-Sectional Study."

and child mortality in some states in the country's north. Despite the fact that these behaviours are more prevalent in women with lower levels of education, their total influence is still very strong. Aims should be made to address women's traditional beliefs and behaviours in addition to increasing the utilization of underutilized contemporary health facilities[78]. Even though culture was not expressly stated or looked into as a factor, it was found that a number of cultural practices had an effect on maternal health. For instance, the Purdah culture, which is widely observed by Muslims and restricts women's freedom of movement outside the home, placed limitations on how often women used male service providers for maternity health services. Similar conclusions were reached regarding the early marriage culture, which was determined to have a significant effect on maternal health given that young women made up the majority of maternal fatalities. Indian women who had an early marriage were less likely to use ANC and facility births, according to studies. Maternal healthcare was positively impacted by other cultural customs including pregnant women visiting their mothers during their first pregnancy. But, in some cases it leads to a delay in seeking care, particularly if there was a cultural norm[77].

2.1.10 Conceptional Framework of Determinant of Maternal Health

Based on the literature analysis, a straightforward conceptual framework was created to deal with the elements that impact how frequently women utilize maternity care services. The accompanying graph shows the relationship between several variables, the usage of maternal healthcare, and the area of intervention. The health system affects the probability and severity of pregnancy complications in a manner similar to how it affects the decline in maternal death by preventing complications and reducing the three delays in: (1) making the decision to seek care, (2) obtaining the appropriate level of care, and (3) receiving the adequate treatment. However, not all illnesses, signs, and symptoms that cause complications during pregnancy

[78] Shamaki and Buang, "Sociocultural Practices in Maternal Health among Women in a Less Developed Economy: An Overview of Sokoto State, Nigeria."

are potentially fatal, and many of them, especially when they are chronic, can be treated with minimally invasive procedures. Early diagnosis of noncommunicable diseases as well as treatments that concentrate on lifestyle factors prior to conception, during pregnancy, and after delivery can stop additional negative outcomes for women and children[79].

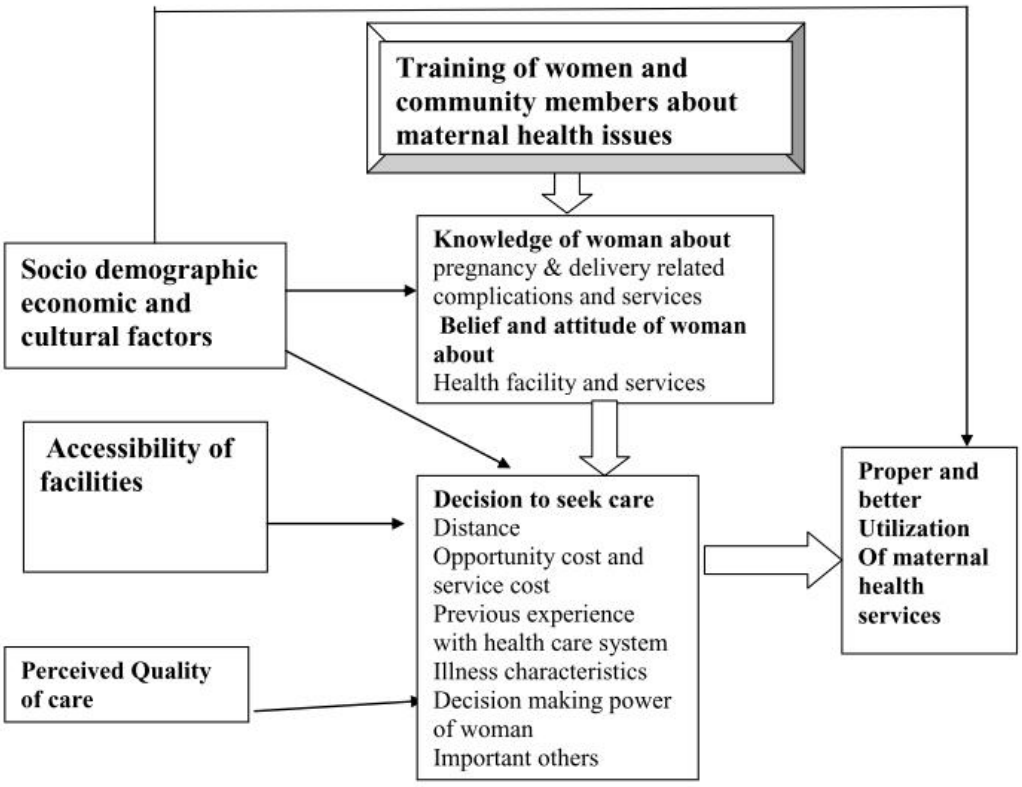


Figure 2-1Conceptual frame work of the study

2.1.11 Past and Present Interventions on Maternal Neonatal and Child Health

The two major problems in global health continue to be maternal and new born mortality. Even though the Millennium Development Goals era saw significant advancement, every day, about 810 women still pass away from issues associated with pregnancy or childbirth. 94% of these deaths occur in LMICs, which are nations with low and intermediate incomes, proving that this is particularly true there. Additionally, about 7000 newborns every day die, accounting for 47% of all fatalities among children under the age of five. Of these deaths,

[79] Filippi et al.2016, "A New Conceptual Framework for Maternal Morbidity."

36% take place during the first 24 hours of delivery and 73% do so within the first week. Despite the fact that increasing prenatal care (ANC), skilled birth attendance, and postnatal care for both the mother and child have been shown to be beneficial can reduce high rates of maternal and neonatal mortality, data from current surveys still show that these interventions are not having a significant impact.[62]

2.1.12 Feasibility of strengthening the PHC Programs

The PHC program is the main source of primary care for services related to reproductive health. There is evidence that PHCs can play a significant role in implementing interventions that have an impact on maternal and newborn care when they collaborate with professional care providers and traditional birth attendants. Following the intervention, the provision of perinatal care and care was reported in randomly selected prenatal examination during the previous pregnancy, the percentage of pregnant women who received information on maternity and newborn health, the number of pregnant women who received tetanus toxoid, acquisition of a clean delivery kit before to delivery, deliveries in a hospital, information on: applying traditional materials to the cord, the presence of an experienced, trained attendant during delivery, bathing the infant within six hours following delivery, giving colostrum breastfeeding for one exclusive breastfeeding for the first six months, and post-natal care after birth59.

Community-based approaches, such as: • Long-standing community collaborations, such as the establishment of community health committees, can reinforce and enhance maternal, neonatal, and child health initiatives.

• Assembled teams for a health-related event by working with community leaders.

• Founded community groups or collaborated with pre-existing ones (such women's groups and micro-credit savings clubs).

• Including the community in the recruitment and support of CHWs Home visits were frequently utilized as a way to identify pregnant women, provide health care and counseling, and promote healthy habits like family planning and facility delivery.

• Participating communities in the design and monitoring of PHC programs Home visits were also used for emergency obstetric cases identification and postpartum mother care. care. visits to the referral's neighborhood.

A common method used by mobile health teams stationed at outlying health facilities to encourage women and the community was the creation and strengthening of participatory women's groups. Other methods included increasing the availability of long-lasting insecticide-treated net for pregnant women and maternal immunizations[80].

2.1.13 Interventions provided in primary health care centres in improving MNCH

Each evaluation detailed the efficacy of one or more interventions, which promoted standard maternal health care. The world health organization (WHO) asserts that certain Healthcare for mothers and children has been improved by interventions like intermittent preventive treatment in pregnancy (IPTp), insecticide-treated nets (ITNs) for malaria prevention, iron or folic supplementation for expectant and new mothers, vitamin A supplementation for children and new mothers, and dietary supplements for expectant or nursing mothers. Despite these improvements, over 500,000 women still die during delivery or in the first few weeks following giving birth, with the majority of these deaths taking place in developing countries[81] In addition to prenatal and postpartum checkups, vaccinations, professional attendance during the delivery, and referrals to higher levels of care are all provided. the treatment methods employed pregnancy-related illnesses, test for and manage problems such high-risk pregnancy, gestational diabetes, hypertension, and infections.

[80] Jennings et al., "Comprehensive Review of the Evidence Regarding the Effectiveness of Community–Based Primary Health Care in Improving Maternal, Neonatal and Child Health: 2. Maternal Health Findings."
[81] Nuamah et al., "Access and Utilization of Maternal Healthcare in a Rural District in the Forest Belt of Ghana."

There are also the mother's socioeconomic circumstances, which include her involvement in women's empowerment initiatives, conditional cash transfers, microcredit and savings clubs, and participatory women's organizations.[87]

1. Facility-based service providers offering their services at outreach locations; offering weekly prenatal clinics in outreach locations; antenatal care provided at home by public health nurses; treatment of minor illnesses by community health professionals; offering mother education on pregnancy, childbirth, breastfeeding, and vaccinations

2. High-risk women who are recognized by community health practitioners and given iron/folate supplements are advised to get a greater level of care. prenatal and postnatal home visits by health professionals

3. administering tetanus shots

4. The sale and promotion of pills containing iron and folic acid

5. The marketing of delivery at a hospital and, if a home delivery is intended, the promotion of employing a qualified birth attendant are two further behavior change signals that support saving money for pregnancy preparation and labor.

6. Immediately encouraging postpartum breastfeeding.

The formation of village health committees; the training of birth attendants and their linkage to health personnel, the advertisement of modern contraceptives; the early detection of pregnancies; the promotion of birth planning; the reassurance of prompt and exclusive breast - feeding; the provision of prenatal care, delivery care, and post - natal care; the promotion of immunization for expectant mothers; and the referral for mate.

2.1.13.1 Types of Intervention Packages

Maternal and newborn morbidity and mortality are significant public health issues in the majority of developing countries and in settings with low resources. Approximately 500,000 of the almost 8 million women who encounter pregnancy-related problems each year die, according to the WHO. Due to this, 4 million newborns die during the first month of life and an additional 3.3 million babies are stillborn each year, totaling roughly 9 million children who die. The results show a connection between high rates of maternal, perinatal, neonatal, and infant mortality and inadequate healthcare resources[82]. Maternal and newborn morbidity and mortality are significant public health problems in the majority of developing countries and in settings with inadequate resources. Pregnancy-related problems affect approximately 8 million women annually, and about 500,000 of them die as a result, according to the WHO. As a result, every year, approximately 9 million kids pass away, including 4 million newborns who die during the first month of life and an additional 3.3 million babies who are stillborn. According to the findings, high rates of maternal, perinatal, neonatal, and infant death are associated with poor quality healthcare services and a lack of health workers[83]

Evidence also points to the possibility that, when properly applied, explicit, evidence-based, and economical packages of interventions can enhance the functions and results of healthcare. Maternal, newborn, and children's health, as well as family planning Intervention Packages In The most significant and effective interventions are included in this publication in packages covering the whole care continuum, including preconception, pregnancy, labor, postpartum, infant care, and child care. In developing countries, the packages are made for community and/or facility levels and provide guidance on the essential components necessary to ensure adequate and high-quality care.

[82] "Preventing Infant and Maternal Mortality: State Policy Options."
[83] McCauley, Zafar, and van den Broek, "Maternal Multimorbidity during Pregnancy and after Childbirth in Women in Low- and Middle-Income Countries: A Systematic Literature Review."

Overall, the text covers the most important issues that must be dealt with to provide high-quality care for maternal, neonatal, and child health. According to the life cycle and continuum of care, the paper includes 5 packages concentrating on clinical standards and health system criteria. As follows:

1) Maternity Care

2) Prenatal Care

3) Postnatal Care

4) Newborn Care

5) Child and Infant Care

These intervention packages are based on WHO guidelines and can be modified and applied depending on the requirements and resource availability of various situations. They can be used to create standards, policies, and other health care professionals in charge of reproductive, maternal, neonatal, and child health care at the national and sub-national levels. It is anticipated that the intervention packages will help the international partners execute the Global Consensus's guiding principles[84].

2.1.14 Effectiveness of the PHC Intervention packages in improving MNCH

All MNCH initiatives aim to achieve the sustainable improvement of maternity, neonatal, and child health (MNCH). However, projects with special funding that are subject to evaluation often have a relatively brief lifespan of five years or fewer. country's population and health Surveys may reveal long-term national improvements in children's health, but it can be It is

[84] Planning and Abortion, "Packages of Interventions."

difficult to identify the programming components that have led to these advancements in MNCH[31].

When analyzing the intervention that will be employed, it is impossible to make any firm statements about the caliber of the evidence, the size of the effect for any chosen intervention for implementation strategy, or the intended use of any given intervention or implementation strategy. This is because the following considerations will be made when implementing the intervention: (1) the kinds of therapies utilized; (2) how they were used; and (3) the outcome measures employed to evaluate results.

It is also outside the purview of this study to address the crucial problem of how to most effectively include interventions into a well-balanced package of services such that the demands for adopting one intervention do not exceed those for implementing another. In addition, it is necessary to consider ways to enhance health systems more generally in order to better encourage the adoption of PHC treatments that are effective in enhancing child health. According to the data, 77% of all infant fatalities occur in regions with skilled birth attendance coverage of 50% or even less. Neonatal deaths can be prevented by taking measures to reduce maternal fatalities. Simple treatments like washing the umbilical cord and promoting early and exclusive breastfeeding can greatly lower the incidence of baby infections during sanitary deliveries with skilled delivery attendance. Furthermore, providing delivery staff with fundamental tools trainings is a low-tech, low-cost method to lower new born mortality. The major causes of new born fatalities are low birth weight (LBW) and complications from preterm birth, with preterm birth requiring more complex care. When low-cost therapies like kangaroo mother care (KMC) are adopted, new born mortality is decreased by 51%[65].

Table 2.1.14 PHC Intervention. Lawn et al.,2017 "3.6 Million Neonatal Deaths—What Is Progressing and What Is Not?

Type of Intervention **Postpartum haemorrhage**	**Main Effects**
Oxytocin	Routine use reduces the risk of PPH. - Is indicated for both prevention and therapy - Is well tolerated
Misoprostol	If oxytocin is not accessible, shivering and fever-related side effects are advised for PPH prophylaxis. Reduces the risk of PPH and the requirement for blood transfusions with misoprostol
Preeclampsia and Eclampsia	
Calcium Supplementation	reduces preeclampsia risk in all women. The largest risk reduction occurs in high-risk women and those who consume little calcium in their diet
Aspirin supplementation	Lowers preeclampsia risk in high-risk women.
Magnesium sulphate	Has a tendency to lower maternal mortality while lowering the risk of seizures in preeclamptic women.
Timing of Delivery	In mild preeclampsia, starting labor after 36 weeks of pregnancy improves mother outcomes.
Sepsis	
Prophylactic antibiotics at caesarean section.	preventative antibiotics. less chance of endometritis, serious maternal infectious morbidity, and febrile morbidity.
General Interventions	
Posture in labour	Upright and ambulant postures reduce labour duration and the needs for caesarean sections

2.1.15 Benefits of Community Based Health Care

Some medical disorders call for inpatient hospitalization. Open cardiac surgery is never desired at home. Community-based healthcare, however, is acceptable for many illnesses and has several advantages. Physical therapists, occupational therapists, registered nurses, certified nursing assistants, home health aides, social workers, and chaplains can provide care to patients who don't require intense medical attention in their homes. Dressing changes, medication monitoring and administration, blood samples for lab tests, and patient and family education are all responsibilities carried out by registered nurses. Home health aides assist patients with daily duties like maintaining personal hygiene, cooking meals and providing assistance with eating, monitoring vitals, and doing minor housework allow patients to remain in their homes with their families while receiving the care they require.

The advantages of community-based healthcare are numerous. Compared to nursing home or hospital care, it is less expensive. It enables patients to be in cozy and familiar surroundings with their loved ones and their pets. Many patients claim to feel more at ease in their own homes, sleep better in their own beds, and eat better when given the familiar home-cooked meals. They enjoy more privacy, a calmer, more serene environment, and greater control over their own life and medical treatment at home.

Families gain from community-based healthcare as well. As some family members struggle to arrange transportation and the hospital may be far from the home, family members get to spend time with loved ones instead of making frequent trips to a hospital or nursing home. However, with community-based health care services, caring for a loved one is not so overwhelming for family members. The majority of family members are not educated to give patients the kind of care they require, so having professionals come to your home to help spares them of having to perform tasks for which they are unqualified. Most critically, it makes it possible for families to remain together[65]

2.1.16 Description of intervention to improve MNCH

Different avenues can be explored to promote the benefits of clinic-based birthing once the reasons for the opposition are better understood. Over the past 20 years. Lowering the rates of maternal, neonatal, and under-five mortality has seen tremendous progress. Maternal mortality ratio decreased by 45% globally between 1990 and 2013. (MMR). The number of fatalities per 100,000 live births ranges from 380 to 210. Similar to this, over the same time period, the worldwide under-five mortality rate (UMR) declined by 41% (from 90 to 48 deaths per 1,000 live births) and the global newborn mortality rate (NMR) decreased by 30%. (33 to 21 deaths per 1,000 live births). Despite these achievements, rates presently aim to reduce maternal mortality by 75% and under-five mortality by 2/3 by 2015.

With the use of this information, it will be possible to identify a list of potential customers, learn more about earlier attempts to address the underutilization of clinic-based services, and identify significant issues.

As a result, the formative research will help in determining which kind of communication channel (radio, television, community meeting, etc.) will be targeted at which audience (pregnant women, TBAs, partners of pregnant women, etc.) and which is most likely to have the greatest acceptance and audience's reach.

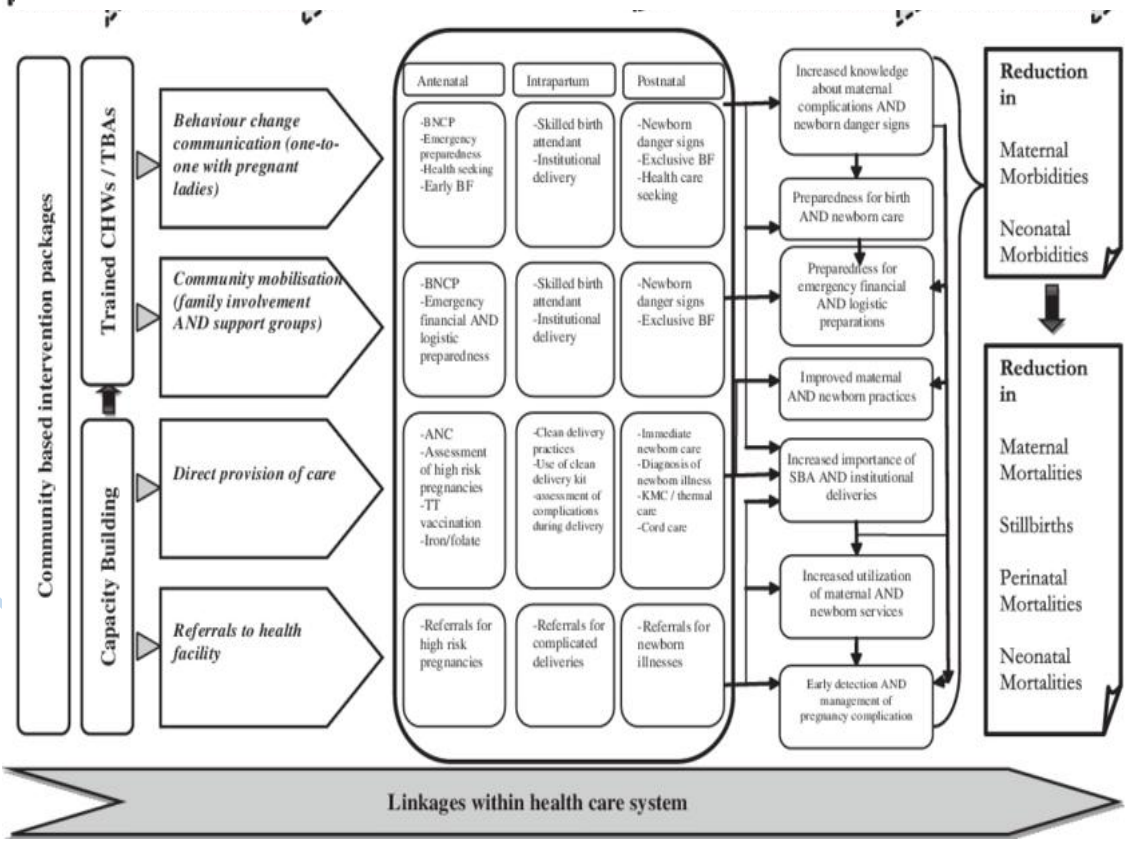
The marketing plan will be built on the following four major pillars of developing a social sales strategy: Price Place (home versus clinic), Commodity (care-seeking behavior), Promotion (channels, style of message), and Situations (expense of facilities delivery) are the four factors.35 Only once the issue, the primary target population, the scope of the campaign, and the behavioral and cultural components that need to be addressed have been identified throughout the strategy development phase do potentially effective marketing ideas come to light. Offering elements of traditional birthing settings at hospitals, for example, seems

promising, but how best to inform people of this reality and, more importantly, how to convince them to utilize the clinic rather than their own traditional birth environment at home.

TBA involvement of qualified midwives to create a connection with the current healthcare system. The importance of TBAs in prenatal and postpartum care, both now and in the future, is widely acknowledged. TBA training has been the subject of several studies, yet many important concerns remain unanswered. For instance, when considering how referral networks affect the personal preferences of TBAs, why would they recommend obviously healthy, straightforward pregnant women to formal medical facilities when they only get paid after the baby is delivered[85]

Table 2.1.16

Linkages within Health Care System. Lassi and Bhutta,2017 "Community-Based Intervention Packages for Reducing Maternal and Neonatal Morbidity and Mortality and Improving Neonatal Outcomes."



[85] Lassi and Bhutta, "Community-Based Intervention Packages for Reducing Maternal and Neonatal Morbidity and Mortality and Improving Neonatal Outcomes."

Additionally, raising TBAs' understanding of obstetric crises does not reduce death rates; instead, policies that encourage positive contacts with the official healthcare system are needed. It will be feasible to address the customary lack of coordination and interaction between TBAs and the health system by identifying and forming relationships with TBAs. In practice, there are numerous ways to connect TBAs with authorized medical assistance. When created in cooperation with TBAs, the following roles for TBAs inside the health system have the potential to be successful, according to the WHO Department of Making Pregnancy Safer.

- Promote the requirements for mother and neonatal health.
- Encourage women to go to their prenatal and postnatal checkups as well as the labor and delivery appointments they need to, even if you have to go with them.
- Helping new moms and babies take care of themselves and follow care instructions (nutrition, treatment, supplementation, immunization, scheduled appointments, birth and planning, family planning, infant feeding, etc.).
- Disseminate health information to locals and families.
- Provide emotional support to a labouring woman before, during, and after the birth by becoming a birth companion or by cleaning the house for her while she is away.
- Serve as a link between families, communities, and women and official health services, local government, and law enforcement.

2.1.17 Theoretical Framework on Health program Assessment

It is becoming more and more important to evaluate health intervention initiatives with an eye on proving their efficacy. This is a result of both efforts to make primary health performance measurement more outcome focused as well as the movement to increase the rationality of policy making and practice "Evidence-based"

2.2.1 What is Primary health care assessment/Evaluation

The critical examination of a healthcare component to see whether it achieves its goals involves following strict procedures.

It is possible to assess the following facets of healthcare:

- Effectiveness - the benefits of healthcare as determined by health gains
- Efficiency is the correlation between healthcare costs and the benefits or outcomes attains
- Acceptability: The degree to which the way in which people are treated in connection to healthcare is socially, psychologically, and ethically acceptable.
- Healthcare Equity refers to the equitable allocation of healthcare among people or groups.

2.2.2 History of Health program Assessment

Florence Nightingale can be directly credited with developing the idea of assessment in healthcare. She was a pioneer in the application of statistical analysis and graphical representations of high-quality data while she was serving in the Crimean War. In the 1960s, Avedis Donabedian stated that quality measurements might be divided into three groups: structure, results, and process. This was the beginning of the contemporary era of quality assessment in health care promotion.

Metrics have historically been used to evaluate the quality of care in acute care hospitals and long-term care institutions, but indicators now place more of an emphasis on healthcare professionals and cutting-edge delivery models

2.2.3 Steps in designing an evaluation

First and foremost, it's critical to consider the evaluation's goal, target audience, and potential consequences. This can help direct the evaluation of the various dimensions, such as inputs, processes, outputs, results, efficiency, etc. Which of these elements will provide context, help answer the relevant question, and be beneficial to the evaluation's primary audience?

There should be established evaluation objectives (remember SMART)

S Specificity, efficacy, efficiency, acceptance, and equity

M stands for measure.

Are the goals you have set attainable?

R - realistic (can goals reasonably be attained with the resources at hand?)

When do you wish to accomplish your goals by?

The three stages Rosalind Blackwood (2009) provided for evaluating health intervention initiatives[86]:

2.2.3.1 Study design to be used in assessing healthcare intervention programs

- Several aspects must be taken into account when choosing the study design to be employed, including: • How the population or service being assessed should be described
- Which method—qualitative, mixed, or quantitative—should be used? (Qualitative evaluation can assist in quantitative evaluation, for example, by elucidating the intervention's context, by providing answers to the "why" questions.) Level of data collection and analysis - Will the required data be able to be collected?

May have access to regularly gathered medical data (for instance, Hospital Episode Statistics, assuming said data is sufficient and pertinent to address the issues raised) If at all possible, the evaluation/assessment strategy should aim to reduce bias by using a comparator group.

[86] "Study Design for Assessing Effectiveness, Efficiency and Acceptability of Services Including Measures of Structure, Process, Service Quality, and Outcome of Health Care | Health Knowledge."

When deciding on a design, it is important to assess the advantages and disadvantages of each strategy and take into account how that will affect how the results are interpreted.

Blackwood provided the following highlights on frequently used evaluation designs while discussing study design to be utilized in evaluating healthcare intervention programs:

1) Randomized procedures

- Confounders in public health treatments are spread fairly by randomization. Randomized controlled trials typically cost a lot of money to conduct carefully. Additionally, they are not necessarily useful in a service environment.
- A thorough review was conducted retrospectively using the development of matched control procedures.
- "Zelen's design" provides a different approach that incorporates randomization for assessing an intervention in a healthcare environment.

- Non-randomized techniques (b)
- Cohort studies - can indeed be retrospective or prospective, but variables must be considered carefully. They require the non-random allocation of an intervention.
- Case-control studies: investigate unusual outcomes by classifying individuals according to outcome rather than medical attention. Controls must be matched, but more important to outcome than healthcare is the selection of the control group. There is a requirement for control group matching, although choosing the control group is a significant source of bias.
    - Randomized techniques
- Randomization ensures that confounders in public health interventions are distributed equitably. The precise execution of randomized controlled trials usually comes at a high financial expense. Furthermore, they may not be helpful in a service context.

- Using the creation of matching control procedures, a thorough assessment was carried out retroactively.
- "Zelen's design" offers an alternative method that includes randomization for evaluating an intervention in a medical setting.

- Non-randomized approaches (b) Cohort studies - involve the allocation of an intervention in a non-random manner; they can be retrospective or prospective, but confounders must be considered.
- Case-control studies: investigate unusual outcomes by classifying participants according to outcome rather than medical attention. The selection of the control group is a crucial element of the study, even though controls must be matched.

f) Qualitative studies

Researchers-in-residence are a cutting-edge assessment technique in which the researcher joins the operational team and focuses on maximizing the success of the intervention or program rather than measuring effectiveness.

2.2.3.2 Measures/Indicators to be used in assessing healthcare intervention programs

The evaluation framework employed, the research design, and the evaluation's goals will all influence the indicators that are chosen. The Donabedian method, for instance, takes intervention into account in terms of inputs, processes, outputs, and results.

- Inputs - (also known as structure) specifies the resources used to create an intervention, such as people, time, and money.
- Process - explains what transpired, such as the creation of a patient pathway or a strategy.

- Outcomes - highlights the actual benefits or drawbacks of that intervention or program. Outputs - describes what the intervention or program has achieved, such as patient throughput.

2.2.3.3 How and when to collect data for assessing healthcare intervention programs

The timing of data collection will depend on whether it is qualitative or quantitative and whether the evaluation is conducted prospectively or retrospectively. Since the amount of data that must be gathered will also affect timing, determining the sample size at the start of the evaluation will be an important component of planning.

For qualitative investigations, the sample size must be sufficient to make it implausible that it could be increased further and yet produce new insights. For instance, conducting another staff member interview is unlikely to produce any fresh themes. In real life, the majority of qualitative methods would guarantee that samples from all pertinent staff groups were taken. Using statistical software such as Stata, the following must be taken into account for quantitative studies:

The following factors must be taken into consideration: the amount of the treatment impact that would have clinical, social, and public health relevance; the study's requisite power; an acceptable degree of statistical significance; and individual differences in the outcome measure of interest.

Even if it occasionally may depend on the availability of the data, the follow-up duration is important to consider if the assessment has a longitudinal design. There might be other measures as well, such as readmission rates, which are usually computed at 7 and 30 days, that are typically presented throughout present time periods.

2.3 Review of Previous Empirical Works

Since the early 1990s, when the nation's Mother, New born, and Child Health (MNCH) statistics were first being recorded, Nigeria's public health system has long struggled with indications of poor maternal and child health. In order to solve this issue, numerous initiatives were put in place to guarantee that Nigeria will reach the pertinent Sustainable Development Goals (SDGs). Nevertheless, a number of intervention studies have outlined contradictory results regarding Nigeria's progress toward the SDGs, including both triumphs and obstacles. The research on primary health interventions is highlighted in the following empirical studies.

2.3.1 Readiness for Maternity are in PHC.

Lorretta Favour Ntoimo Julius Imongan, Chizomam Ogungbangbe, and others (2021) Assessment of maternity care service readiness in rural Nigerian primary health centers: implications for service enhancement.

It was important to evaluate the kind and preparedness of Primary Health Centres (PHCs) in two Local Government Areas (LGAs) in rural Edo State, Southern Nigeria, in order to deliver effective mother and child health services.

Although the study evaluates the preparedness of public health centers using normal research methods, the following drawbacks stand out.

A. It solely compared the inputs from PHCs to the benchmarks established by NPHCDA.

b. The research is carried out in a location unrelated to the study's focus.

2.3.2 Evaluation of Primary Health Care in Riyadh, Saudi Arabia.

RN, M.Sc. Muneera H. AI-Osimy (2017)

This study's objective is to evaluate the organization and results of PHC in Riyadh. The research was done at three PHC facilities (A, B & C). 300 consumers were among the study's sample populations. Data was gathered using two instruments. A sheet of assessment known as Instrument I is used to gauge the quantity and caliber of resources. A 4-point Likert scale known as Instrument II is used to gauge customer satisfaction. Prior to data collection, validity and reliability were established. We used both descriptive and inferential statistics.

The gaps

The findings demonstrate that the human resources in the centres, especially those in centre C, fall short of the ideal requirements. In centre A and C, the clinical support spaces lack adequate equipment. The three centres facilities are subpar. The majority of the consumers under study were Saudi women who worked as housewives and were illiterate. Most customers were happy with the services, and there was no difference in satisfaction between Saudis and non-Saudis.

Despite the fact that the study focused on the evaluation of primary health programs, the following gaps existed between their research and the studies that were suggested in this article.

Although the study was specifically focused on the evaluation of primary health centers, it covered a different geographic area. The study's methodology is both qualitative and quantitative. It is not focused on reducing maternal, neonatal, and child mortality; instead, it was founded on a process review of primary health.

2.3.3 Salisu M. I, Godwin Unumeri1, Bello Mohammed et.al (2019)

The research focused in reducing child and mother fatalities in Nigeria. It is a qualitative research that surveys stakeholders' opinion on the efficiency of healthcare workers as well as the introduction of community-based midwifery at the primary health level.

In a bit to reducing the alarming incidents of infants and mothers' deaths in healthcare systems in Nigeria, the research was structured to comprehend stakeholders' opinion about the effects of community health personnel and the possibility of staging midwives at the community levels.

It was carried out in Nigeria's Bauchi and Cross River States, two of the project's key states for human resources for health (HRH). Interviews were conducted with 44 purposively selected key informants. Key informants were selected based on their knowledge and experience working with different cadres of frontline health workers at primary healthcare level. The qualitative data were audio-recorded, transcribed and then thematically analysed.

The result of their studies indicated that some study participants felt that introducing community midwifery will increase access to maternal and new-born healthcare services, especially in rural communities. Others felt that applying community midwifery at the primary healthcare level may lead to duplication of duties among the health worker cadres, possibly creating disharmony. Some key informants suggested that there should be concerted efforts to train and retrain the existing cadres of community health workers via the effective implementation of the task shifting policy in Nigeria, in addition to possibly revising the existing training curricula, instead of introducing community midwifery.

The gaps

Although the study was on evaluation of Primary health programs the following were gaps between their studies and the proposed studies in this write up.

- The studies coverage was the entire Nigeria, and not narrowed to specific primary health Centres.
- The study is qualitative in nature and not based on documented evidence of interventions.
- It is not focused on Maternal, neonatal and child mortality reduction.

2.4 Synthesis of Gaps Identified

The previous empirical works reviewed were all targeted at evaluating performance or effectiveness of services and interventions in primary health. They covered assessments of structures processes and outcomes (which are the three known standard evaluations in primary health).

However, none of the works addressed the study of effectiveness of PHC intervention packages in public health in the study area as it pertains to reduction in Maternal, Neonates and Children mortality.

This study therefore contributes by identifying the available intervention packages rendered in PHCs in the study area that are offered to reduce the menace of MNC mortality in the study area. It will also contribute by assessing the effectiveness of intervention packages offered in the PHCs in the study area in reducing MNC mortality.

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CHAPTER THREE

METHODOLOGY

3.1 Research Design

3.1.1Ethical Approval

Between September 2021 and March 2022, this study was carried out at the Primary Health Center in the Kaltungo Local Government Area of Gombe State, Nigeria. The Lead City University Ibadan School of Postgraduate Studies' Research Ethics Committee gave the project its approval.

3.1.2 Study design

This descriptive study uses secondary data collecting, a questionnaire, and analysis of data to assess the effectiveness of Primary Health Care (PHC) intervention packages in lowering Maternal Neonatal and Child mortality in Primary Health Care facilities of Kaltungo Local Government Area of Gombe State.

The study was primarily carried out in Kaltungo's Local Government Areas (LGAs) in Gombe State, Nigeria. For the study, all ten (10) Primary Health Care PHCs in Kaltungo LGAs were chosen. An average of 15,000 people are served by each of the ten PHCs. Awak PHC (A2), Baule Gari (B), Gujuba PHC (G), Kalorgu PHC (K1), Kalting PHC (K2), Lakidir PHC (L), Ture Balam PHC (T), Wange PHC (W), and Yiri PHC are among these PHCs (Y). One of Nigeria's 36 states, Gombe State is situated in the north-eastern region of the country. There are 11 LGAs in the state. The population of Kaltungo is thought to be over 150,000.

All of the medical facilities in the LGA provide the Community-Based Primary Health Care Intervention Packages. This thesis, however, exclusively focuses on intervention plans that have an influence on lowering maternal, neonatal, and child mortality.

All intervention package data from all lower levels of health facilities are pooled at PHCs based on the hierarchy of primary health facilities operations with regard to documentation and flow of intervention package data (Health posts and health clinics).

Based on their knowledge of the various interventions delivered in PHCs, stakeholders for the studies were chosen for the data gathering. PHC interventions inputs and interventions outputs were identified during the focus talks. The study's intervention data periods, which were decided to be ten (10) years long and range from (2012 to 2021).

Each of the PHCs within the LGA provided the pertinent input/output data required for analysis in this article from 2012 to 2021.

3.1.2.1 Study intervention year baseline (Year 2012)

In an effort to update and enhance the efficiency of services provided in all basic healthcare facilities In 2012, the Gombe State Government made the decision to establish a new program through the deployment of a Primary Health Care (PHC) strategy with a thorough methodology. Promotive, preventative, curative, and rehabilitative therapies are all part of the effective PHC holistic approach. An interactive approach known as primary health care enables people and communities to have an active role in deciding how their health will be managed. All PHCs in all Local Government Areas (LGAs) in Gombe State, including Kaltungo LGA, saw a considerable increase as a result of this. In several PHCs, some intervention packages for lowering MNC morbidity were increased by more than twice as much. to the advancement of maternal, neonatal, and juvenile health. Others were introduced that had not previously been rendered. Given this, the year 2012 was widely recognized in Gombe State as the baseline intervention year for all significant MCH programs. The baseline year for the intervention in this study is the same year.

To gather information, a structured questionnaire was employed (as a research data tool) on documented interventions that are explicitly intended to lower maternal neonatal and child mortality.

The quantifiable, recorded study intervention input data were collected from multiple PHCs and were in the form of the number of expectant mothers, new born, and kids who benefited from particular, pertinent interventions for each of the intervention categories.

In a similar vein, the quantifiable documented study intervention output data collected from the different PHCs were the total number of pregnant women, new born, and children that passed away during the intervention period for each of the intervention types.

Ten (10) years after the study's baseline year, data were collected for the study (Intervention period – 2012 - 2021).

To calculate the correlation coefficient, the result outcome (output) of the interventions was compared against the intervention inputs for each type of intervention. To determine if the intervention input at the PHCs in the study is significant enough to lower maternal, neonatal, and child mortality, the p value of the correlated data was obtained and compared with the confidence level of 0.05.

3.2 Population of the Study

The local government of Kaltungo is divided into wards, and there is a primary health center in each ward (PHC). Each of the ten (10) PHCs in the LGA provided data. At Shamaki PHC (A1), Awak PHC (A2), Baule Gari (B), Gujuba PHC (G), Kalorgu PHC (K1), Kalting Hcp (K2), Lakidir PHC (L), Ture Balam PHC (T), Wange PHC (W), and Yiri PHC are the 10 PHCs (Y). The average population served by each PHC is 15,000 people.

The population for the study is all documented community members in the study area that benefit from the services of the PHCs within the study area and within the study period. From the data collected, the total study population was estimated to be 70,000 community members.

3.2.1 Study area

Gombe state, in Nigeria's north-east geopolitical zone, has the Kaltungo local government area. The LGA's administrative center is located in the town of Kaltungo, which is surrounded by a number of other settlements, including the towns and villages of Kalorgu, Kalaring, Okra, Kale-|Aya, sabon-Layi, popandi, poshereng, Awak Dogon Ruwa Gujuba, and Ture. The

estimated population of the region is 194,512, and the LGA is made up of people from a variety of ethnic groups, including Hausa, Tangale, Kanuri, and Fulani.

While both Islam and Christianity are extensively practiced in the LGA, Hausa is the most widely spoken language there. The Kaltungo Emirate, which includes the Tula chiefdom among its many chiefdoms, is headquartered in the Kaltungo LGA. The General Hospital Kaltungo and First Bank of Nigeria Plc are notable sites in the Kaltungo LGA.

3.2.2 Study settings

The health system is divided into primary, secondary, and tertiary levels. The first level of the health tier system consists of a district hospital that serves 60,000–100,000 people and four to five health centres with an average targeted population of 25,000 people.

Additionally, each health centre includes five health posts with a 3,500–5000person target population. It is required of the primary healthcare organizations to provide preventative, curative, promotional, and A referral centre for health clinics and health posts in the wards, it offers over 100,000 people with health services for rehabilitation. The secondary and tertiary levels, which solve multiple health issues for larger populations, include general and referral hospitals. Primary healthcare's objective is to successfully contribute to the country's aim of avoiding maternal and child deaths by collaborating closely with regional state health care In order to fulfilled this objective the Activity used development interventions to increase resource mobilization, allocation, and usage, strengthen the systems, produce responsive healthcare providers, and establish an environment that is favourable to work.

3.2.3 Inclusion Criteria

This study included documented measurable intervention data in form of number on pregnant women, neonates and children that benefited from intervention packages rendered in the respective PHCs they attend (as intervention input data – from 2012 to 2021). It also included documented measurable data in form of number of pregnant women, neonates and children

who patronize the PHCs in the study area that died within the study period (as intervention outcome data – from 2012 to 2022). It is expected that as the number of subjects who enjoy the intervention services increases, the mortality rates will decrease and vice-versa.

3.2.4 Exclusion criteria

The documented data in the PHCs for any intervention that did not cover identified PHC services by stakeholders for reducing maternal neonatal and child mortality were excluded in this study. Also, all documented data outside the identified study period of study (2012 - 2021) were filtered out.

3.3 Sample and Sampling Techniques

It is known that the population of this study are women who come for their clinical visit in the 10 Primary Health care centres in Kaltungo Local Government Area in Gombe State. These Primary Health care centers include; AT Shamaki PHC (A1), Awak PHC(A2), Baule Gari (B), Gujuba PHC (G), Kalorgu PHC (K1), Kalting PHC (K2), Lakidir PHC (L), Ture Balam PHC (T), Wange PHC (W) and Yiri PHC (Y). Since this study assumes a non-randomised, evaluation of documented empirical data, all the documented, measurable input and output intervention data that pertains to maternal neonatal and child health improvement from 2012 to 2021 were taken as sample data for our analysis in this study.

3.4 Description of the Research Instrument(s)

3.4.1 Type of tool

This study's research tool was a structured questionnaire in the form of a data template. These templates were created to record all interventions provided by PHCs with a goal of lowering maternal, neonatal, and paediatric mortality in the research area over the course of the ten-year intervention evaluation period (2012 to 2021). The templates were also made to record the results of each intervention indicator for lowering morbidity and mortality rates for children and pregnant women in the research area.

3.4.2 Administration method

The data template, which comprises details regarding recorded interventions, will be made available to the medical professionals by the ten PHCs in Gombe State's Kaltungo Local Government Area.

The PHC Attendant in charge of the PHCs issued a structured questionnaire between September 29, 2021, and December 16, 2021, in order to gather data. Intervention stakeholders mined the records of interventions that were documented and carried out during the Intervention period for all the data (2012 to 2021). The participants in the data extraction process had received training and were familiar with basic intervention plans, essential medications, and their results. The structured questionnaire was divided into five main components, each representing a different intervention group aimed at lowering maternal, neonatal, and paediatric mortality. Each section's information was taken directly from the WHO's Bundle of family planning, safe abortion, maternal, new-born, and children's health interventions[87]. Each section is further grouped into inputs and outputs (outcomes). The various intervention items were itemised under inputs while the expected measurable outcomes were classified under outcomes. Also, the questionnaire was structured to capture data for the 10 years intervention period (starting from the baseline year – 2012 to 2021). The input/output data are to be subjected to correlational analysis to determine the impact of the intervention inputs on the intervention outcomes.

[87] "Packages of Interventions for Family Planning, Safe Abortion Care, Maternal, Newborn and Child Health."

3.5 Validity of Research Instrument

3.5.1 Content validity:

The validity of the research instrument was ensured by giving the self-developed Data Template to the Project Supervisor and experts in public health field. They have checked the instrument for necessary errors, modifications and reconstruction. Observations and corrections made were carefully noted and adopted in making necessary adjustment and corrections all the affected Data Template item. Final data template was hence drafted for data collection.

3.5.2 Construct validity

The test's construct validity verifies how closely it connects to the underlying theoretical ideas. All test instruments created for this research project were done so in accordance with standards gleaned from related literature as they relate to evaluating public health intervention outputs against intervention inputs. The link between quantifiable intervention input items and output parameters was determined using correlational analysis.

3.6 Reliability of the Research Instrument

Reliability in quantitative research, findings are viewed as reliable if consistent results have been obtained since research is related to the consistency, stability, and repetition of results been attained in identical settings under various conditions[88]. By creating consistent and well-guided data, this study's reliability of the research instrument is sustained.

[88] Mohajan, "Two Criteria for Good Measurements in Research: Validity and Reliability."

framework for collecting all relevant and quantifiable primary research data. More specifically, the instrument was made to extract authentic, first-hand official data that has been recorded throughout time based on the PHCs' real operations in the research area.

3.7 Method of Data Collection

Data was obtained using a structured questionnaire (as research data tool) administered for collection of documented interventions that are specifically targeted at reducing maternal neonates and child mortality.

The measurable documented study intervention input data taken from the various PHCs were in the form of number of pregnant women, Neonates and children that benefited from specific relevant interventions for each of the intervention types.

In the same vein, the measurable documented study intervention output data taken from the various PHCs were in the form of number of pregnant women, Neonates and children that that died during the intervention period for each of the intervention types.

The study data was collected for ten (10) years period from the study baseline year (Intervention period – 2012 - 2021).

3.7 Method of Data Analysis

The result outcome (output) of the interventions were corelated against the intervention inputs for each of the intervention types in each of the PHC in the study area. Again, the variabilities of relationships between input and outcomes among the individual PHCs based on their correlation coefficient was also analysed. Subsequently upon that, the overall intervention input/output was summarised and also subjected to correlation analysis to arrive at overall correlational coefficient for each of the intervention type rendered in all the PHCs.

The correlation coefficient was computed in the following stages:

3.7.1 Determination of correlation coefficient

To assess how PHC-offered intervention programs (Inputs) affect maternal, neonatal, and pediatric mortality (output). Our depiction of the quantitative intervention inputs for each intervention type in this study is the number of mothers, new-borns, and kids who benefited from any pertinent intervention (y). One example of how we represent each of the intervention outputs (in the form of the quantitative impact of the intervention packages offered in the PHCs) is the number of pregnant women, neonates, or children who died during each intervention year, taking into account each intervention type (x).

1. We then calculate the correlational coefficient for the input/output relationship to determine the degree to which the intervention packages affected the rate of death for pregnant women, neonates, and children in the research area for each of the intervention types within particular intervention years.
2. Below is a list of the mathematical methods that can be used to calculate the correlation coefficient.
3. The input parameters are (x(i), y(i)) = a pair of data.
4. The means of the two variables x and y are determined using the following formulas. s and y, respectively, stand for the first coordinate of x's standard deviation and the second coordinate of y's standard deviation (i)
5. The correlation coefficient must be determined in the following five (5) steps:
6. Choose data sets.
7. The data set that needs to be determined consists of quantifiable intervention input items, denoted by (y), and quantifiable intervention outcome items, denoted by (x), on the one hand.
8. The standardized value for your x variables should be calculated.
9. Next, a standardized value should be determined for each x(i) variable using the equation shown below: (x(i) - x) / s = (z(x))(i) (x).

10. Determine your y variables' standardized value.
11. Similar to that, the standardized value for each y(i) is calculated using the formula

(z(y))(i) = (y(i) -) / s. (y).

Multiply and calculate the total.

The standardized values in (iii) and (iv) are then multiplied by each other, as in (z(x))(i) * (z(y)) (i). After multiplying the values, we add them all up to get the total.

Calculate the correlation coefficient by dividing the total.

The total number of points in this data pair will be represented by the number n in the following step. Subtract n - 1 from the total from step (4). Thus, the correlation coefficient will be produced.

To determine whether the intervention input at the PHCs in the study is sufficiently significant to lower maternal, neonatal, and child mortality, the p value of the correlated data should be obtained and compared with the confidence level of 0.05.

3.7.1 Determination of Correlation Coefficient between x and y

It is possible to quantify the relationship between two variables using the Pearson correlation coefficient, which measures the linear connection between two variables. It consistently takes an integer between -1 and 1, so that:

• A value of -1 indicates a totally negative linear correlation between two variables.

Zero indicates that there is no linear association between the two variables.

• A 1 indicates that there is a perfect positive linear correlation between two variables.

If you want to determine if a correlation coefficient is statistically significant, you may calculate the matching t-score and p-value.

The following formula is used to determine the correlation coefficient (r) t-score: t = r(n-2) / (1-r2)

The corresponding two-sided p-value for the t-distribution with n-2 degrees of freedom is used to determine the p-value.

3.7.1.1 P-Value for a Correlation Coefficient in Excel

The Excel formulae shown below demonstrate how to get the p-value for a given correlation coefficient and sample size:

	A	B	C	D
1	Correlation coefficient (r)	0.56		
2	Sample size (n)	14		
3				
4	t	**2.341478**	=B1*SQRT(B2-2)/SQRT(1-B1^2)	
5				
6	p-value	**0.037285**	=T.DIST.2T(B4, B2-2)	
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				

Figure 3.7.1.1 p-value calculation in excel. source: https://www.statology.org/p-value-correlation-excel

With a sample size of 14 and a correlation value of 0.56, we discover that:

• The t-score is 2.341478

• 0.037285 as the p-value

Remember that for a correlation test, the null and alternate hypotheses are as follows:

The null hypothesis is that there is no association between the two variables (H0).

The alternative claim: (Ha): The two variables have a statistically significant connection, proving that there is some association between them.

The p-value (0.037285) is less than.05. Therefore, if we apply a significance threshold of =.05, we would reject the null hypothesis in this situation. The correlation coefficient is statistically significant, therefore that's what we'd say significant[89].

Endnotes

[89] Mohajan.

CHAPTER FOUR

RESULTS

4.1 Demographic Data Analysis

Gombe State, Nigeria, contains the Local Government Area of Kaltungo. Its headquarters are located at Kaltungo, a town in the western part of the region, at 9°48′51″N 11°18′32″E on the A345 highway.

In the 2006 census, it had a population of 160,392 (80,177 men and 80,215 women), covering an area of 881 km2. Tangale, Tula, Awak, and Kamo are among the inhabitants, along with Fulani, Hausa, Yoruba, and Ibo. It comprises eight (8) districts and two chiefdoms. Its towns and villages include Awak Dogon Ruwa Gujuba, Ture, Kalorgu, Kalaring, Okra, Kale-|Aya, Sabon-Layi, popandi, and Poshereng are examples. The tallest mountain in the vicinity is (hilly kilang hill), and valleys with healthy plant life. The hospitable weather and fertile ground promote successful agriculture. both for food and income crops, such as beans, beni-seed, maize, millet, and Guinea corn. They have several different fruits, with the Kanje (Murici) being the most significant. Other fruits they have include mangoes and locust bean trees.[90]

There are primary health centers located in each of the wards that make up the Kaltungo local government (PHC). Each of the ten (10) PHCs in the LGA had data collected on them. The 10 PHCs are: AT Shamaki PHC (A1); Awak PHC (A2); Baule Gari (B); Gujuba PHC (G); Kalorgu PHC (K1); Kalting PHC (K2); Lakidir PHC (L); Ture Balam PHC (T); Wange PHC (W); and Yiri PHC (Y). An average of 15,000 people are served by each PHC.

All community members that are listed as part of the research's population in the study region benefit from the PHCs' services within the study's geographic area and time frame. The entire study population was calculated to be 70,000 community members based on the data gathered.

[90] Mohajan.

Gombe state, in Nigeria's north-east geopolitical zone, has the Kaltungo local government area. The LGA's administrative center is located at Kaltungo, a town with a large surrounding region. The estimated population of the region is 194,512, and the LGA is made up of people from a variety of ethnic groups, including Hausa, Tangale, Kanuri, and Fulani.

While both Islam and Christianity are extensively practiced in the LGA, Hausa is the most widely spoken language there. The Kaltungo Emirate, which includes the Tula chiefdom among its many chiefdoms, is headquartered in the Kaltungo LGA. The General Hospital Kaltungo and First Bank of Nigeria Plc are notable sites in the Kaltungo LGA.

Before the arrival of the two foreign religions, Christianity and Islam, the culture and tradition were debased pagans. Currently, Christians make up approximately 2/3 of the population, with Muslims and traditionalists making up the remaining 1/3. The most significant celebrations among the people's holidays are the Eku and Tagrar, which are held annually in the months of August and December the traditional dances that the entire town participates in bring the December festival to a close. The residents of Kaltungo value peace.

4.2. Presentation of Data

4.2.1 Research Question(s)

1. In the primary health care facilities in the Kaltungo Local Government Area of Gombe State, what intervention packages are being used to lower maternal, neonatal, and child mortality?
2. How successful are the intervention strategies in decreasing maternal, neonatal, and pediatric mortality in the primary healthcare facilities in Kaltungo Local Government Area, Gombe State?

Hypothesis

i. **Null Hypothesis**: There is significant effect of documented PHC intervention packages on maternal neonates and child mortality in primary health centres of Kaltungo Local Government of Gombe State.

ii. **Alternative Hypothesis**: There is no significant effect of documented PHC intervention packages on maternal neonates and child mortality in primary health centres of Kaltungo Local Government of Gombe State.

4.3.01 Intervention packages Data Analysis

Intervention packages: Data garnered from the PHCs were taken in the form of number of subjects (Pregnant women, neonates and children that benefited from the intervention services in the PHCs they patronise.). this is also regarded as measurable inputs that are expected to reduce mortality.

Mortality: Mortality data for maternal, neonatal and children were taken relative to each of the intervention packages as outcome of the interventions. It is expected that mortality rate reduces significantly with increase in intervention.

Data Period: Data was collected for ten (10) years intervention period from intervention baseline year (2012).

Data Analysis highlights: The ultimate goal of this study work is to analyse obtained intervention packages data in the form of number of number of women, neonates and children that benefited from the relevant interventions that targets improvement in maternal, neonates and children health. The expectations are that these interventions are expected to significantly reduce mortality significantly within the study period in the study area.

Two sets of data were collected and analysed for each of the intervention type. These are input data defined above (Tabulated as Interventions) on the one part and the output data

(representing total deaths for each of the intervention year for a period of ten years and tabulated as Mortality).

The interventions (number of people that benefited from the interventions) were regarded as independent variables. In the same vein, the documented number of people that died (mortality) due to factors that the interventions attempt to solve were regarded as dependent variable.

The dependent variables were subjected to correlation against the independent variable to determine the degree of relationships between the two variables.

The correlation coefficients for each of the intervention type was computed as well as the p-value. The p-value was used at significant level of 0.05 to determine whether the interventions rendered has significantly reduced mortality for each of the age groups.

This analysis was done for each of the PHCs. Cumulated data from the ten PHCs was subjected to the same process.

Intervention packages effectiveness criterion: The following conditions must be fulfilled for an intervention to be inferred as effective.

i. The correlation coefficient (r) obtained must be less than 0.00.
ii. The p-value computed must be less than the significant level of 0.05.

4.3.02 Analysis of cummulative Intervention data for all the PHCs

Table 4.3.0 below shows summary of pre and post intervention mortalities for the various mortality groups in PHC centers in Kaltungo local government, Figure 4.3.0 depicts the Pictorial summary of the Mortalities in the various mortality groups. The intervention baseline year being 2012, while the intervention period is from 2012-2021, as a result of the interventions, there was an overall reduction in mortality rate of 21.03%. This is made up of individual changes in various mortality groups; There were reductions in Neonatal mortality

by 48.61%, reductions in Maternal mortality by 25.03%, reductions in Under-five mortality by 10.95%, however, there was an observed increase in Perinatal mortality ratio by 4.53%.

Table 4.3.0 Summary of Pre/Post Intervention Mortalities

Mortality Category	Pre-Intervention (2002 ≤ 2012 <)	Post-Intervention (2012 < 2021 ≤)	% reduction in mortality
Maternal Mortality	11049	8283	25.03
Perinatal Mortality	3374	3527	-4.53
Neonatal Mortality	1870	961	48.61
Under- Five Mortality	950	846	10.95
	17243	**13617**	**21.03**

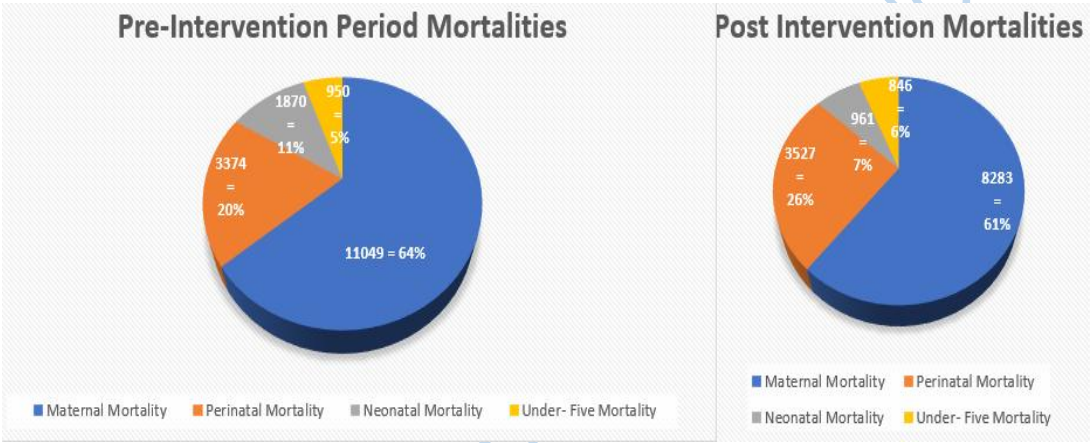
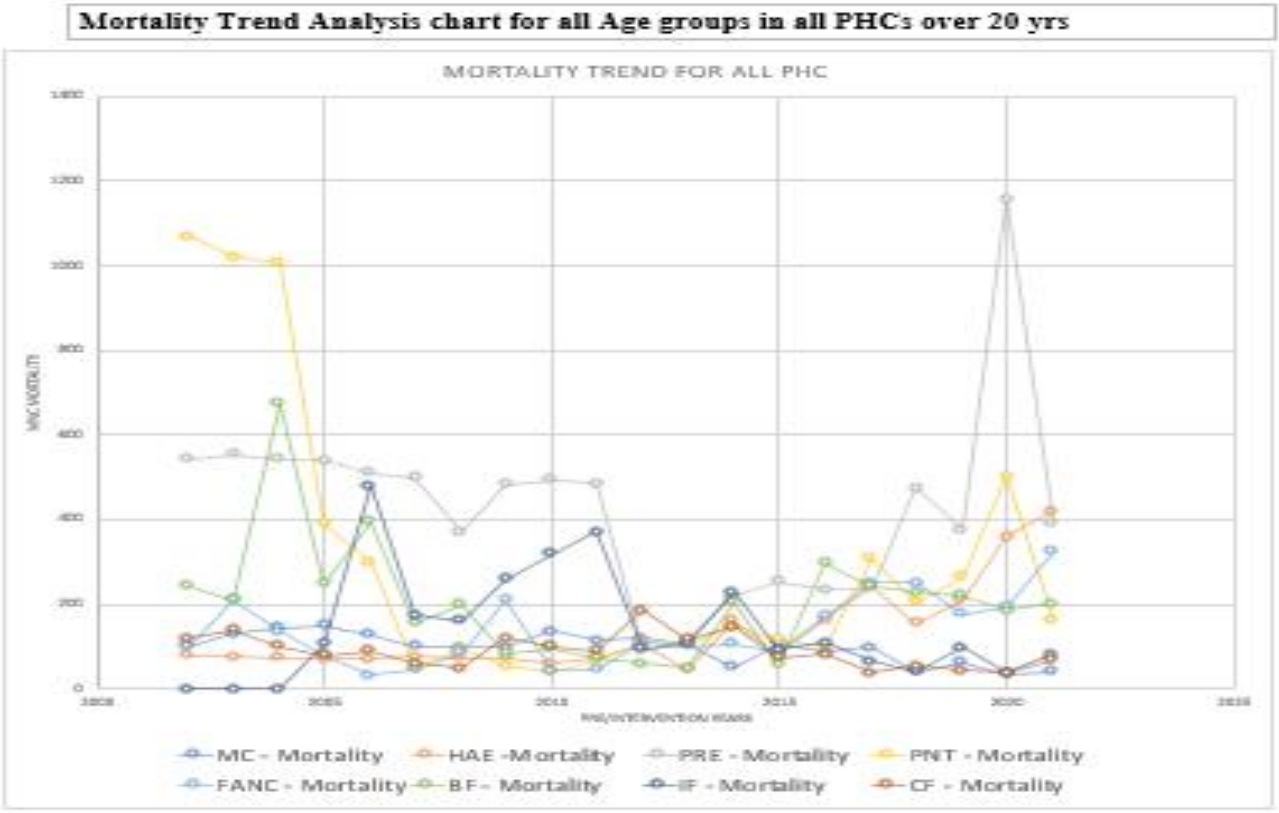


Figure 4.3.0 Chart of Pre/Post Intervention Mortalities

Table 4.3.1 shows the summary of intervention packages for all the PHCs in Kaltungo LGA. From the table, Interventions for reducing maternal mortality are categorised into four main groups: malaria control, administration of haematonics, Posnatal care and disease prevention/immunization.

The result for matarnal mortality category shows that only malaria control (r = -0.74, p-value = 0.015) and administration of haematonics (r = 0.55, p – value = 0.036) are ineffective. Interventions for disease prevention (r = 0.86, p-value = 0.001) and that of post natal care (r = 0.68, p-value = 0.031) were ineffective.

Figure 4.3.1 Mortality Trend Analysis Charts for all age groups in all PHC's over 20 years

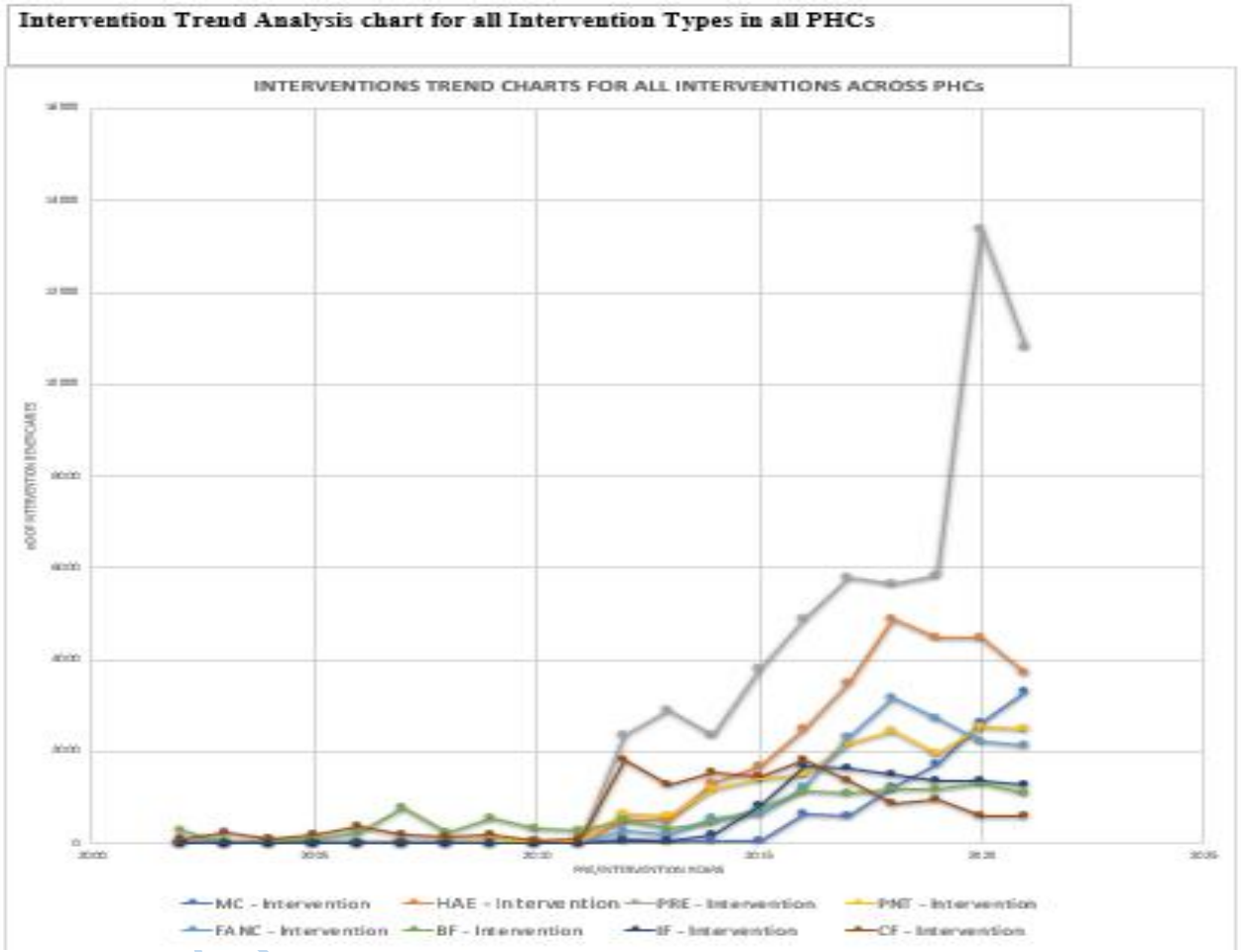


		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Malaria control	MC - Mortality	100	130	144	150	127	100	97	99	137	116	120	107	52	107	87	99	40	62	36	41
Haematonics	HAE -Mortality	80	77	73	72	71	77	74	75	60	74	103	46	160	83	165	244	156	209	360	421
Prevention	PRE - Mortality	543	553	543	540	510	500	372	482	493	487	91	116	219	254	236	238	474	378	1158	394
Post-Natal Care	PNT - Mortality	1070	1022	1008	390	300	48	92	54	40	69	112	106	147	117	101	308	205	264	503	164
Focus ANC	FANC - Mortality	100	210	137	78	32	47	85	210	43	46	109	101	107	88	173	251	252	178	193	325
Breast-feeding	BF - Mortality	244	211	674	249	396	157	200	85	96	74	61	50	206	57	297	242	229	220	186	202
Infection	IF - Mortality	0	0	0	106	480	174	160	260	320	370	96	106	230	94	109	65	41	99	38	83
Complimenary Feeding	CF - Mortality	120	140	100	80	90	60	50	120	100	90	186	117	148	73	82	37	55	43	37	68

Table 4.3.2 Intervention and Mortality trends Analysis charts for all Age groups in all the PHCs in 20 years.

		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Malaria control	MC - Intervention	3	2	4	6	9	3	8	6	5	7	104	50	31	49	632	613	1210	1710	2646	3306
Malaria control	MC - Mortality	100	130	144	150	127	100	97	99	137	116	120	107	52	107	87	99	40	62	36	41
Haematinics	HAE - Intervention	5	6	14	15	14	16	17	16	13	14	488	484	1310	1679	2470	3470	4888	4490	4471	3709
Haematinics	HAE -Mortality	80	77	73	72	71	77	74	75	60	74	103	46	160	83	165	244	156	209	360	421
Prevention	PRE - Intervention	0	0	0	0	0	0	0	0	0	0	2361	2879	2366	3819	4905	5810	5665	5826	13393	10802
Prevention	PRE - Mortality	543	553	543	540	510	500	372	482	493	487	91	116	219	254	236	238	474	378	1158	394
Post-Natal Care	PNT - Intervention	0	0	0	0	0	0	0	30	38	40	648	593	1173	1422	1483	2187	2428	1965	2560	2500
Post-Natal Care	PNT - Mortality	1070	1022	1008	390	300	48	92	54	40	69	112	106	147	117	101	308	205	264	503	164
Focus ANC	**FANC - Intervention**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**3**	**6**	**4**	**271**	**199**	**539**	**650**	**1217**	**2295**	**3180**	**2740**	**2241**	**2122**
Focus ANC	FANC - Mortality	100	210	137	78	32	47	85	210	43	46	109	101	107	88	173	251	252	178	193	325
Breast-feeding	BF - Intervention	297	24	67	86	234	766	246	533	321	275	506	338	453	755	1115	1106	1163	1171	1299	1070
Breast-feeding	BF - Mortality	244	211	674	249	396	157	200	85	96	74	61	50	206	57	297	242	229	220	186	202
Infection	IF - Intervention	0	0	0	0	0	0	0	11	14	15	66	55	202	807	1675	1641	1520	1372	1342	1287
Infection	IF - Mortality	0	0	0	106	480	174	160	260	320	370	96	106	230	94	109	65	41	99	38	83
Complimenary Feeding	CF - Intervention	120	220	90	210	360	210	140	170	70	110	1808	1272	1554	1440	1804	1348	869	945	617	584
Complimenary Feeding	CF - Mortality	120	140	100	80	90	60	50	120	100	90	186	117	148	73	82	37	55	43	37	68

Figure 4.3.3 Intervention and Mortality Trend Analysis Charts for all age groups in all PHC's over 20 years



		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Malaria control	MC - Intervention	3	2	4	6	9	3	8	6	5	7	104	50	31	49	632	613	1210	1710	2646	3306
Haematinics	HAE - Intervention	5	6	14	15	14	16	17	16	13	14	488	484	1310	1679	2470	3470	4888	4490	4471	3709
Prevention	PRE - Intervention	0	0	0	0	0	0	0	0	0	0	2361	2879	2366	3819	4905	5810	5665	5826	13393	10802
Post-Natal Care	PNT - Intervention	0	0	0	0	0	0	0	30	38	40	648	593	1173	1422	1483	2187	2428	1965	2560	2500
Focus ANC	FANC - Interventi	0	0	0	0	0	0	7	3	6	4	271	199	539	650	1217	2295	3180	2740	2241	2122
Breast-feeding	BF - Intervention	297	24	67	86	234	766	246	533	321	275	506	338	453	755	1115	1106	1163	1171	1299	1070
Infection	IF - Intervention	0	0	0	0	0	0	0	11	14	15	66	55	202	807	1675	1641	1520	1372	1342	1287
Complimenary Feeding	CF - Intervention	120	220	90	210	360	210	140	170	70	110	1808	1272	1554	1440	1804	1348	869	945	617	584

Fig. 4.3.2 shows Intervention trend chart for both pre intervention and inverventon period for all the intervention types accross all PHCs in the study area. while fig 4.3.1 shows mortality trend chart for Maternal, neonates and children for both preintervention period (2002 - 2011) and intervention periods(2012 - 2021).s

- As seen in figure 4.3.2, prevention control recorded the highest number of intervention beneficiaries during the intervention periods. However, despite this high increase in prevention contol intervention, MCH Mortalities (fig 4.3.1) does not reduce during the intervention period as there is no downward movement if the chart trendline for desease prevention control.

The second intervention that recorded high number of beneficiaries is as depicted in fig 4.3.2 is Haematinics during the intervention Period (2012 - 2021). However, although haemotinics realted mortalities during the preintervention period ia significantly lower than mortalities during the intervention periods, it can be see from the cart that mortalies relative to heamotinics are inconsistent with increasing number of haenotinics related baneficiaries.

Cummulative PHCs Intervention Packages Effectiveness Analysis Table																
Mortality category	Intervention type	Input/Output	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	r	p-value	α	Inference
Maternal Mortality	Malaria control	Intervention	104	50	31	49	632	613	1210	1710	2646	3306	-0.74	0.015	0.05	Effective
		Mortality	120	107	52	107	87	99	40	62	36	41				
	Haematonics	Intervention	488	484	1310	1679	2470	3470	4888	4490	4471	3709	0.67	0.036	0.05	InEffective
		Mortality	103	46	160	83	165	244	156	209	360	421				
	Prevention	Intervention	2361	2879	2366	3819	4905	5810	5665	5826	13393	10802	0.86	0.001	0.05	Ineffective
		Mortality	91	116	219	254	236	238	474	378	1158	394				
	Post-Natal Care	Intervention	648	593	1173	1422	1483	2187	2428	1965	2560	2500	0.68	0.031	0.05	Ineffective
		Mortality	112	106	147	117	101	308	205	264	503	164				
Perinatal Mortality	Focus ANC	Intervention	271	199	539	650	1217	2295	3180	2740	2241	2122	0.79	0.007	0.05	Ineffective
		Mortality	109	101	107	88	173	251	252	178	193	325				
	Breast-feeding	Intervention	506	338	453	755	1115	1106	1163	1171	1299	1070	0.70	0.024	0.05	Ineffective
		Mortality	61	50	206	57	297	242	229	220	186	202				
Neonatal Mortality	Infection	Mortality	66	55	202	807	1675	1641	1520	1372	1342	1287	-0.56	0.092	0.05	Ineffective
		Mortality	96	106	230	94	109	65	41	99	38	83				
Under- Five Mortality	Complimenary Feeding	Intervention	1808	1272	1554	1440	1804	1348	869	945	617	584	0.65	0.04	0.05	Ineffective
		Mortality	186	117	148	73	82	37	55	43	37	68				

Ho	r = 0
Ha	r ≠ 0
α	0.05

Table4.3.1 Cummulative PHCs Intervention parkages of Effectiveness Analysis

1. Interventions for reducing maternal mortality are categorised into four main groups: malaria control, administration of haematonics, Posnatal care and disease prevention/immunization. The result for matarnal mortality category shows that only malaria control (r = -0.74, p-value = 0.015) is effective and administration of haematonics (r = -0.67, p – value = 0.036) is ineffective. Interventions for disease prevention (r = 0.86, p-value = 0.001) and that of post natal care (r = 0.68, p-value = 0.031) were ineffective.

2. Interventions for reducing Perinatal mortality are categorised into two main groups: Focus AnteNatalmalaria and breast feedings. The result for Neonatal mortality category shows that Focus AnteNatal is Ineffective (r = 0.79., p-value = 0.007) and Breasat feedings (r = 0.70., p – value = 0.024) are Ineffective.

3. Interventions for reducing Neonatal mortality is Infection Control. The result for Neonatal mortality category shows that Inffection control is Ineffective (r = -0.56., p-value = 0.05) is Ineffective.

Table 4.3.03 Geo-Demographic Analysis of Effectiveness

4. Interventions for reducing Under five mortality is Complemantary feedings. The result for Under five mortality category shows that Inffection control is Ineffective (r = 0.65., p-value = 0.04) is Ineffective.

- Table 4.3.03 shows geo-demographic analysis of effectiveness of interventions across the 10 PHC's over the period of 10 years.
- Based on the Geo-demographic distribution, Malaria control and Infection control have

		AT Shamaki P	Awak PH	Baule G.	Gujuba PH	Kalorgu	'Kalting	Lakidir I	Ture B. P	Wange I	Yiri PHC
Maternal	Malaria control	Ineffective	Effective	Ineffective	Ineffecctive	Ineffectiv	Ineffective	neffective	Effective	Ineffectiv	Effective
	Haematonics	ineffective	Ineffectivve	Ineffective	Ineffecctive	Ineffectiv	Ineffective	neffective	Ineffective	Ineffectiv	Ineffective
	Prevention	effective	Ineffectivve	Ineffective	Ineffecctive	Ineffectiv	Ineffective	neffective	Ineffective	Ineffectiv	Ineffective
	Post-Natal Care	Ineffective	Ineffectivve	Effective	Ineffecctive	Ineffectiv	Ineffective	neffective	Ineffective	Ineffectiv	Ineffective
Perinatal	Focus ANC	Ineffective	Ineffectivve	Effective	Ineffecctive	Effective	Ineffective	neffective	Ineffective	Ineffectiv	Ineffectiv
	Breast-	Ineffective	Ineffectivve	Ineffective	Ineffecctive	Ineffectiv	Ineffective	Effective	Effective	Ineffectiv	Ineffective
Neonatal	Infection	Ineffective	Effective	Ineffective	Ineffecctive	Ineffectiv	Effective	neffective	Ineffective	Effective	Ineffective
Under-Five	Complimentary Feeding	effective	Ineffectivve	Ineffective	Ineffecctive	Ineffectiv	Ineffective	neffective	Ineffectiv e	Effective	Ineffective

- the highest number of effectiveness across the PHCs:

Malaria control is effective in Awak, Ture-Balam, and Yiri PHCs while

Infection control is effective in Awak, Kaltin and Wange PHCs

FocusAnte-Natal, Breast Feeding and Complimentary feeding interventions are effective in two PHC's each:

Focus ANC intervention is effective in Baule Gari and Kalorgu PHC while;

Breast Feeding intervention is Effective in Lakidir and Ture Balam PHC and;

Complementary feeding/nutrition is effective in AT Shamaki and Wange.

While some of the PHCs have the lowest number of effectiveness Like: Prevention/immunization is effective in ATshamaki and Post-Natal Care is effective in Baule –Gari, administration of Haemotonics intervention is ineffective in all of the PHCs.

4.3.04 Demographic Distribution of Intervention Effectiveness(By Age Group)

Interventions are rendered, targeting four mortality age groups namely:

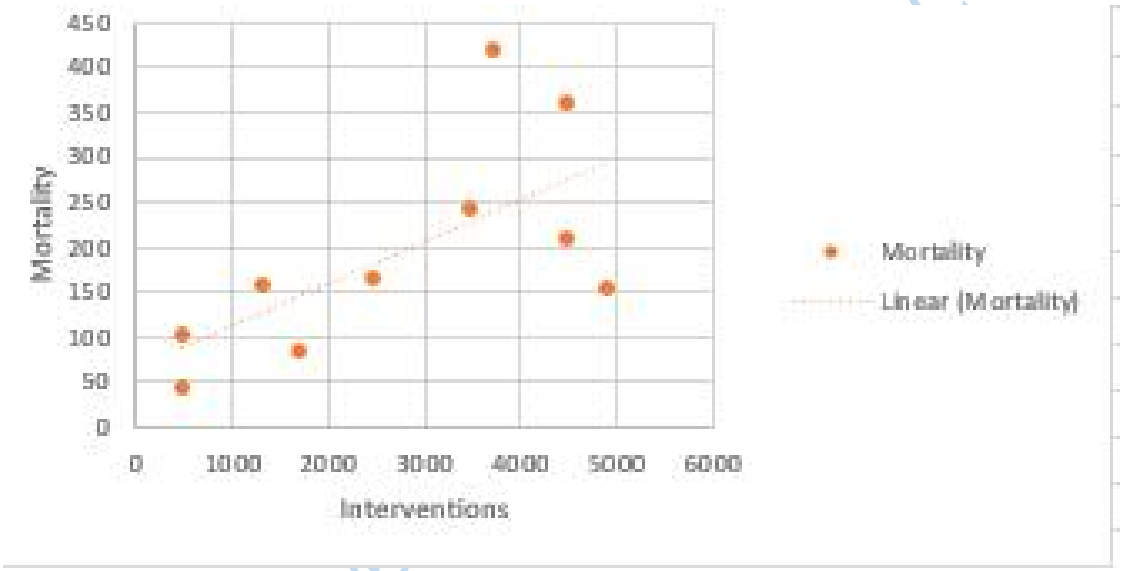
i. Maternal mortality: which consists of four interventions(Malaria Control, Haematenics, Prevention/Immunization and Post-Natal Care) has the highest number of effective interventions across the 10 PHCs over the period of 10 years. Malaria control intervention, for example is effective in Awak PHC, Ture Balam PHC and Yiri PHC, Prevention/Immunization intervention being effective in AT Shamaki, Post Natal Care in Baule Gari PHC only.
ii. Perinatal Mortality: consists of two interventions (Focus ANC and Breast Feeding) is effective across four PHCs where Focus ANC intervention is effective in Baule Gari and Kalorgu PHCs, Breast Feeding intervention is effective in Lakidir and Ture Balam PHCs.

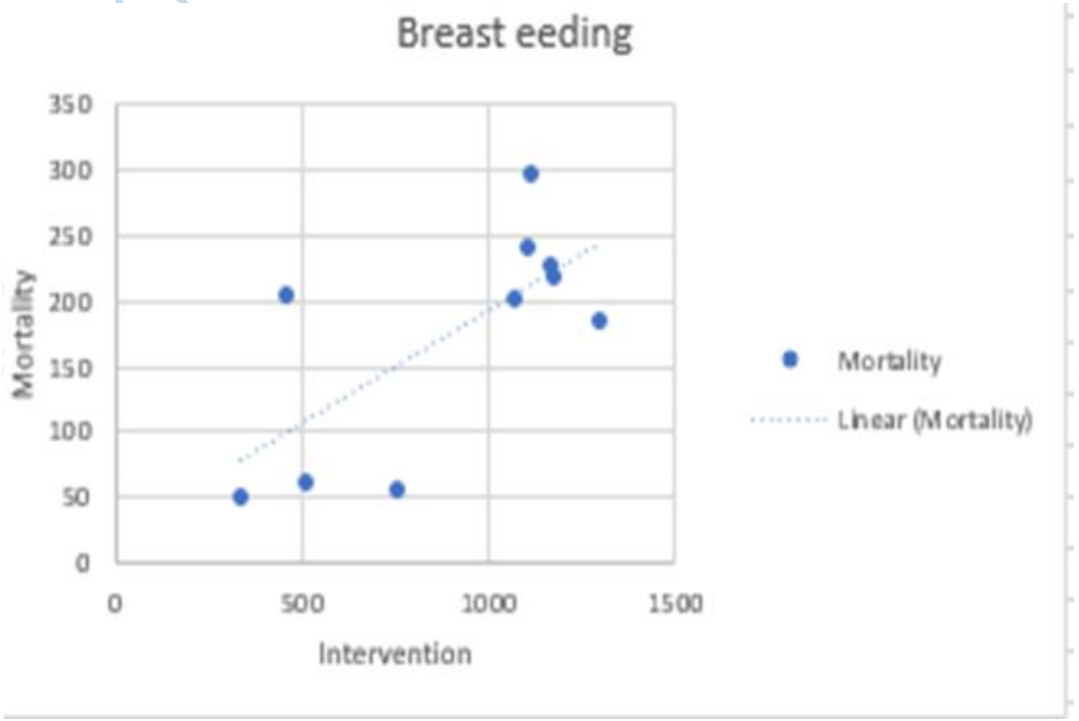
iii. Neonatal Mortality: has only one intervention(Infection) effective in three PHC's being Awak PHC, Kalting PHC and Wange PHC respectively.

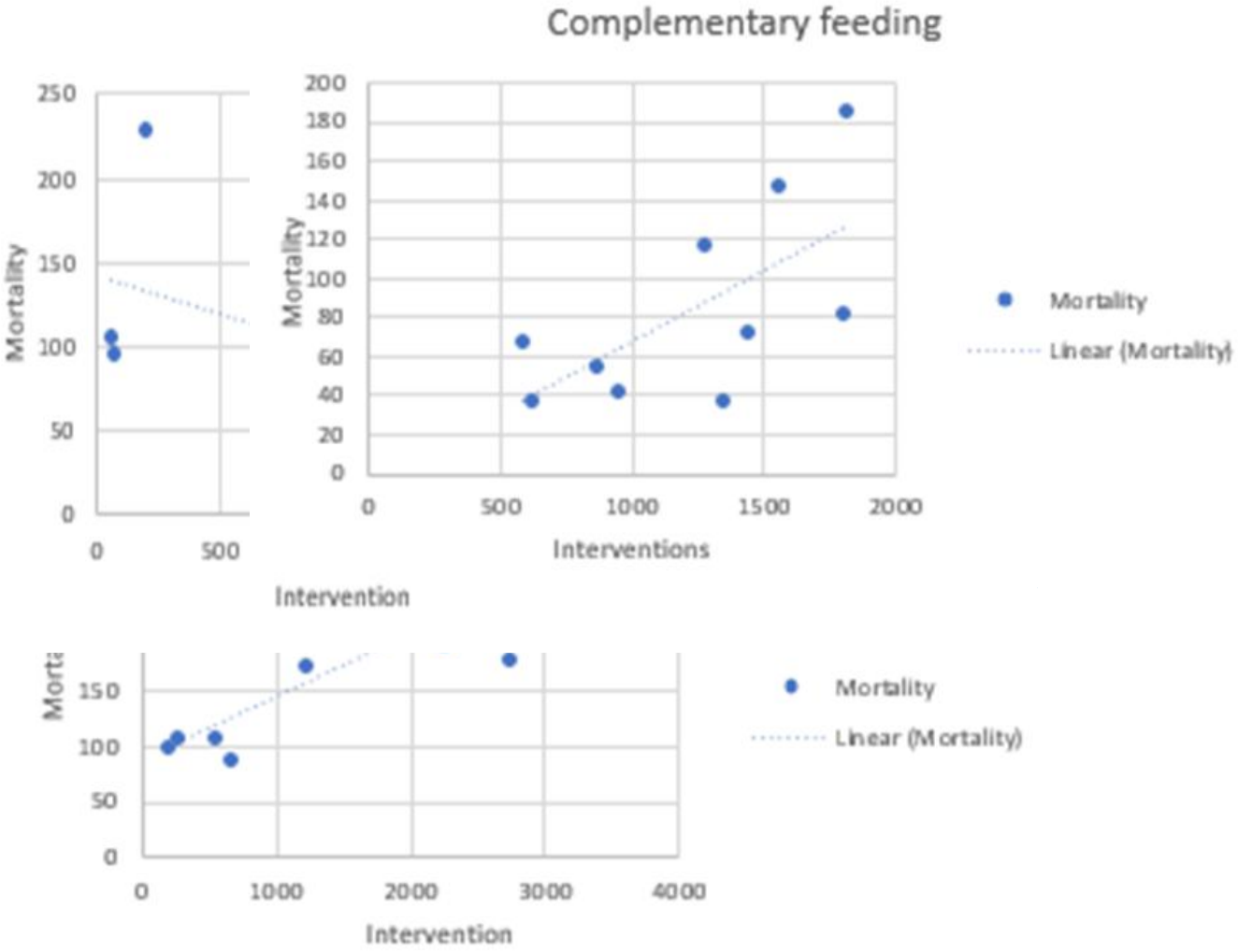
iv. Under Five mortality: this also has only one intervention type(Complimentary feeding/Nutrition) which is effective in AT Shamaki PHC and Wange PHC.

Effectiveness of interventions based on this mortality grouping can be analyzed as follows:

Haematinics







4.3.05 Analysis of Intervention Data Per PHC

Figure 4.3.1 shows the summary of intervention packages for all the PHCs in Kaltungo LGA. From the table, Interventions for reducing maternal mortality are categorised into four main groups: malaria control, administration of haematinics, Posnatal care and disease prevention/immunization. The result for matarnal mortality category shows that only malaria control (r = -0.74, p-value = 0.015) and administration of haematinics (r = -0.55, p – value = 0.036) are ineffective. Interventions for disease prevention (r = 0.86, p-value = 0.001) and that of post natal care (r = 0.68, p-value = 0.031) were ineffective.

1.Interventions for reducing maternal mortality are categorised into four main groups: malaria control, administration of haematinics, Posnatal care and disease prevention/immunization. The result for matarnal mortality category shows that only malaria control (r = -0.74, p-value = 0.015) and administration of haematonics (r = -0.55, p – value = 0.036) are ineffective.

4.3.04.1 AT Shamaki PHC

Table 4.3.2 shows AT Shamaki's PHC intervention packages summary table. From the table, Interventions for reducing maternal mortality are categorised into four main groups: malaria control, administration of haematinics, Posnatal care and disease prevention/immunization.

1. The result for matarnal mortality category shows that only Prevention /Immunization (r = -0.26, p-value = 0.038) is effective. Interventions for Malarial control (r = 0.4108, p-value = 0.2383) and that of post natal care (r =-0.2805 , p-value = 0.4645) as well as Haematonics (r = -0.3853, p-value = 0.2715)were ineffective.

Table 4.3.2: AT Shamaki PHCs Intervention Packages Effectiveness Summary table

AT Shamaki PHC Intervention Packages Effectiveness Analysis Table															
Mortality category	**Intervention type**	**Input/Output**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**r**	**p-value**	**α**	**Inference**
Maternal Mortality	Malaria control	Interventions	13	13	5	5	13	21	124	165	120	205	0.4108	0.2383	0.05	Ineffective
		Mortality	1	8	4	9	2	0	4	7	7	8				
	Haematonics	Interventions	20	24	171	87	87	661	1105	689	902	638	-0.3853	0.2715	0.05	ineffective
		Mortality	0	0	7	8	8	2	0	0	4	2				
	Prevention	Interventions	72	22	158	82	145	227	152	206	353	402	-0.2621	0.0386	0.05	effective
		Mortality	6	4	10	12	21	11	3	27	9	5				
	Post-Natal Care	Interventions	26	52	152	209	166	216	446	342	1120	355	-0.2805	0.4645	0.05	Ineffective
		Mortality	14	23	4	8	2	4	1	5	8	2				
Perinatal Mortality	Focus ANC	Interventions	8	21	34	47	57	234	87	200	430	98	-0.2805	0.4324	0.05	Ineffective
		Mortality	3	7	3	10	0	7	14	5	0	4				
	Breast-feeding	Interventions	14	14	50	28	89	197	178	121	87	254	-0.1848	0.0664	0.05	Ineffective
		Mortality	6	4	9	12	4	5	7	3	2	6				
Neonatal Mortality	Infection	Interventions	6	16	154	10	264	214	201	201	185	195	-0.3076	0.8529	0.05	Ineffective
		Mortality	4	2	5	6	0	7	3	2	4	1				
Under-Five	Complimentary Feeding	Interventions	23	39	169	45	72	32	12	81	24	73	-0.4188	0.0074	0.05	effective
		Mortality	9	13	0	17	5	3	6	5	2	3				

Ho	$r = 0$
Ha	$r \neq 0$
α	0.05

2. Interventions for reducing Perinatal mortality are categorised into two main groups: Focus AnteNatalmalaria and breast feedings. The result for Neonatal mortality category shows that Focus AnteNatal is Ineffective (r =-0.2805, p-value =0.4324) and Breast feedings (r =-0.1848, p – value = 0.0664) are Ineffective.

3. Interventions for reducing Neonatal mortality is Infection Control. The result for Neonatal mortality category shows that Inffection control is Ineffective (r = -0.3076, p-value = 0.8529) is Ineffective.

4. Interventions for reducing Under five mortality is Complemantary feedings. The result for Under five mortality category shows that Inffection control is Ineffective (r = -0.4188., p-value = 0.0074) is Effective.

4.3.03.2 Yiri PHC

Table 4.3.3 shows Yiri PHC intervention packages. From the table, Interventions for reducing maternal mortality are categorised into four main groups: malaria control, administration of haematonics, Posnatal care and disease prevention/immunization.

Table 4.3.3: Yiri PHCs Intervention Packages Effectiveness Summary table

Yiri PHC Intervention Packages Effectiveness Analysis Table																
Mortality category	Intervention type	Input/Output	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	r	p-value	α	Inference
Maternal Mortality	Malaria control	Intervention	13	4	0	0	67	11	76	162	161	164	-0.67	0.03	0.05	Effective
		Mortality	11	24	8	19	14	17	13	10	5	6				
	Haematonics	Intervention	0	0	0	23	552	68	199	272	268	220	0.25	0.48	0.05	Ineffective
		Mortality	4	0	0	0	3	2	0	0	1	3				
	Prevention	Intervention	237	662	347	179	515	1129	848	838	3711	3876	-0.35	0.32	0.05	Ineffective
		Mortality	13	14	16	6	12	2	4	6	9	4				
	Post-Natal Care	Intervention	45	39	77	121	87	116	163	241	250	249	-0.06	0.87	0.05	Ineffective
		Mortality	7	15	22	6	3	8	18	8	12	10				
Perinatal Mortality	Focus ANC	Intervention	34	15	27	114	234	213	342	224	278	79	0.75	0.01	0.05	Ineffective
		Mortality	3	6	8	7	12	4	14	9	12	6				
	Breast-feeding	Intervention	38	26	52	95	162	136	144	167	270	0	-0.82	0.08	0.05	Ineffective
		Mortality	13	9	15	3	2	5	7	2	0	2				
Neonatal Mortality	Infection	Intervention	4	9	49	155	256	209	207	195	189	184	-0.60	0.07	0.05	Ineffective
		Mortality	6	15	3	7	4	5	2	1	3	2				
Under-Five	Complimentary Feeding	Intervention	171	156	113	176	146	127	75	74	35	35	0.42	0.22	0.05	Ineffective
		Mortality	44	27	48	14	7	2	6	8	10	7				

Ho	r = 0
Ha	r ≠ 0
α	0.05

1. The result for matarnal mortality category shows that only Malaria control (r = -0.67, p-value = 0.03) is effective. Interventions for Prevention /Immunization (r = -0.35, p-value = 0.32) and that of post natal care (r =-0.06 , p-value = 0.87) as well as Haematonics (r = 0.25, p-value = 0.48)were ineffective.

2. Interventions for reducing Perinatal mortality are categorised into two main groups: Focus AnteNatal and breast feedings. The result for Neonatal mortality category shows that Focus AnteNatal is Ineffective (r =0.75, p-value =0.01) and Breast feedings (r =-0.82, p – value = 0.08) are Ineffective.

3. Interventions for reducing Neonatal mortality is Infection Control. The result for Neonatal mortality category shows that Inffection control is Ineffective (r = -0.60, p-value = 0.07) is Ineffective.

4. Interventions for reducing Under five mortality is Complemantary feedings. The result for Under five mortality category shows that Inffection control is Ineffective (r = 0.42, p-value = 0.22) is Effective.

4.3.04.3 Ture Balam PHC

Fig 4. 3.4 shows Ture Balam PHC treatment plans. From the table, it can be seen that interventions for lowering maternal mortality are divided into four primary categories: eradicating malaria, administering hemotonics, providing prenatal care, and illness prevention/immunization.

1. The outcome for the category of maternal mortality reveals that only malaria control is effective (r = -0.7078, p-value = 0.022). Ineffective interventions included haematonics (r = -0.134, p-value = 0.7121), postnatal care (r = -0.1274, p-value = 0.7259), and prevention/immunization (r = 0.4823, p-value = 0.1581).

2. Focus antenatal and breastfeeding interventions are divided into two main categories for reducing perinatal mortality. Focus AnteNatal is ineffective (r =0.4551, p-value =0.01863), according to the results for the category of Neonatal Mortality, but breastfeeding is effective (r =-0.0602, p-value =0.0162).

Table 4.3.4: Ture Balam PHCs Intervention Packages Effectiveness Summary

Ture Balam PHC Intervention Packages Effectiveness Analysis Table																
Mortality category	Intervention type	Input/Output	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	r	p-value	α	Inference
Maternal Mortality	Malaria control	Interventions	56	18	13	23	135	196	250	365	309	434	-0.7078	0.022	0.05	Effective
		Mortality	15	13	8	10	4	8	6	0	5	6				
	Haematonic	Interventions	130	24	18	217	336	277	184	423	1123	145	-0.134	0.7121	0.05	Ineffective
		Mortality	6	0	1	0	2	2	0	0	1	3				
	Prevention	Interventions	228	388	318	179	388	627	403	809	2158	1322	0.4823	0.1581	0.05	Ineffective
		Mortality	4	14	10	6	12	2	6	6	13	19				
	Post-Natal Care	Interventions	60	82	318	139	191	200	423	399	443	354	-0.1274	0.7259	0.05	Ineffective
		Mortality	23	7	0	10	2	8	15	8	12	10				
Perinatal Mortality	Focus ANC	Interventions	34	12	21	6	3	123	254	307	190	87	0.4551	0.1863	0.05	Ineffective
		Mortality	13	3	5	4	2	10	17	4	12	6				
	Breast-feeding	Interventions	34	23	1	95	162	136	67	167	147	270	-0.0602	0.0162	0.05	Effective
		Mortality	6	4	1	0	11	2	3	2	0	1				
Neonatal Mortality	Infection	Interventions	23	11	52	158	258	215	213	201	195	192	-0.5028	0.1386	0.05	Ineffective
		Mortality	4	2	3	0	3	2	0	0	1	0				
Under- Five Mortality	Complimentary	Interventions	146	61	91	107	90	38	85	29	31	44	0.7313	0.0162	0.05	Ineffective
		Mortality	9	4	7	9	13	4	1	0	0	2				

Ho	r = 0
Ha	r ≠ 0
α	0.05

3. Infection control is one of the interventions used to lower neonatal mortality. Infection control is ineffective, as evidenced by the result for the category of Neonatal Mortality (r = -0.5028, p-value = 0.1386).

4. Complementary feedings are an intervention for lowering mortality in children under five. According to the outcome for the mortality category for children under five, infection control is ineffective (r = 0.7313, p-value = 0.0162).

4.3.3.4 Gujuba PHC

Table 4.3.5 shows Gujuba PHC intervention packages. From the table, Interventions for reducing maternal mortality are also categorised into four main groups: malaria control, administration of haematonics, Posnatal care and disease prevention/immunization.

Table 4.3.5: Gujuba PHCs Intervention Packages Effectiveness Summary

Gujuba PHC Intervention Packages Effectiveness Analysis Table																
Mortality category	Interventio	Input/Outpu	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	r	p-value	α	Inference
Maternal	Malaria control	Intervention	0	0	4	6	79	93	79	203	483	682	-0.587	0.07	0.05	Ineffective
		Mortality	23	14	9	18	14	17	1	10	3	5				
	Haematonics	Intervention	74	107	390	255	115	701	730	882	674	1245	-0.166	0.65	0.05	Ineffective
		Mortality	5	4	1	0	0	2	0	3	0	2				
	Prevention	Intervention	300	252	228	276	399	556	413	694	470	433	-0.278	0.44	0.05	Ineffective
		Mortality	17	13	6	4	3	3	6	9	3	2				
	Post-Natal Care	Intervention	111	45	164	210	123	42	74	135	229	158	0.346	0.33	0.05	Ineffective
		Mortality	2	4	13	11	4	5	13	9	8	5				
Perinatal Mortality	Focus ANC	Intervention	17	22	26	49	200	324	389	345	289	400	0.742	0.01	0.05	Ineffective
		Mortality	6	8	4	7	12	15	9	23	20	16				
	Breast-feeding	Intervention	42	7	79	132	169	7	59	51	63	79	0.459	0.18	0.05	Ineffective
		Mortality	8	4	2	10	7	2	3	5	1	1				
Neonatal Mortality	Infection	Intervention	5	3	3	153	127	124	140	142	133	110	-0.593	0.07	0.05	Ineffective
		Mortality	6	4	6	2	7	3	2	1	0	0				
Under- Five Mortality	Complimentary Feeding	Intervention	235	185	366	357	529	336	98	110	95	76	0.278	0.06	0.05	Ineffective
		Mortality	24	13	9	5	14	7	4	15	1	2				

Ho	r = 0
Ha	r ≠ 0
α	0.05

1. The result for matarnal mortality category shows that all the intervention on reducing materna neonatal and under five mortality are Ineffective Malaria control (r = -0.589, p-value = 0.07) is Inffective. Interventions for Prevention /Immunization (r = -0.278, p-value = 0.44) and that of post natal care (r =0.346 , p-value = 0.33) as well as Haematonics (r = -0.166, p-value = 0.65)were ineffective.

2. Interventions for reducing Perinatal mortality are categorised into two main groups: Focus AnteNatal and breast feedings. The result for Neonatal mortality category shows that Focus AnteNatal is Ineffective (r =0.742, p-value =0.01) Breast feedings with (r =-0.459 p – value = 0.18) are Ineffective.

3. Interventions for reducing Neonatal mortality is Infection Control. The result for Neonatal mortality category shows that Infection control (r = -0.593, p-value = 0.07) is Ineffective.

4. Interventions for reducing Under five mortality is Complemantary feedings. The result for Under five mortality category shows that Inffection control is Ineffective (r = 0.278, p-value = 0.06) is Ineffective.

4.3.3.5 Kalorgu PHC

Table 4.3.6 shows Kalorgu PHC intervention packages. From the table, Interventions for reducing maternal mortality are also categorised into four main groups: malaria control, administration of haematonics, Posnatal care and disease prevention/immunization.

Table 4.3.6: Kalorgu PHCs Intervention Packages Effectiveness Summary table

Kalorgu PHC Intervention Packages Effectiveness Analysis Table															
Mortality	Intervention type	Input/output	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	r	p-value	α	Inference
Maternal Mortality	Malaria control	Intervention	0	0	0	0	98	19	35	4	72	125	0.028	0.939	0.05	Ineffective
		Mortality	9	8	4	7	16	7	5	5	1	3				
	Haematonics	Intervention	48	23	56	97	108	116	172	196	167	145	-0.553	0.097	0.05	Ineffective
		Mortality	5	4	0	0	3	2	0	0	1	3				
	Prevention	Intervention	317	319	224	241	684	715	431	960	600	240	-0.221	0.540	0.05	Ineffective
		Mortality	6	8	9	6	12	2	3	4	2	4				
	Post-Natal Care	Intervention	100	61	93	86	104	70	143	157	134	142	-0.341	0.335	0.05	Ineffective
		Mortality	15	15	10	6	3	10	10	8	9	7				
Perinatal Mortality	Focus ANC	Intervention	13	23	67	83	90	113	178	196	79	120	-0.739	0.015	0.05	Effective
		Mortality	17	30	19	7	12	0	7	4	12	6				
	Breast-feeding	Intervention	73	36	36	56	55	144	71	57	64	86	-0.160	0.659	0.05	Ineffective
		Mortality	6	4	2	0	3	2	1	5	0	0				
Neonatal Mortality	Infection	Intervention	7	7	7	4	254	205	176	172	165	160	-0.579	0.079	0.05	Ineffective
		Mortality	6	7	3	10	4	3	2	6	1	1				
Under-Five	Complimenary Feeding	Intervention	424	205	274	167	540	278	181	254	106	149	-0.008	0.983	0.05	Ineffective
		Mortality	43	27	29	19	7	2	19	5	8	36				

Ho	r = 0
Ha	r ≠ 0
α	0.05

1. The result for matarnal mortality category shows that Malaria control (r = 0.0228, p-value = 0.939) is Ineffective. Interventions for Prevention /Immunization (r = -0.221, p-value = 0.540) and that of post natal care (r =-0.1274 , p-value = 0.7259) as well as Haematonics (r = -0.553, p-value = 0.097)were ineffective.

2. Interventions for reducing Perinatal mortality are categorised into two main groups: Focus AnteNatal and breast feedings. The result for Neonatal mortality category shows that Focus AnteNatal is Ineffective (r =-0.739, p-value =0.015) is Effective while Breast feedings with (r =-0.160 p – value = 0.659) is Ineffective.

3. Interventions for reducing Neonatal mortality is Infection Control. The result for Neonatal mortality category shows that Infection control (r = -0.579, p-value = 0.079) is Ineffective.

4. Interventions for reducing Under five mortality is Complemantary feedings. The result for Under five mortality category shows that Inffection control is Ineffective (r = -0.008, p-value = 0.983) is Ineffective.

4.3.03.6 Awak PHC

Table 4.3.7 shows Awak PHC intervention packages. From the table above, Interventions for reducing maternal mortality are also categorised into four main groups: malaria control, administration of haematonics, Posnatal care and disease prevention/immunization.

1. The result for matarnal mortality category shows that Malaria control (r = -0.66, p-value = 0.039) is Effective. While the Interventions for Prevention /Immunization (r = -0.14, p-value = 0.695) and that of post natal care (r =-0.17 , p-value = 0.631) as well as Haematonics (r = -0.44, p-value = 0.201)were ineffective.

Table 4.3.7: Awak PHCs Intervention Packages Effectiveness Summary table

Awak PHC Intervention Packages Effectiveness Analysis Table																
Mortality category	Intervention	Input/Output	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	r	p-value	α	Inference
Maternal Mortality	Malaria control	Intervention	22	15	4	6	85	80	277	450	892	965	-0.66	0.039	0.05	Effective
		Mortality	32	24	8	29	14	17	6	10	5	6				
	Haematonics	Intervention	74	107	236	238	552	1176	1371	721	213	167	-0.44	0.201	0.05	Ineffectivve
		Mortality	6	8	0	0	3	2	0	0	1	3				
	Prevention	Intervention	476	464	570	825	1044	735	768	891	2157	1016	-0.14	0.695	0.05	Ineffectivve
		Mortality	12	5	3	7	14	2	1	1	3	3				
	Post-Natal Care	Intervention	121	135	157	299	373	492	506	211	412	578	-0.17	0.631	0.05	Ineffectivve
		Mortality	15	15	22	6	3	9	24	8	12	9				
Perinatal Mortality	Focus ANC	Intervention	87	11	84	152	230	834	960	850	500	211	-0.21	0.567	0.05	Ineffectivve
		Mortality	12	2	5	17	11	2	12	1	17	13				
	Breast-feeding	Intervention	66	43	52	118	296	313	381	334	250	176	-0.42	0.230	0.05	Ineffectivve
		Mortality	7	3	9	10	3	4	6	2	0	1				
Neonatal Mortality	Infection	Intervention	5	5	67	162	262	211	209	197	191	186	-0.87	0.001	0.05	Effective
		Mortality	27	16	19	7	5	10	4	8	7	2				
Under- Five Mortality	Complimenary Feeding	Intervention	140	194	292	103	117	165	178	134	64	26	0.18	0.610	0.05	Ineffectivve
		Mortality	6	4	10	5	11	2	4	3	10	2				

Ho	r = 0
Ha	r ≠ 0
α	0.05

2. Interventions for reducing Perinatal mortality are categorised into two main groups: Focus AnteNatal and breast feedings. The result for Neonatal mortality category shows that Focus AnteNatal (r =-0.21, p-value =0.567) and Breast feedings with (r =-0.42, p – value = 0.230) are Ineffective.

3. Interventions for reducing Neonatal mortality is Infection Control. The result for Neonatal mortality category shows that Infection control (r = -0.87, p-value = 0.001) is Effective.

4. Interventions for reducing Under five mortality is Complemantary feedings. The result for Under five mortality category shows that Inffection control is Ineffective (r = 0.18, p-value-0.610) is Ineffective

4.3.3.7 Kaltin PHC

Table 4.3.8 Kaltin PHC Intervention Packages Effectiveness Analysis Table

Kaltin PHC Intervention Packages Effectiveness Analysis Table															
Mortality category	**Intervention type**	**Input/Output**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**r**	**p-value**	**α**	**Inference**
Maternal Mortality	Malaria control	Intervention	0	0	0	0	46	86	129	140	345	390	-0.28	0.44	0.05	Ineffective
		Mortality	10	5	2	5	2	17	2	5	4	1				
	Haematonics	Intervention	86	132	166	250	342	51	701	730	622	739	-0.25	0.49	0.05	Ineffective
		Mortality	0	2	0	1	3	3	0	0	1	2				
	Prevention	Intervention	467	541	236	1768	1186	1156	2098	636	2708	2814	-0.33	0.35	0.05	Ineffective
		Mortality	3	5	1	3	5	4	0	1	2	1				
Perinatal Mortality	Post-Natal Care	Intervention	112	123	199	343	212	821	538	394	329	302	0.16	0.45	0.05	Ineffective
		Mortality	11	11	16	4	2	9	24	9	10	13				
	Focus ANC	Intervention	34	48	64	76	80	346	566	345	500	459	-0.21	0.56	0.05	Ineffective
		Mortality	10	11	2	7	6	3	1	2	12	8				
	Breast-feeding	Intervention	52	53	46	95	85	111	144	133	84	133	-0.49	0.15	0.05	Ineffective
		Mortality	2	4	14	7	3	6	2	1	0	0				
Neonatal Mortality	Infection	Intervention	9	9	10	10	10	260	208	194	191	185	-0.68	0.03	0.05	Effective
		Mortality	9	5	10	4	2	2	3	0	0	1				
Under- Five Mortality	Complimenary Feeding	Intervention	158	156	100	116	52	164	70	90	99	74	0.08	0.82	0.05	Ineffective
		Mortality	20	8	14	6	12	5	9	0	0	12				

Ho	$r = 0$
Ha	$r \neq 0$
α	0.05

Intervention packages for Kaltin PHC are shown in Table 4.3.8. From the table above, it can be seen that interventions for lowering maternal mortality are divided into four primary categories: eradicating malaria, administering hemotonics, providing prenatal care, and illness prevention/immunization.

1. Malaria control (r = -0.28, p-value = 0.44) is ineffective, according to the results for the category of maternal mortality. Interventions for Prevention/Immunization were ineffective (r = -0.33, p-value = 0.35), as were postpartum care (r =0.16, p-value = 0.45) and hemotonics (r = -0.28, p-value = 0).

2. Interventions for reducing Perinatal mortality are categorised into two main groups: Focus AnteNatal and breast feedings. The result for Neonatal mortality category shows that Focus AnteNatal (r =-0.21, p-value =0.56) and Breast feedings with (r =-0.49, p – value = 0.15 are Ineffective.

3. Interventions for reducing Neonatal mortality is Infection Control. The result for Neonatal mortality category shows that Infection control (r = -0.63, p-value = 0.03) is Effective.

4. Interventions for reducing Under five mortality is Complemantary feedings. The result for Under five mortality category shows that Inffection control is Ineffective (r = 0.08, p-value-0.82) is Ineffective.

4.3.3.8 Baule Gari PHC

Table 4.3.9 shows Baule-Gari PHC intervention packages. From the table above, Interventions for reducing maternal mortality are also categorised into four main groups: malaria control, administration of haematonics, Posnatal care and disease prevention/immunization.

Table 4.3.9: Baule Gari PHCs Intervention Packages Effectiveness Summary table

Baule Gari PHC Intervention Packages Effectiveness Analysis Table															
Mortality category	Intervention type	Input/Output	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	r	p-value	α	Inference
Maternal Mortality	Malaria control	Intervention	0	0	3	5	73	87	116	149	145	233	-0.26	0.47	0.05	Ineffective
		Mortality	11	6	4	10	16	7	1	10	4	5				
	Haematonics	Intervention	0	0	161	332	336	390	339	421	238	196	-0.27	0.45	0.05	Ineffective
		Mortality	4	2	0	0	3	2	4	0	1	2				
	Prevention	Intervention	117	122	275	186	423	485	442	508	516	420	-0.19	0.59	0.05	Ineffective
		Mortality	6	3	15	7	10	5	3	6	2	4				
	Post-Natal Care	Intervention	61	41	105	170	302	328	502	329	645	614	-0.70	0.03	0.05	Effective
		Mortality	24	15	22	25	27	19	13	11	10	6				
Perinatal Mortality	Focus ANC	Intervention	16	34	189	94	120	274	300	272	120	318	-0.80	0.01	0.05	Effective
		Mortality	23	20	12	6	17	10	8	5	12	3				
	Breast-feeding	Intervention	166	118	140	95	142	193	240	147	293	197	-0.56	0.095	0.05	Ineffective
		Mortality	8	4	2	16	2	5	2	1	0	1				
Neonatal Mortality	Infection	Intervention	5	5	5	5	254	204	202	140	144	157	-0.40	0.26	0.05	Ineffective
		Mortality	4	13	7	16	8	6	8	2	1	2				
Under- Five Mortality	Complimentary Feeding	Intervention	147	91	77	115	118	83	91	82	72	66	0.75	0.01	0.05	Ineffective
		Mortality	13	4	9	5	11	7	4	3	1	2				

Ho	r = 0
Ha	r ≠ 0
α	0.05

1. The result for matarnal mortality category shows that Malaria control (r = -0.26, p-value = 0.47) is Ineffective. the Interventions for Prevention /Immunization (r = -0.19,

p-value = 0.59) and that of post natal care (r =-0.70 , p-value = 0.03) is Effective while Haematonics (r = -0.27, p-value = 0.45)is Ineffective.

2. Interventions for reducing Perinatal mortality are categorised into two main groups: Focus AnteNatal and breast feedings. The result for Neonatal mortality category shows that Focus AnteNatal (r =-0.81, p-value =0.01) is Effective while Breast feedings with (r =-0.56 p – value = 0.095 are Ineffective.

3. Interventions for reducing Neonatal mortality is Infection Control. The result for Neonatal mortality category shows that Infection control (r = -0.40, p-value = 0.26 is Ineffective.

4. Interventions for reducing Under five mortality is Complemantary feedings. The result for Under five mortality category shows that Inffection control is Ineffective (r = 0.75, p-value-0.01) is Ineffective.

4.3.3.9 Lakidir PHC

Table 4.3.10 shows Lakidir PHC intervention packages. From the table above, Interventions for reducing maternal mortality are also categorised into four main groups: malaria control, administration of haematonics, Posnatal care and disease prevention/immunization.

1. The result for matarnal mortality category shows that Malaria control (r = -0.52, p-value = 0.15 is Ineffective. the Interventions for Prevention /Immunization (r = -0.24, p-value = 0.50) and that of post natal care (r =-0.28 , p-value = 0.43), Haematonics (r = -0.46, p-value = 0.18) are Ineffective.

2.

Table 4.3.10: Lakidir PHCs Intervention Packages Effectiveness Summary table

Lakidir PHC Intervention Packages Effectiveness Analysis Table															
Mortality category	**Intervention type**	**Input/Output**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**r**	**p-value**	**α**	**Inference**
Maternal Mortality	Malaria control	Intervention	0	0	2	4	36	20	124	72	119	108	-0.52	0.13	0.05	Ineffective
		Mortality	8	5	5	0	5	9	2	5	2	1				
	Haematonics	Intervention	56	67	112	180	42	30	87	156	264	214	-0.46	0.18	0.05	Ineffective
		Mortality	1	4	0	0	3	2	0	0	1	1				
	Prevention	Intervention	213	127	158	153	245	396	259	463	1064	676	-0.24	0.50	0.05	Ineffective
		Mortality	4	2	7	6	2	2	5	3	4	2				
	Post-Natal Care	Intervention	24	44	56	46	89	114	78	94	110	101	-0.28	0.43	0.05	Ineffective
		Mortality	7	3	8	2	0	6	1	3	0	6				
Perinatal Mortality	Focus ANC	Intervention	33	27	58	66	260	61	177	196	285	444	0.57	0.09	0.05	Ineffective
		Mortality	11	7	2	5	12	10	6	9	9	13				
	Breast-feeding	Intervention	29	28	38	57	40	61	50	112	126	123	-0.66	0.04	0.05	Effective
		Mortality	5	2	7	1	2	2	4	1	0	1				
Neonatal Mortality	Infection	Intervention	4	4	4	154	254	206	162	129	130	112	-0.56	0.09	0.05	Ineffective
		Mortality	11	5	10	3	4	2	8	0	1	2				
Under- Five Mortality	Complimenary Feeding	Intervention	378	211	241	282	207	154	85	167	113	111	0.66	0.04	0.05	Ineffective
		Mortality	27	30	22	10	7	8	8	9	7	5				

Ho	$r = 0$
Ha	$r \neq 0$
α	0.05

Interventions for reducing Perinatal mortality are categorised into two main groups: Focus AnteNatal and breast feedings. The result for Neonatal mortality category shows that Focus AnteNatal (r =0.57, p-value =0.09) is Ineffective while Breast feedings with (r =-0.66 p – value = 0.04 are Effective.

3. Interventions for reducing Neonatal mortality is Infection Control. The result for Neonatal mortality category shows that Infection control (r = -0.56, p-value = 0.09 is Ineffective.

4. Interventions for reducing Under five mortality is Complemantary feedings. The result for Under five mortality category shows that Inffection control is Ineffective (r = 0.66, p-value-0.04) is Ineffective.

4.3.3.10 Wange PHC

Table 4.3.11 shows Wange PHC intervention packages. From the table above, Interventions for reducing maternal mortality are also categorised into four main groups: malaria control, administration of haematonics, Posnatal care and disease prevention/immunization.

Table 4.3.11: Wange PHC's Intervention Packages Effectiveness Summary table

Wange PHC Intervention Packages Effectiveness Analysis Table															
Mortality	**Intervention**	**Input/ Output**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**r**	**p-value**	**α**	**Inference**
Maternal Mortality	Malaria control	Intervention	0	0	0	5	5	12	5	46	60	43	-0.496	0.145	0.05	Ineffective
		Mortality	23	22	8	29	6	12	4	10	3	6				
	Haematonics	Intervention	74	107	283	335	515	451	398	471	218	490	0.173	0.632	0.05	Ineffective
		Mortality	14	13	10	12	15	18	11	13	7	9				
	Prevention	Intervention	121	388	228	184	440	539	342	972	844	803	-0.205	0.570	0.05	Ineffective
		Mortality	2	2	3	6	5	2	4	3	3	3				
	Post-Natal	Intervention	98	87	191	282	317	263	610	524	468	579	-0.171	0.636	0.05	Ineffective
		Mortality	13	24	9	12	14	4	18	12	10	9				
Perinatal Mortality	Focus ANC	Intervention	308	164	408	246	281	583	795	829	598	761	0.219	0.543	0.05	Ineffective
		Mortality	16	13	24	7	12	20	27	14	12	6				
	Breast-feeding	Intervention	61	27	34	78	143	136	114	96	68	165	-0.034	0.926	0.05	Ineffective
		Mortality	9	4	10	14	7	4	6	8	3	9				
Neonatal	Infection	Intervention	9	9	7	8	258	211	209	197	190	186	-0.682	0.030	0.05	Effective
		Mortality	4	7	9	10	4	5	4	3	6	5				
Under-Five	Complimenary	Intervention	508	170	335	120	188	159	100	115	115	73	0.697	0.025	0.05	Effective
		Mortality	21	19	17	12	9	16	10	8	5	12				

Ho	$r = 0$
Ha	$r \neq 0$
α	0.05

1. The result for matarnal mortality category shows that Malaria control (r = -0.496, p-value = 0.145 is Ineffective. the Interventions for Prevention /Immunization (r = 0.205, p-value = 0.570) and that of post natal care (r =-0.171 , p-value = 0.636), Haematonics (r = -0.175, p-value = 0.632) are Ineffective.

2. Interventions for reducing Perinatal mortality are categorised into two main groups: Focus AnteNatal and breast feedings. The result for Neonatal mortality category shows that Focus AnteNatal (r =0.219, p-value =0.543 is Ineffective Breast feedings with (r =-0.034 p – value = 0.926 is Effective.

3. Interventions for reducing Neonatal mortality is Infection Control. The result for Neonatal mortality category shows that Infection control (r = -0.682p-value = 0.03 is Effective.

4. Interventions for reducing Under five mortality is Complemantary feedings. The result for Under five mortality category shows that Inffection control is Ineffective (r = 0.697, p-value-0.025) is Effective.

4.4. Discussion

Nigeria accounts for more than 34% of all material deaths worldwide. In contrast to the 1 in 4900 lifetime risk in wealthy countries, a Nigerian woman has a 1 in 22 lifetime risk of dying during pregnancy and after an abortion. Nigeria accounts for more than 34% of all material deaths worldwide. In contrast to the 1 in 4900 lifetime risk in wealthy countries, a Nigerian woman has a 1 in 22 lifetime risk of dying during pregnancy and after an abortion.

CHAPTER FIVE

CONCLUSION

5.1 Summary of Findings

Appendix 1 shows the summary of Cummulative intervention packages for all the PHCs and that of each of the PHCs in Kaltungo LGA. From table A1, of the eight intervention types inputs that were correlated against there measurable outcomes, three intervention types (equivalent to 37.7% of the total number intervention types): malaria control, administration of haemotonics and desease and Infection control have negative correlation coeficients (r) of -0.74, -0.55 and -0.56 respectively.

This means that by verture of correlation coeficients of the set of interventions/outcomes for all the PHCs over ten years period (2012 to 2021), only two intervention types (Malaria control and Administration of Haematonics) are signinficantly effective in reducing maternal mortality in the PHCs over the study period. In the same vein, neonatal mortality reduces due to infection control intervention type. However by verture of the p-values of the eight (8) sets of interventions/outcomes for all the PHCs over ten years period (2012 to 2021) at level of significance of 0.05, only two intervention types (malaria control – p-value = 0.015 and administration of haemotonics – p-alue = 0.036), equivalent to 25% are signinficant enough to be regarded as effective in reducing maternal mortality. On other words, all intervention packages for reduting Perinatal mortality, neonatal mortality and under 5 mortality are not significantly effective as level of significance of 0.05.

The analised data shows divergent variabilities of effectiveness of intervention types from PHC to PHC. The Table 5.1 below show list of intervention types that were effective in reducing mortalities in their respective PHCs within the intervention period.

Table 5.1 - List of effective Intervention packages types in PHCs in Kaltungo LGA

PHC	**Mortality category to reduce**	**Intervention Type**	**P-value**	**Inference**
Wange	Neonatal	Infaction Control	0.03	Effective
	Under 5 Mortality	Complementary feeding	0.02	Effective
Lakidir	Perinatal Mortality	Breast feeding	0.04	Effective
Baule Gari	Maternal Mortality	Post-natal care	0.03	Effective
	Perinatal Mortality	Focus ANC	0.01	Effective
Kalting	Neonatal Mortality	Infection control	0.03	Effective
Awak PHC	Maternal Mortality	Malaria Control	0.04	Effective
	Neonatal Mortality	Infection	0.01	Effective
Kalorgu PHC	Perinatal Mortality	Focus ANC	0.01	Effective
Ture Balam PHC	Maternal Mortality	Malaria Control	0.02	Effective
	Perinatal Mortality	Breast Feeding	0.02	Effective
Yiri PHC	Maternal Mortality	Malaria Control	0.03	Effective
AT Shamaki PHC	Maternal Mortality	Prevention	0.04	Effective
	Under Five mortality	Complimentary Feeding	0.01	Effective

5. 2 Conclusion

Ten years (2012 to 2017) documented intervention data (Intervention Input) were grouped into intervention types against Mortality age groups (Intervention outcomes) which they were designed to reduce mortality. Each of the intervention type's Input was correlated against the intervention outputs for all the PHCs and for each PHC. From the corelation coeficients (r) results obtained, only two out of eight (25%) of intervention types (Malaria control and Administration of Haematinics) are signinficantly effective in reducing maternal mortality in the PHCs over the study period. In the same vein, neonatal mortality reduces due to infection control intervention type. However by verture of the p-values of the eight (8) sets of interventions/outcomes for all the PHCs over ten years period (2012 to 2021) at level of significance of 0.05, only two intervention types (malaria control – p-value = 0.015 and administration of haematinics – p-alue = 0.036), equivalent to 25% are signinficant enough to be regarded as effective in reducing maternal mortality. On other words, all intervention packages for reducing Perinatal mortality, neonatal mortality and under 5 mortality are not significantly effective at level of significance of 0.05.Invention corelated with outcome and inference was drawn from statistical analysis as effective or ineffective.

5.3 Recommendation(s)

i. Interventions in all the PHCs in Kaltungo LGA should be reengineered and intensified to achieve the ultimate goal of significantly reducing maternal neonatal and child mortality.

ii. further studies should be carried out to evaluate the structure and process of interventions with a view to understanding the adequacy and efficiency in reducing the high mortality rate of pregnant women, neonates and children.

5.4 Contribution to Knowledge

i. This study would form the bases for further studies on evaluation in primary health in general by researchers and academicians

ii. It will also serve as secondary source of information on effectiveness on of PHC Interventions in Kaltungo LGA.

iii. The result obtained would assist Kaltungo LGA, Gombe state government and other stakeholders in planning processes as on issues that pertains to control of maternal, neonatal and children mortality in the study area.

5.5 Suggested Area of Further Research

This study focuses on the evaluation of effectiveness of intervention packages outcomes in PHCs in Kaltungo LGA in reducing maternal, neonatal and child mortality. From the result obtained, only two (2) out of eight (8) (25%) of the intervention types (Malaria control and Administration of Haematinics) are significantly effective in reducing the mortalities in consideration 0.05 level of significance. All others are not effective. This may indicate that either the structure of the interventions in the PHCs or the intervention process are defective and thereby resulting in a situation where by despite the interventions in the eight categories of interventions, the mortality rates for most of the age categories are not reducing.

In the light of this, It is hereby suggested that further studies be carried out on the effectiveness of structure and process of Interventions rendered in the PHCs.

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List of Appendices

Appendix I - Interventions analysis summary tables

Cummulative PHCs Intervention Packages Effectiveness Analysis Table																
Mortality category	Intervention type	Input/Output	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	r	p-value	α	Inference
Maternal Mortality	Malaria control	Intervention	104	50	31	49	632	613	1210	1710	2646	3306	-0.74	0.015	0.05	Effective
		Mortality	120	107	52	107	87	99	40	62	36	41				
	Haematonics	Intervention	488	484	1310	1679	2470	3470	4888	4490	4471	3709	-0.55	0.036	0.05	Effective
		Mortality	103	46	160	83	165	244	156	209	360	421				
	Prevention	Intervention	2361	2879	2366	3819	4905	5810	5665	5826	13393	10802	0.86	0.001	0.05	Ineffective
		Mortality	91	116	219	254	236	238	474	378	1158	394				
	Post-Natal Care	Intervention	648	593	1173	1422	1483	2187	2428	1965	2560	2500	0.68	0.031	0.05	Ineffective
		Mortality	112	106	147	117	101	308	205	264	503	164				
Perinatal Mortality	Focus ANC	Intervention	271	199	539	650	1217	2295	3180	2740	2241	2122	0.79	0.007	0.05	Ineffective
		Mortality	109	101	107	88	173	251	252	178	193	325				
	Breast-feeding	Intervention	506	338	453	755	1115	1106	1163	1171	1299	1070	0.70	0.024	0.05	Ineffective
		Mortality	61	50	206	57	297	242	229	220	186	202				
Neonatal Mortality	Infection	Intervention	66	55	202	807	1675	1641	1520	1372	1342	1287	-0.56	0.092	0.05	Ineffective
		Mortality	96	106	230	94	109	65	41	99	38	83				
Under- Five Mortality	Complimenary Feeding	Intervention	1808	1272	1554	1440	1804	1348	869	945	617	584	0.65	0.04	0.05	Ineffective
		Mortality	186	117	148	73	82	37	55	43	37	68				

Ho	r = 0
Ha	r ≠ 0
α	0.05

AT Shamaki PHC Intervention Packages Effectiveness Analysis Table																
Mortality category	Intervention type	Input/Output	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	r	p-value	α	Inference
Maternal Mortality	Malaria control	Intervention	13	13	5	5	13	21	124	165	120	205	0.4108	0.2383	0.05	Ineffective
		Mortality	1	8	4	9	2	0	4	7	7	8				
	Haematonics	Intervention	20	24	171	87	87	661	1105	689	902	638	-0.3853	0.2715	0.05	ineffective
		Mortality	0	0	7	8	8	2	0	0	4	2				
	Prevention	Intervention	72	22	158	82	145	227	152	206	353	402	-0.2621	0.0386	0.05	effective
		Mortality	6	4	10	12	21	11	3	27	9	5				
	Post-Natal Care	Intervention	26	52	152	209	166	216	446	342	1120	355	-0.2805	0.4645	0.05	Ineffective
		Mortality	14	23	4	8	2	4	1	5	8	2				
Perinatal Mortality	Focus ANC	Intervention	8	21	34	47	57	234	87	200	430	98	-0.2805	0.4324	0.05	Ineffective
		Mortality	3	7	3	10	0	7	14	5	0	4				
	Breast-feeding	Intervention	14	14	50	28	89	197	178	121	87	254	-0.1848	0.0664	0.05	Ineffective
		Mortality	6	4	9	12	4	5	7	3	2	6				
Neonatal Mortality	Infection	Intervention	6	16	154	10	264	214	201	201	185	195	-0.3076	0.8529	0.05	Ineffective
		Mortality	4	2	5	6	0	7	3	2	4	1				
Under-Five	Complimentary Feeding	Intervention	23	39	169	45	72	32	12	81	24	73	-0.4188	0.0074	0.05	effective
		Mortality	9	13	0	17	5	3	6	5	2	3				

Ho	r = 0

Yiri PHC Intervention Packages Effectiveness Analysis Table															
Mortality category	Intervention type	Input/Output	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	r	p-value	α	Inference
Maternal Mortality	Malaria control	Intervention	13	4	0	0	67	11	76	162	161	164	-0.67	0.03	0.05	Effective
		Mortality	11	24	8	19	14	17	13	10	5	6				
	Haematonics	Intervention	0	0	0	23	552	68	199	272	268	220	0.25	0.48	0.05	Ineffective
		Mortality	4	0	0	0	3	2	0	0	1	3				
	Prevention	Intervention	237	662	347	179	515	1129	848	838	3711	3876	-0.35	0.32	0.05	Ineffective
		Mortality	13	14	16	6	12	2	4	6	9	4				
	Post-Natal Care	Intervention	45	39	77	121	87	116	163	241	250	249	-0.06	0.87	0.05	Ineffective
		Mortality	7	15	22	6	3	8	18	8	12	10				
Perinatal Mortality	Focus ANC	Intervention	34	15	27	114	234	213	342	224	278	79	0.75	0.01	0.05	Ineffective
		Mortality	3	6	8	7	12	4	14	9	12	6				
	Breast-feeding	Intervention	38	26	52	95	162	136	144	167	270	0	-0.82	0.08	0.05	Ineffective
		Mortality	13	9	15	3	2	5	7	2	0	2				
Neonatal Mortality	Infection	Intervention	4	9	49	155	256	209	207	195	189	184	-0.60	0.07	0.05	Ineffective
		Mortality	6	15	3	7	4	5	2	1	3	2				
Under-Five	Complimentary Feeding	Intervention	171	156	113	176	146	127	75	74	35	35	0.42	0.22	0.05	Ineffective
		Mortality	44	27	48	14	7	2	6	8	10	7				

Ho	r = 0
Ha	r ≠ 0
α	0.05

Ture Balam PHC Intervention Packages Effectiveness Analysis Table																
Mortality category	Intervention type	Input/Output	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	r	p-value	α	Inference
Maternal Mortality	Malaria control	Interventions	56	18	13	23	135	196	250	365	309	434	-0.7078	0.022	0.05	Effective
		Mortality	15	13	8	10	4	8	6	0	5	6				
	Haematonic	Interventions	130	24	18	217	336	277	184	423	1123	145	-0.134	0.7121	0.05	Ineffective
		Mortality	6	0	1	0	2	2	0	0	1	3				
	Prevention	Interventions	228	388	318	179	388	627	403	809	2158	1322	0.4823	0.1581	0.05	Ineffective
		Mortality	4	14	10	6	12	2	6	6	13	19				
	Post-Natal Care	Interventions	60	82	318	139	191	200	423	399	443	354	-0.1274	0.7259	0.05	Ineffective
		Mortality	23	7	0	10	2	8	15	8	12	10				
Perinatal Mortality	Focus ANC	Interventions	34	12	21	6	3	123	254	307	190	87	0.4551	0.1863	0.05	Ineffective
		Mortality	13	3	5	4	2	10	17	4	12	6				
	Breast-feeding	Interventions	34	23	1	95	162	136	67	167	147	270	-0.0602	0.0162	0.05	Effective
		Mortality	6	4	1	0	11	2	3	2	0	1				
Neonatal Mortality	Infection	Interventions	23	11	52	158	258	215	213	201	195	192	-0.5028	0.1386	0.05	Ineffective
		Mortality	4	2	3	0	3	2	0	0	1	0				
Under- Five Mortality	Complimentary	Interventions	146	61	91	107	90	38	85	29	31	44	0.7313	0.0162	0.05	Ineffective
		Mortality	9	4	7	9	13	4	1	0	0	2				

Ho	r = 0
Ha	r ≠ 0
α	0.05

Gujuba PHC Intervention Packages Effectiveness Analysis Table																
Mortality category	Interventio	Input/Outpu	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	r	p-value	α	Inference
Maternal	Malaria control	Intervention	0	0	4	6	79	93	79	203	483	682	-0.587	0.07	0.05	Ineffecctive
		Mortality	23	14	9	18	14	17	1	10	3	5				
	Haematonic s	Intervention	74	107	390	255	115	701	730	882	674	1245	-0.166	0.65	0.05	Ineffecctive
		Mortality	5	4	1	0	0	2	0	3	0	2				
	Prevention	Intervention	300	252	228	276	399	556	413	694	470	433	-0.278	0.44	0.05	Ineffecctive
		Mortality	17	13	6	4	3	3	6	9	3	2				
	Post-Natal Care	Intervention	111	45	164	210	123	42	74	135	229	158	0.346	0.33	0.05	Ineffecctive
		Mortality	2	4	13	11	4	5	13	9	8	5				
Perinatal Mortality	Focus ANC	Intervention	17	22	26	49	200	324	389	345	289	400	0.742	0.01	0.05	Ineffecctive
		Mortality	6	8	4	7	12	15	9	23	20	16				
	Breast-feeding	Intervention	42	7	79	132	169	7	59	51	63	79	0.459	0.18	0.05	Ineffecctive
		Mortality	8	4	2	10	7	2	3	5	1	1				
Neonatal Mortality	Infection	Intervention	5	3	3	153	127	124	140	142	133	110	-0.593	0.07	0.05	Ineffecctive
		Mortality	6	4	6	2	7	3	2	1	0	0				
Under- Five Mortality	Complimen tary Feeding	Intervention	235	185	366	357	529	336	98	110	95	76	0.278	0.06	0.05	Ineffecctive
		Mortality	24	13	9	5	14	7	4	15	1	2				

Ho	r = 0
Ha	r ≠ 0
α	0.05

Kalorgu PHC Intervention Packages Effectiveness Analysis Table																
Mortality	Interventio n type	Input/output	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	r	p-value	α	Inference
Maternal Mortality	Malaria control	Intervention	0	0	0	0	98	19	35	4	72	125	0.028	0.939	0.05	Ineffective
		Mortality	9	8	4	7	16	7	5	5	1	3				
	Haematonics	Intervention	48	23	56	97	108	116	172	196	167	145	-0.553	0.097	0.05	Ineffective
		Mortality	5	4	0	0	3	2	0	0	1	3				
	Prevention	Intervention	317	319	224	241	684	715	431	960	600	240	-0.221	0.540	0.05	Ineffective
		Mortality	6	8	9	6	12	2	3	4	2	4				
	Post-Natal Care	Intervention	100	61	93	86	104	70	143	157	134	142	-0.341	0.335	0.05	Ineffective
		Mortality	15	15	10	6	3	10	10	8	9	7				
Perinatal Mortality	Focus ANC	Intervention	13	23	67	83	90	113	178	196	79	120	-0.739	0.015	0.05	Effective
		Mortality	17	30	19	7	12	0	7	4	12	6				
	Breast-feeding	Intervention	73	36	36	56	55	144	71	57	64	86	-0.160	0.659	0.05	Ineffective
		Mortality	6	4	2	0	3	2	1	5	0	0				
Neonatal Mortality	Infection	Intervention	7	7	7	4	254	205	176	172	165	160	-0.579	0.079	0.05	Ineffective
		Mortality	6	7	3	10	4	3	2	6	1	1				
Under-Five	Complimena ry Feeding	Intervention	424	205	274	167	540	278	181	254	106	149	-0.008	0.983	0.05	Ineffective
		Mortality	43	27	29	19	7	2	19	5	8	36				

Ho	r = 0
Ha	r ≠ 0
α	0.05

Awak PHC Intervention Packages Effectiveness Analysis Table																
Mortality category	Intervention	Input/Output	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	r	p-value	α	Inference
Maternal Mortality	Malaria control	Intervention	22	15	4	6	85	80	277	450	892	965	-0.66	0.039	0.05	Effective
		Mortality	32	24	8	29	14	17	6	10	5	6				
	Haematonics	Intervention	74	107	236	238	552	1176	1371	721	213	167	-0.44	0.201	0.05	Ineffectivve
		Mortality	6	8	0	0	3	2	0	0	1	3				
	Prevention	Intervention	476	464	570	825	1044	735	768	891	2157	1016	-0.14	0.695	0.05	Ineffectivve
		Mortality	12	5	3	7	14	2	1	1	3	3				
	Post-Natal Care	Intervention	121	135	157	299	373	492	506	211	412	578	-0.17	0.631	0.05	Ineffectivve
		Mortality	15	15	22	6	3	9	24	8	12	9				
Perinatal Mortality	Focus ANC	Intervention	87	11	84	152	230	834	960	850	500	211	-0.21	0.567	0.05	Ineffectivve
		Mortality	12	2	5	17	11	2	12	1	17	13				
	Breast-feeding	Intervention	66	43	52	118	296	313	381	334	250	176	-0.42	0.230	0.05	Ineffectivve
		Mortality	7	3	9	10	3	4	6	2	0	1				
Neonatal Mortality	Infection	Intervention	5	5	67	162	262	211	209	197	191	186	-0.87	0.001	0.05	Effective
		Mortality	27	16	19	7	5	10	4	8	7	2				
Under- Five Mortality	Complimenary Feeding	Intervention	140	194	292	103	117	165	178	134	64	26	0.18	0.610	0.05	Ineffectivve
		Mortality	6	4	10	5	11	2	4	3	10	2				

Ho	r = 0
Ha	r ≠ 0
α	0.05

Kaltin PHC Intervention Packages Effectiveness Analysis Table																
Mortality category	Intervention type	Input/Output	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	r	p-value	α	Inference
Maternal Mortality	Malaria control	Intervention	0	0	0	0	46	86	129	140	345	390	-0.28	0.44	0.05	Ineffective
		Mortality	10	5	2	5	2	17	2	5	4	1				
	Haematonics	Intervention	86	132	166	250	342	51	701	730	622	739	-0.25	0.49	0.05	Ineffective
		Mortality	0	2	0	1	3	3	0	0	1	2				
	Prevention	Intervention	467	541	236	1768	1186	1156	2098	636	2708	2814	-0.33	0.35	0.05	Ineffective
		Mortality	3	5	1	3	5	4	0	1	2	1				
Perinatal Mortality	Post-Natal Care	Intervention	112	123	199	343	212	821	538	394	329	302	0.16	0.45	0.05	Ineffective
		Mortality	11	11	16	4	2	9	24	9	10	13				
	Focus ANC	Intervention	34	48	64	76	80	346	566	345	500	459	-0.21	0.56	0.05	Ineffective
		Mortality	10	11	2	7	6	3	1	2	12	8				
	Breast-feeding	Intervention	52	53	46	95	85	111	144	133	84	133	-0.49	0.15	0.05	Ineffective
		Mortality	2	4	14	7	3	6	2	1	0	0				
Neonatal Mortality	Infection	Intervention	9	9	10	10	10	260	208	194	191	185	-0.68	0.03	0.05	Effective
		Mortality	9	5	10	4	2	2	3	0	0	1				
Under- Five Mortality	Complimenary Feeding	Intervention	158	156	100	116	52	164	70	90	99	74	0.08	0.82	0.05	Ineffective
		Mortality	20	8	14	6	12	5	9	0	0	12				

Ho	r = 0
Ha	r ≠ 0
α	0.05

Baule Gari PHC Intervention Packages Effectiveness Analysis Table																
Mortality category	Intervention type	Input/Output	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	r	p-value	α	Inference
Maternal Mortality	Malaria control	Intervention	0	0	3	5	73	87	116	149	145	233	-0.26	0.47	0.05	Ineffective
		Mortality	11	6	4	10	16	7	1	10	4	5				
	Haematonics	Intervention	0	0	161	332	336	390	339	421	238	196	-0.27	0.45	0.05	Ineffective
		Mortality	4	2	0	0	3	2	4	0	1	2				
	Prevention	Intervention	117	122	275	186	423	485	442	508	516	420	-0.19	0.59	0.05	Ineffective

Wange PHC Intervention Packages Effectiveness Analysis Table																
Mortality	Intervention	Input/ Output	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	r	p-value	α	Inference
Maternal Mortality	Malaria control	Intervention	0	0	0	5	5	12	5	46	60	43	-0.496	0.145	0.05	Ineffective
		Mortality	23	22	8	29	6	12	4	10	3	6				
	Haematonics	Intervention	74	107	283	335	515	451	398	471	218	490	0.173	0.632	0.05	Ineffective
		Mortality	14	13	10	12	15	18	11	13	7	9				
	Prevention	Intervention	121	388	228	184	440	539	342	972	844	803	-0.205	0.570	0.05	Ineffective
		Mortality	2	2	3	6	5	2	4	3	3	3				
	Post-Natal	Intervention	98	87	191	282	317	263	610	524	468	579	-0.171	0.636	0.05	Ineffective
		Mortality	13	24	9	12	14	4	18	12	10	9				
Perinatal Mortality	Focus ANC	Intervention	308	164	408	246	281	583	795	829	598	761	0.219	0.543	0.05	Ineffective
		Mortality	16	13	24	7	12	20	27	14	12	6				
	Breast-feeding	Intervention	61	27	34	78	143	136	114	96	68	165	-0.034	0.926	0.05	Ineffective
		Mortality	9	4	10	14	7	4	6	8	3	9				
Neonatal	Infection	Intervention	9	9	7	8	258	211	209	197	190	186	-0.682	0.030	0.05	Effective
		Mortality	4	7	9	10	4	5	4	3	6	5				
Under-Five	Complimenary	Intervention	508	170	335	120	188	159	100	115	115	73	0.697	0.025	0.05	Effective
		Mortality	21	19	17	12	9	16	10	8	5	12				

M													Ho	r = 0		
ca													Ha	r ≠ 0		
													α	0.05		
Maternal Mortality	Malaria control	Intervention	0	0	2	4	36	20	124	72	119	108	-0.52	0.13	0.05	Ineffective
		Mortality	8	5	5	0	5	9	2	5	2	1				
	Haematonics	Intervention	56	67	112	180	42	30	87	156	264	214	-0.46	0.18	0.05	Ineffective
		Mortality	1	4	0	0	3	2	0	0	1	1				
	Prevention	Intervention	213	127	158	153	245	396	259	463	1064	676	-0.24	0.50	0.05	Ineffective
		Mortality	4	2	7	6	2	2	5	3	4	2				
	Post-Natal Care	Intervention	24	44	56	46	89	114	78	94	110	101	-0.28	0.43	0.05	Ineffective
		Mortality	7	3	8	2	0	6	1	3	0	6				
Perinatal Mortality	Focus ANC	Intervention	33	27	58	66	260	61	177	196	285	444	0.57	0.09	0.05	Ineffective
		Mortality	11	7	2	5	12	10	6	9	9	13				
	Breast-feeding	Intervention	29	28	38	57	40	61	50	112	126	123	-0.66	0.04	0.05	Effective
		Mortality	5	2	7	1	2	2	4	1	0	1				
Neonatal Mortality	Infection	Intervention	4	4	4	154	254	206	162	129	130	112	-0.56	0.09	0.05	Ineffective
		Mortality	11	5	10	3	4	2	8	0	1	2				
Under- Five Mortality	Complimenary Feeding	Intervention	378	211	241	282	207	154	85	167	113	111	0.66	0.04	0.05	Ineffective
		Mortality	27	30	22	10	7	8	8	9	7	5				

Ho	r = 0
Ha	r ≠ 0
α	0.05

Appendix II - Structured Questionnaires (Intervention data template used)

QUESTIONNAIRE

Dear Sir/Ma,

I am a postgraduate researcher at Lead City University Ibadan. I am conducting a study on Effectiveness of Primary Health Care Intervention Packages in Reducing Maternal, Child and Neonatal Mortality in Kaltungo Local Government Area. I would like solicit for your assistance in extracting relevant documented data on the intervention packages in your Primary Health Centre for reducing maternal, neonatal and child morbidity and mortality. Please complete this survey based on available data. Thank you for your participation.

Name of PHC……

PHC In charge……..

Date. ……

LEGEND:

PIY1 = Pre-intervention year 1 (1 year before major interventions program(s));

PIY2 = Pre-intervention year 2 (2 year before major interventions program(s));

PIY3 = Pre-intervention year 3 (3 year before major interventions program(s));

PIY4 = Pre-intervention year 4 (4 year before major interventions program(s));

PIY5 = Pre-intervention year 5 (5 year before major interventions program(s));

IY1 = Intervention year 1 (year 1 of major interventions programs);

IY1 = Intervention year 1 (year 2 of major interventions programs);

IY1 = Intervention year 1 (year 3 of major interventions programs);

IY1 = Intervention year 1 (year 4 of major interventions programs);

IY1 = Intervention year 1 (year 5 of major interventions programs);

SECTION A: INTERVENTION DATA ON PREGNANCY CARE

S/N	Description	Pre-Intervention Perion (PIP)					1st Intervention Year	Intervention Period (IP)				
		PIY 1	PIY 2	PIY 3	PIY 4	PIY 5		IY 1	IY 2	IY 3	IY 4	IY 5
1	No. of women who were given long lasting insecticide nets											
2	No. of women who were given											

	long lasting insecticide nets											
3	No of women who received Malaria Drugs											
4	No. of pregnant women who attended ANC at least four times											
5	No. of Ante natal attendant											
6	No of pregnant women who were administered haematinics'											
7	No. of mothers who received TT vaccines											
8	No of women who were admitted due to malaria											
9	No of women who had still birth											
10	No of women who died due to malaria complications											
11	No. of pregnant women with Proteinuria											

12	No. of pregnant women treated for syphilis											
13	No. of pregnant women who are tested positive for HIV											
14	No. of pregnant women with High blood pressure											
15	No. of women that died as a result of Anaemia in pregnancy.											

SECTION B: INTERVENTION DATA ON CHILD CARE

S/N	Description	Pre-Intervention Perion (PIP)					1st Intervention Year	Intervention Period (IP)				
		PIY 1	PIY 2	PIY 3	PIY 4	PIY 5		IY 1	IY 2	IY 3	IY 4	IY 5
1	No. of children who are fully immunized at 1year											
2	No of deliveries conducted by skilled birth											

	attendant											
3	No. of babies who received cord care with chlorhexidine											
4	No of children that did skin to skin											
5	No. of mothers who developed Pre-eclampsia/eclampsia											
6	No. of mothers who received loading dose of Magnesium sulphate											

SECTION C: INTERVENTION DATA ON CHILD BIRTH CARE

S/N	Description	Pre-Intervention Perion (PIP)					1st Intervention Year	Intervention Period (IP)				
		PIY 1	PIY 2	PIY 3	PIY 4	PIY 5		IY 1	IY 2	IY 3	IY 4	IY 5
1	No. of post Natal Attendant											
2	No. of women who were prepared for											

	Emergency before delivery											
3	No of women who administered misoprostol after delivery.											
4	No of women who were injected with oxytocin											
5	No. of women who commence breast feeding after 1hour.											
6	No. of Health facility deliveries by SBA											
7	No. of Delivery Monitored with partograph											
8	No. of Mothers who were Admitted as a result of Anaemia in pregnancy											
9	No. of women who received transfusion of blood as result of profuse bleeding after											

	delivery											
10	No. of women who had complication during Labour due to blood shortage											
11	No. of New born who were admitted with new born danger signs											
12	No. of new born who were admitted in KMC rooms as a result of Low-birth-weight No. of children that developed low birth weight complication											
13	No. of perinatal mortality rate.											

SECTION D: INTERVENTION DATA ON POST PARTUM CARE

S/N	Description	Pre-Intervention Perion (PIP)	1st Intervention	Intervention Period (IP)

							Year					
		PIY 1	PIY 2	PIY 3	PIY 4	PIY 5		IY 1	IY 2	IY 3	IY 4	IY 5
1	No. of pregnant women who used Emergency Transport Support (ETS) provided by the community											
2	No. of mothers who practice exclusive breast feeding.											
3	No. of meeting the WDC had with primary Health Care staffs.											
4	No. of women using modern contraceptive s											
5	No. of women who had post-partum haemorrhage											
6	No of women who died due to post-partum complication s											
7	No. of maternal mortality rate											

SECTION E: INTERVENTION DATA ON NEW BORN CARE

S/N	Description	Pre-Intervention Perion (PIP)					1st Intervention Year	Intervention Period (IP)				
		PIY 1	PIY 2	PIY 3	PIY 4	PIY 5		IY 1	IY 2	IY 3	IY 4	IY 5
1	No of referrals with referral forms											
2	No. of Ambulance for transportation											
3	No. of skilled birth Attendant											
4	No. of new born referred with umbilical sepsis											
5	No. of New born with asphyxia.											
6	No. of new born resuscitated											
7	No. of new born referred with any of New-born danger signs											
8	No. of Neonatal mortality rate											

SECTION F: INTERVENTION DATA ON INFANCY AND CHILDHOOD CARE

S/N	Descriptio	Pre-Intervention Perion (PIP)	1st	Intervention Period (IP)

	n						Intervention Year					
		PIY 1	PIY 2	PIY 3	PIY 4	PIY 5		IY1	IY2	IY3	IY4	IY5
1	No, of children treated with Antibiotic for Pneumonia											
2	No. of children treated for measles											
3	No. of children treated with ORS and Zinc											
4	No of children 0-59months with a sign of diarrhoea											
5	No. of infant and under-five mortality											