NEAR EAST UNIVERSITY

INSTITUTE OF GRADUATE STUDIES

DEPARTMENT OFBIOSTATISTICS

AN ASSESSMENT OF THE RELATIONSHIP BETWEEN ANTE-NATAL CARE AND PREVENTION OF MATERNAL MORTALITY IN BAUCHI STATE NIGERIA.

AISHATU ZUBAIRU

MASTER THESIS

NICOSIA

(2021)

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APPROVAL

Thesis submitted to the Institute of Graduate Studiesof Near East University in partial fulfillment of the requirement for the degree of Master of Science in Biostatistics.

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DECLARATION

I AishatuZubairu, has today declared that this dissertation entitled ‘An assessment of the relationship between of ante-natal care and the prevention of maternal mortality in Bauchi state Nigeria. After been supervised by ‘Prof. Dr. IlkerEtikan’ as a partial fulfillment of theInstitutes ofGraduate Studiesresearch rules and guidelines of Near East University, and did not in any way break any Law of Copyrights when tested for plagiarism. Copy of the result will be found in my written thesis.

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DEDICATION

I want to devotethis work to the God for the privilege to have come this far in my life, and I also want to devote my work tomy loving father Alh. AbdulazeezZubairu, you are the best.

ABSTRACT AND KEYWORD

An assessment of the relationship between ante-natal care and the prevention of maternal mortality in Bauchi state Nigeria.

An assessment of the level relationship between ante-natal care and the prevention/control of maternal death in Bauchi state Nigeria.The main aim of this study is to see the degree ofassociation between antenatal care and the prevention/control of maternal death in Bauchi state. Several findings were revealed from a survey of 313 respondents. A major hypothesis was formulated with five sub-hypothesis. The study adopted survey design and a structured questionnaire was conducted face to face with different respondent, and the collected data was analyzed using a statistical application called SPSS version 20. The outcome explains that some significance relationship existing between level of enlightenment, utilization, factors contributing to maternal death, equipment, facilities and drugs of ANC care, proficiency of ANC skilled care personnel and prevention/control of maternal death, and that all pregnant women are advised to attend antenatal care service as soon the conceive, and it should be done regularly as possible for early detection of risk factors, resulting to maternal death. Recommendations and suggestions were made on how Health professional should intensity enlightenment campaigns on the benefits of antenatal care, and the Government should be encouraged to provide more equipment in the hospitals for the care pregnant women and for antennal care and maternity clinics in Bauchi State. For safe motherhood initiatives and the prevention of maternal mortality the state ministry of health should sustain and continues the training of health worker.

Key word: Assessment, relationship, Antenatal care and prevention of maternal mortality.

ÖzetveAnahtarKelimeler

Nijerya'nın Bauchi eyaletindedoğumöncesibakımileanneölümlerininönlenmesiarasındakiilişkininbirdeğerlendirmesi. Bu çalışmanınamacı, Bauchi eyaletindedoğumöncesibakımileanneölümlerininönlenmesiarasındakiilişkiyideğerlendirmektir. 313 katılımcınınkatıldığıbirankettençeşitlibulgularortayaçıktı. Ana hipotez, beş alt hipotezileformüleedilmiştir.

Çalışmaankettasarımınıbenimsedivefarklıkatılımcılarlayüzyüzeyapılandırılmışbiranketuygulandı vetoplananveriler SPSS sürümpaketlemekullanılarakanalizedildi.Sonuç, farkındalıkkullanımdüzeyi, anneölümlerinekatkıdabulunanfaktörler, doğumöncesibakımpersonelininekipmanveolanaklarıileanneölümlerininönlenmesiarasında anlamlı birilişkiolduğunuvedoğumöncesibakımhizmetlerininmümkünolanenkısasürededüzenliolarakyapılmasıgerektiğinigöstermektedir. anneölümlerinenedenolan risk faktörlerininerkentespitiiçin. SağlıkprofesyonellerinindoğumöncesibakımınfaydalarıkonusundaaydınlatıcıkampanyalarınasılyoğunlaştırmasıgerektiğikonusundaönerilerveönerilerdebulunulduveHükümet, Bauchi Eyaletindekihastanelerevedoğumkliniklerinedoğumöncesibakımiçindahafazlaekipmanvetesissağlamayateşvikedilmelidir.Güvenliannelikgirişimleriveanneölümlerininönlenmesiiçineyaletsağlıkbakanlığısağlıkçalışanlarınıneğitiminisürdürmelivesürdürmelidir.

Anahtarkelime: Değerlendirme, ilişki, Doğumöncesibakımveanneölümlerininönlenmesi.

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List of Abbreviations

ANC - Antenatal Care

EOC- Emergency Obstetric Case

EST- Employee's State Insurance

FANC- Focused antenatal care

NPC- National Population Commission

OR- Odds Ratio

SCI- Skilled Care Initiative

TBAs-TraditionalBirthAttendants

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Antenatal care is attention rendered for welfare of an un-born baby and the care giver (mother). The reason behind antenatal care is to see that all pregnant and breastfeeding mothers healthy, and in order to assist her conceive normally during delivery, for the baby to be healthy and to show her the techniques/skills to nurture her child. Antenatal care (ANC) is an act of protection render to all pregnant women from the start of pregnancy until the child is delivered (Fraser & Cooper, 2003).The major aspect of antenatal care is safe childbearing, and it happens to be one of the basic aspects of health services, fairness, and mental support, for a long time the direct association of maternal care and the drop in maternal death is still a matter of concern.

From some emphasis in time past, basic aspect of female care was the risk assessment on every pregnant woman from the woman's past obstetric records and status of health. Attention is carefully given to pregnancy that is prone to complication during delivery, in addition to a very close supervision.Antenatal care give an opportunity for checking the progress and evaluating the growth of the fetus/baby from the early stage, so that any changes from normal will be quickly observed and detected before any serious complication can happen.All pregnant women are advised to observe any new sign or symptoms since their last clinic visit, so that she will be assured if there are any new divisions from normal. From the record of Ministry of Health (2008), slightly a little above (70%) of pregnant female around the world attended a session of ANC visit with an experienced care personal in attendance. Regardless, there is a variation from region to region of industrialized countries were about 98% of pregnant women got at least one

ANC session with experienced care personal attendance in developing countries. Unfortunately, this percentage dropped significantly to nearly about 68% and while the lowest visit ANC was recorded from South East Asia with experienced care personal in attendance, of about 54% pregnant females attended a session of ANC.

Lucas and Gilles (2004), a maternal death is passing away of any pregnant female or within 42days of aborting/ending a fetal life, place or the length of the conception regardless, or as a result of any obstruction originated in pregnancy during events handling. WHO (2007), also definedmaternal death as a mistake from a wrong procedure or induced by external forces.

There are two main sub-division of maternal mortality; we have the direct and the indirect obstetrics deaths. Direct obstetric death: complications from procedure or event management in pregnancy, during delivery or after delivering. The indirect obstetric death: most likely happens due to any of the following five major causes: blood clot, infections, a rise in blood pressure, blockage during delivery and problems arising from poor pregnancy termination as well as it management, omission or false management (WHO, 2008).

WHO (2008) went further to also stress, indirect obstetric deaths originate from pass pre-existing conditions or from conditions origination from the current pregnancy, which was triggered mentally as a result of the pregnancy; some examples of these conditions are anemia, heart diseases,.

For a better understanding, the major element that differentiates a direct maternal death from an indirect maternal death is while the direct maternal death has to do with complication arising from conception, delivery and its management, the indirect maternal death originate pre-existing health problem/conditions. Some other common conditions occurring during conception

but not directly related to conception are known as induced procedure (WHO, 2008). Some main reasons behind death of many pregnant women are infection, high blood pressure in pregnancy which includes chronic rise in blood pressure, blood cloth, and growth of featus in places other than the womb, infection in the genital tract, amniotic fluid embolism, uterine rupture and complication as a result of poor termination/ending pregnancy. Some other reasons behind female death include kidney malfunction, heart malfunction and hyperemesis gravidarum.

Most recent estimation of maternal mortality ratio (MMR) in Nigeria was 545/100,000 live births in 2008. This resulted will be the second largest globally. Women in Nigeria die annually as a result of unsafe practices from deliveries and poor pregnancy management (WHO, 2008).Within all three level of the national health system, Infrastructure and facilities are grossly inadequate and generally not well cared for; in most facilities there are not enough available skilled personal. From recent health demographic survey (DHS) it indicate 35% of child deliveries are been received at health facilities and 56% of mothers usually don't get any form of care after delivery or within the 6 weeks of childbirths. This shows that the rates are significantly high (WHO, 2008).

In Bauchi state only about 43.8% of women collect some form of care during pregnancy, while 14.6% of women deliveries are received in clinics which are significantly low, with professionals accounting for the total amount birth (UNEPA, 2007).

1.2 Statement of the Problem

Antenatal care can be that attention/ service rendered to women of child bearing age from the start to finish of conception/delivery (Myles, 2003). ANC is that routine act/habit of recording/observing the progression of the pregnancy so that any fatal changes will be easily known and corrected before any serious complications occur (Lucas & Gilles, 2004).

WHO reported that in (2010), 600,000 or more females die as a result of deliveries related condition year in year out the world over? From Nigeria alone this figure closes to 10%. Maternal mortality ratio (MMR), world highest number was from Africa with a rough estimated average of 800 deaths per 100,000 deliveries. Nigeria's estimated average in MMR is 1,000 deaths for every 100,000 deliveries, but there is a variation in this figure when you move from one region to another and in accordance to the country region of focus.

In Nigeria, the North Eastern region has a higher MMR ratio, about 75% of totals country's maternal deaths comparison with to South Eastern, South Southern or South Western region (WHO, UNICEF & UNFPA 2008). (USAID 2009) cited, majority causality of death from deliveries is mainly females between the ages of 15 - 45 years. India is accounting for the first country with the highest amount of death followed by Nigeria as the next country with the second highest recorded delivery death in the world, with fifty-two thousand Nigeria females dyeing annually. Poor care and management of deliveries result in the maternal death average of one hundred and fourteen (114) Nigeria women. UNFPA (2007) went on to reported that, in Bauchi State alone studies were conducted which revealed that, death due to deliveries rate increases from 1350 per 100,000 of live births in 2006 to 1380 per 100,000 in 2015. It is under this area of study that the researcher observed that there is a sharp rise indeath due to deliveries

rate in Bauchi State and that it's due to inadequate knowledge of antenatal care, weak health system, poor trained personal in addition to poor drugs and no working tools in most clinics. It is as a result of this evidences that, the study of the association between of ANC care and the control of maternal death in Bauchi State, I intend to conduct.

1.3 Objectives of the Study

Objectives of this study are: find and associate ANC care with the control of death among pregnant females in Bauchi State. Specifically, to sought out the following:

1.3.1 Find out about the degree of influence of enlightenment of pregnant female on ANC and the control of female death in Bauchi State.

1.3.2 To find out if pregnant women in Bauchi state fully access ANC care services.

1.3.3. To investigate and identify the major contributing factors of delivery related death among pregnant women in Bauchi state.

1.3.4 To find out if the available equipment/facilities of antenatal care services are adequate towards the control of deliveries related death in Bauchi in state.

1.3.5 To find out the degree proficiency of antenatal care (ANC) personnel in relation to the pregnant women for the control of deliveries related death in Bauchi state.

. 1.4 Research Questions

The following listed research questions are to be answered in this study.

1.4.1 What is the degree of awareness of the pregnant females going to ANC clinics on the control of deliveries related death in Bauchi State?

1.4.2 Are there evidences that pregnant women going to ANC clinics fully accesses services render in ANC for the control of deliveries related death in Bauchi State?

1.4.3 What are the major factors that contribute to deliveries related death among women attending maternity clinics in Bauchi State?

1.4.4 Do the pregnant women of Bauchi State fully and adequately utilize the available equipment and facilities of ANC services towards the control of deliveries related death?

1.4.5 Are the proficient personnel adequate in providing antenatal care services for the control of deliveries related death in Bauchi State?

1.5 Research Hypotheses

In other for this study to be conducted successfully the following hypotheses were formulated to guide the study:

Major hypothesis

There is no significant relationship between awareness level, utilization, factors contributing to maternal mortality, equipment and facilities of antenatal care, competence of ANC attendant and control of maternal death among pregnant females in Bauchi State.

Sub-Hypotheses

H_{01} There is no significant relationship between awareness/enlightenment level of pregnant female attending ANC clinics and the prevention/control of female death Bauchi State.

H_{02} There is no significant relationship between level of utilization/usage of ANC services and prevention/control of female death in Bauchi state.

H_{03} There is no significant relationship between the factors contributing to maternal mortality among pregnant women and their antenatal care services on the prevention/control of female death in Bauchi State.

H_{04} There is no significant relationship between available equipment and facilities of ANC services and the prevention/control of death among pregnant females in Bauchi State.

H_{05} There is no significant relationship between the proficiency of ANC personnel and prevention/control of death among pregnant females in Bauchi State.

1.6 Scope/Delimitation of the Study

Limitations on assessment association of maternal care with the control of pregnancy related death with regards to females in Bauchi state, and It is also delimited to seventeen thousand (17000) pregnant womenthe study was also delimited to twenty (20) hospital/maternity clinics selected across the three (3) senatorial district of Bauchi State

1.7 Significance of the Study

It is hoped that the finding of the study will be of benefits in the following ways:

a. The findings of this study will create awareness within pregnant female in Bauchi State on ANC benefit in the control of maternal death.
b. Additional results gotten for this study will also enhance/boost the optimum patronage of ANC services by the pregnant females in Bauchi State.
c. Whatever results gotten from this study will be useful to the Bauchi State Ministry of Health and state health Care developmental agencies in designing health educational programme on ANC care services and control of deliveries related death among women generally in Bauchi State.
d. In addition to the already exist resources it will serve as reference information for further research on any new control method related to death among women in Bauchi State and in Nigeria at large.

e. Also there are already existing grasp in the area of ANC services and its Prevention on control of death among target women age group of in Nigeria.

1.8 Operational Definition of Terms

Antenatal Care: is known as attention render to a conceived female from begin to the end of conception or to the delivery time.

Prevention: Obstruction or hindering to occur.

Maternal Mortality: is known as the passing way of a conceived female or within 42days of end/abortion of featus, irrespective of location or the length of the pregnancy, or from any condition originated by the conception and its management

Pregnant Women: Apregnant women are those women that have been conceived.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.0 Introduction

This study assesses the connection of ANC care with the control of female death in Bauchi state. Literature related to topic will be reviewed under the following headings.

2.1 Concept of Antenatal Care Services

2.2 Level of awareness of antenatal care

2.3 Utilization of Antenatal Care

2.4 Overview of Maternal Mortality

2.5 Contributing Factors of female death

2.6 Prevention of female death

2.7 Proficiency of Antenatal Care Personnel

2.8 Empirical Study on Maternal Mortality

2.9 Summary of the Review of Literature

2.1 Concept of Antenatal Care

Antenatal care is that attention render to a females throughout the period of their conception in order to save the mother and her newborn baby and through the delivery process. A heathy life style and diet is always encouraged throughout the period of pregnancy because it is essential to the initial development stage of the child.

Among pregnant women maternal care (ANC) is majorly the most important ways in reducing the prevalence of death among pregnant females. Regretfully, this care is not readily available to most females from the under developed countries. From around the world serval reports have showed that an increase the usage of the ANC service has resulted in a drop in the risk of deliveries related death. A known example is from, South East Asia (Yang Ye., Yoshida., Harun., Rashid., and Sakamoto 2010). It is explained that ANC is the attention render on conceived female, from begin to the end of fetal conception or to the delivery time. Special care and close observation are rendered to high risk pregnancies during child birth. Antenatal care also gives that special duration to record the progression of the infant during pregnancy, in other to note any developmental changes from normal at the first trimester before it leads to serious complication.

The objective impact of prenatal care on the reduction of female death is clear. There has been a wide range of agreement that intervention of antenatal care can bring about improvement in maternal newborn health, in turns has a great effect on the rate of survival, relating to general wellbeing of the baby. In addition, it's also providing an opportunity to get to all pregnant women attending ANC with all necessary things to notes and information. Globally, it has been concluded that, ANC should be delivered into 4 main visits, the first should range within first 3 months , while the remaining 3 is after fluttery sensation(quickening), and this method is now approved by WHO (2010). To see the effectiveness of antenatal care interventions, some test such as laboratory testing for sexually transmitted infections, availability of anti-malaria prevention measures, vaccines for tetanus immunization, and the stop of HIV transmission from infected mother-to-child are all included. For women to utilize this program fully, it most

advisable for females to start attending the (ANC) clinics immediately pregnancy is confirmed. (Ademola, Dosur., and Joseph 2011).

WHO in (2010) implemented focused antenatal care solely to improve the method of caring for pregnant females? Previously, consistent regular visits were encouraged, pregnant female were grouped according to their risk categories to know if there are chances of complications. But now the quality care made this method invalid, but focus is now target at ANC based on number of attendance. For every focused ANC visit there is a number of interventions that is right for the stage of woman's pregnancy, and this covers her total wellbeing and readiness to have the child. Interventions given directly have many benefits; the period of pregnancy is one of the most delicate moments. Antenatal care services are accessible everywhere and this care is done on a daily bases in all government approved clinics in Nigeria.Queueing is the method used to receive Services at clinics generally, so many pregnant women follow different queue lines during the first visiting period which includes: the reception area for cards to be given numbers and recorded in the clinics ANC register, followed weighing, then health education, and finally the dialogue room (for history taking, consultation and physical observation). From finding gotten from patient compliant in consultation, and total number of visits, pregnant women are mostly referred to the laboratory for further testing of pregnancy related diseases, for physical counseling or maybe to the drug unit to collect some important medicine. (AdemolaDosur., and Joseph2011)

Various patterns health services deliveries currently available in clinics, in most cases; pregnant women should have at least five contacts on their first visit. The main purpose of focused antenatal care is that every woman is expected to receive individual care mainly from a health provider, over the period of all four visits. This was introduced because many crucial

ANC services were missing in some clinic nationwide, like pregnancy progress observation, to foresee complications before they occur, referring potential mothers, and encouraging child spacing ideas. The reason behind ANC is to exert any problem for pregnant females depends on the available operational guild lines that care is been offered, by rendering a high quality care during and after the period of conception, delivery and the post-delivery. Program packages present also impact the help pregnant women get from attending ANC, especially during difficult conditions. Focused antenatal care prepares mothers towards delivery and parenting, and to exert any of the three pregnancy related problems that could possible harm the mothers and her baby like: pregnancy related complications, already existing conditions and the impact of poor life choices towards her health (Ademola, Dosur., and Joseph 2011).

2.2 Level of Awareness of Antenatal care (ANC)

ANC is the period of enlightenment of pregnant females about conception and delivery, give the general and important information needed during that phase. Underutilization of ANC has been challenging and linked to the death related outcomes. Regardless, various thought on the effect of antenatal on health educating pregnancies outcome. Educational resources for Antenatal are also an important part of maternal care since it adds to a successful and improved outcome. Antenatal care provides opportunity for interactions, nutritional education, and observation of any risk signals in the course of pregnancy, testing/ screening for HIV and other related conditions, possibly to gain confident of clients and finally to identifies those problems likely to make the pregnancy in the category of a high risk type of pregnancy (WHO, 2004).

Begum and Bhuiyan (2009) in the past underwent a study on booklet guiding ANC and emergency obstetric in Dhaka city Senegal. This study was to find out if there is an impact of

using physical guidance booklet on ANC by the Maternal Health Service providers on the method of ANC and pregnant female knowledge on emergency obstetric case (EOC).

Detailed cross sectional study was administered among MCH staffs and pregnant females from 2 zones of Dhaka, Bangladesh, from July, 1997 to 1998. The outcome showed that, MCH staffs (n-307) who issued ANC booklet discusses different obstetric emergencies more often ($P<0.05$ to $P<0.001$) with females to those without booklet. In the same vain, services provided based on places and persons referrals on various complications also increased marginally ($P<0.04$ to $P<0.001$) after use of booklet. Responses from females with 2 ANC sessions were recorded during the study, (n-172)before the used of booklet with (n-300)after the use of booklet. Mgwadere (2009) conducted another study on access and awareness of ANC in Lungwana health Centre in rural Malawi. The research objectives was to bring out resources available (human and material) for providing antenatal care (ANC), examine pregnant women's initiative and frequency of antenatal visits, and establish providers/midwives' skills, knowledge and practice in providing ANC. 259 women were interviewed using a structured questionnaire. Results indicated that, inadequate resources for ANC provision. Most women started coming for ANC in second trimester. Despite available skilled service providers, there was lack of proper structure for providing ANC services. Verma, Chhatwal, Varughese (1994) carried out a study on antenatal period. An educational opportunity, the behind the survey was also too evaluated impact programme educational value during antenatal period. This practical survey was used for the purpose of the study. 100 mothers from the targeted sample with no form of education became the control group. Followed by 201 samples for the main trail and all were learned to some level on female and child care. Both the control and the trail were compared for age, parity, education, income and number of ANC attended. From the results it was understood that, females in the

trail gained an increase understanding regarding the reason for ANC care. The knowledge breastfeeding, its advantage also increased among study group.

A good qualitative ANC care services important right for females to safeguard their general health and wellbeing. The level of women health in most developing countries are not very pleasing, where majority of women suffering from easily preventable and treatable risks/disease associated with the child bearing process (Nasir Reheela&Amjad, 2007) UNICEF and WHO (2008) asserted that, out of a 100% only 70% of pregnant women globally have received one clinic maternal service provided during the ANC visit and all through their pregnancy. ANC coverage was extremely high in the industrialized countries, accounting the total of 98% of women attended a session of ANC in the developing world. South Asia was seen to be the lowest in the world; where only about 54% of pregnant females attended a session of ANC. The remaining regions in the world range from 82% to 86% respectively.

UNICEF and WHO (2008) formerly stated that, in Latin America. Caribbean, Middle East and North Africa majority of women there attends ANC with at least four (4) visits in one pregnancy and more than a quarter of these women attend ANC in their early stages of pregnancy. On the other hand, in sub-Sahara Africa most women come for antenatal care in the second stage of their pregnancy and with only a small percentage coming only in their advance stage of their pregnancy.

In the same vain Birung.,Ayut, and Suel, (2006) further explained that, a handful amount of pregnant women (about 45% percent) wait until the second or third stage of their pregnancy to seek care. By the first sixth month of pregnancy, 12% percent of pregnant females have not attended a single ANC visit. The most likely time for females to attend their first ANC session is

always around 4 months. Although, an estimated 6% percent of pregnant females do not make any effort come for even a single ANC session; this figure is higher 9 % in rural areas.

Chandhiok, Dhillon, Kanbo and Sexena (2006) stressed that, ANC allows for the, detection, treatment, and the management of pregnancy complications, for the promotion of sound wellbeing. Although, females don't see child bearing as dangerous and therefore, do not seek any form of care. Female health services are affected by usage/accessibility in some part of the country where poverty and illiteracyare more dominate. They were variations in the level of usage of ANC services across the region. These may be from differences in availability and accessibility of care among the region. Since ANC care is determined by local customs in rural areas, continue sensitization, and educational interactions is required to motivate pregnant females to register early.

Chandhiok, Dhillon, Kanbo and Sexena (2006) further explained that, one of the best things activities that ANC care could accomplish is to influence women on having institutional delivery with a trained birth attendant, this factor is known to promote child survival and decrease maternal mortality.

2.3 Utilization of Antenatal Care

The availability and usage of clinic by the general population is determined solely by access, the location and the perception of the importance of facility on the health of populist. (WHO, 2008) reasons behind various choices of health clinics attendance is determined majorly by economic factors and partnersinterference , in a instances if the cost of getting care from a particular institution is high, some clients go for on self-medication by patronizing hawkers for

herbal preparations or modern pharmaceutical drugs on streets. This practice has effect on reproductive health which determines the sustainability of any society.

Consequences of this practice are life expectancy rate of women of child-bearing age is cut short due to maternal death. 37,000 approximated female deaths occurred in Nigeria around 1999 (UNICEF, UNPFA, and WHO 20008). Another result shows 52,000 women have died due to pregnancy related complications in 2007 in Nigeria (Dada, 2008).

Even with re-modernization of current facilities, statistics has shown that majority of children now are delivered by locally trained deliveries specialist in rural Nigeria (WHO, 2010). Many societies now, a standard are adapted to measure health of everyone, most especially the women. You observe that in those places, the health care system delivered is purely orthodox while the others are mixture of orthodox and traditional medicine. In Nigeria and in most African countries, the use of both is common. Martey.,Vicent, and Margret(1998), Ashanti Regionalhealth system is practiced in the whole of Ghana, and is made up of three sub-division, namely, public, private and traditional. The public system practice is known as orthodox medical services delivered in all government owned health faculties. The private system is also known as orthodox medical services delivered in missionary hospitals, clinics, maternity homes, and chemists' shops profit purposes. And lastly the traditional system referred to medical services delivered by herbalists, bonesetters, local healers, spiritualist, local birth attendants and many others. From Ghana, the public sector gives the highest care of 60%, followed by the traditional sector which provides 30% of care, and while the private sector gives only 10%.

Clinics utilization by expectant mothers has direct impacts on the survival rate of mothers and their infant. This observation is noticeable among the third world countries with Nigeria

included. As a result Nigeria women are not seen to good maternal health as captured by the United Nations. For females to have good maternal health there must be modern health facilities available and accessible for them to use. Although it has been observed that despite the introduction of modern health faculties, majority of children in rural region were still delivered by traditional Birth Attendants (TBAs). TBAs are locally trained professionals' that refuses to refer any complications during delivery to right quarters; as a result many women and children are exposed to preventable deaths and infections. In a study from Esan people of Edo state, Okolocha*et al.*, (1998) it was seen that the geographical location of these people, made it difficult for them to access health clinics. Lack of education among women undoubtedly contributes to the widespread self-neglect conditions. They tend not to care about their illnesses/health needs so the fail to seek care. From this bases that Njikam (1994) draw a conclusion that the low level of awareness and lack of education makes up over 60% of the Nigeria's rural populations and cultural norms/practices still has 'a strong influence on reproductive health especially in relation to pregnancy, delivery and child bearing'.

For instance, local beliefs on the causes of some illness and treatment often prevent timely medical intervention. There is a local belief that prolonged child labor is often hereditary or punishment for some sought of offence committed, which will only stop when confessed. Other issues are ignorance/lack of proper education.

Yet another study was conducted by Joseph, Charles, Clement and Prakash (2005) on usage of antenatal services in apparel manufacturing factories in Bangalore. The main reason behind that study was to identify outcomes of services provided to pregnant woman in seven factories belonging to the company. Self-structured questionnaire were administered. Results showed, half of workers who had been provided ANC services did not turn up to work, And a

majority of the workers had come for complete ANC care, most of them had delivered in the local employee's State Insurance (EST) hospital. Knowledge of antenatal care generally improved ANC attendance and most information had been passed by the health care providers. The positive attitude of the health care providers in these factories has been recognized and they should be provided with adequate support and training to perform their functionalities optimally.

In other to explain pre-existing indictors with ANC utilization, odds ratio (OR) and 95% confidence intervals (CI) were estimated through a logic regression model. The results shows that, about 53.9% of mothers did not received any form of ANC care due to the following reasons; no time (93.4%), no felt need (83.8%), feeling of shyness (74%) and distance from ANC facility (71.3%). Also from the results pre-existing indictors of ANC utilization (P-value<0.05) were: level of education (OR = 6.8, 95% 01=2.7-16.8), financial income (OR = 2.6, 95% C1=1.2-5.7), basic knowledge of ANC (OR = 6.5, 95% 01 = 2.4-17.6), family income (OR = 3.0, 95% 01=1.3-7.1,), location of clinic (OR=2.9, 95% 01.1-7.6), availability of public transport system (OR = 4.5, 95% C1 = 2.0 – 10.4), the cost of transportation (OR = 2.5, 95% 01=1.1-5.7) and the cost of service (OR=4.6, 95% 01=2.2-96).

2.4 Overview of Maternal Mortality

A quote from WHO (2008) "A maternal death is defined as the death of woman while pregnant or within 42 days of terminal of pregnancy, irrespective of the duration and site of the pregnancy, form any cause related to or aggravated by the pregnancy or its management but not from incidental causes". More than half death occurs within developing countries. Statistical data present are most likely misinterpreted, the real number of death maybe underreported and

misclassification. On the other hand UNPFA (2007) went further to explained that, in 2000, the maternal death globally was approximately to be around 95% and Africa and Asia recorded the largest death.1 in 2 women in western world have 800 chance of dying during child deliveries', and l in 8 women in other countries have 700 chances in dying during child deliveries; while 1 in 20 women in Africa have higher chances of dying during child deliveries. Other countries the danger is above 1 in 10 women may dies from obstetric complication; and almost 30 more may suffer injuries, infections and some form of disabilities. In 1999, WHO estimated that, over 2 million women in developing countries remain untreated for obstetric fistula a devastating injury of childbirth?

According to Okonofua (2008), an 80 percent female death happens from procedure complication; like hemorrhage, infections, poor termination of pregnancy, rise in blood pressure and prolonged delivery. Complication from poor pregnancy termination represent about 13% of female deaths world wide and 19% of female deaths in South America only, an indicator of inequalities is maternal mortality. The national pregnancy mortality surveillance system was established in 1988 by the Centre for disease control and has contributed some valuable information on maternal death in United States. The epidemiological data it provides have revealed disturbing disparities between ethnic groups (CDC, 2004). In the United States, the black American women have 4 times chance dying from pregnancy related complicationsthan white women. This disparity is applicable to every related cause of maternal mortality. A current race specific mortality ratio is 5.7 per 100,000 live births for white women and 18.6 per 100,000 live births for black American women.

Difference from region to region varies greatly, with over 273,000 female deaths witnessed in Africa (MM ratio > 1000 per 100,000), compared with a total 2000 maternal death in Europe

(MM ratio: 28 per 100,000), lower and upper bounds were also estimated, and the base-line on the global MM ratio was likely to be less than 234 or more than 635 per 100,000 live births.

For women of reproductive age, complications due to pregnancy and childbirth are leading causes of maternal mortality, some disease conditions and disability, accounting for 18% of the global burden of disease among this age group. Globally, one woman dies every minute from complication related to childbirth. For every maternal death, 15-20 other women suffer disabilities that significantly jeopardize their reproductive health and socio-economic status. It was estimated that 75% of maternal deaths are due to obstetric complication such as hemorrhage, sepsis, hypertensive disorders, unsafe abortions and unstructured labor. Other non-obstetric cause includes anemia, sickle cell disease and heart disease. Non-medical factors include socio-economic factors illiteracy, poverty, ignorance, poor nutrition and poor use of available maternal service may also contribute.

2.5 Contributing Factors to Maternal Mortality

Some of the factors responsible for female death According to WHO (2000), “maternal death is defined as the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to our aggravated by the pregnancy or its management but not form accidental or incidental causes”. Generally, direct maternal death happens as a result of a complication from pregnancy, delivery, or its management, an indirect maternal death happens from pregnancy-related death in a female with a pre-existing/newly developed health problem. Other occurring fatalities unrelated to pregnancy are termed accidental, incidental, ornon-obstetricmaternal death.

Some “incidental causes” may be deaths from violence on a pregnant female and death brought about by the socio-economic and cultural factors. About 10% of maternal deaths happens after 45 days of termination of featus or delivery (Lisa., Joel & Mogan.1988) some definitions of incidental death includes the period of observation to one year after the end of the gestation. It is noticed that maternal mortality data are often under reported (Denneux.,Gobbel and Harrison 2005).

According to WHO(2005), the following are causes of maternal mortality (mm) with their percentages worldwide:

Hemorrhage	-	25%
Infection/sepsis	-	13%
Eclampsia	-	12%
Obstructed labor	-	8%
Complication of abortion	-	13%
Other causes	-	8%

Case from indirect conditions e.g. malaria, anemia, HIV/AIDS and cardio vascular diseases, may amount to 20% of the total. Ujah, Aisien, Muktihir and Vanderjat (2005) from the review of factors responsible for maternal death in North-Central Nigeria, seventeen-year ago, the magnitude, trends, causation and characteristics of maternal death before and after the lunch of the safe-motherhood initiative in Nigeriawas to determine, which suggested strategic interventions if implemented to reduce maternal deaths. The records of all case files of females who died during pregnancy and child birth between January 1, 1985 and December 31, 2001, in

maternity unit of Jos University Teaching Hospital, Jos, Plateau State, Nigeria, were reviewed. The data collected were analyzed for socio-biological variables such as age, booking status, educational level, parity, ethnic group, marital status, mode of delivery, duration of stay in hospital before death, and causation of deaths. Results showed that, there were 38,768 deliveries and 267 maternal deaths during the period under review, giving a maternal mortality ratio (MMR) of 740/100,000 total deliveries. The mean age of death was 26.4 (SD 8.1) years. The greatest age group at risk of MMR was among young teenagers (<15 years) and (>40 years) above. Unregistered/illiterate women were associated with very high maternal mortality ratio. The Hausa-Fulani ethnic group contributed a high number to this death (44%) by tribe to maternal death study. The direct causes of death were hemorrhage (34%), sepsis (28.3%), eclampsia (23.6%) and unsafe abortion (9.6%), anemia in pregnancy (14.6%), meningitis (12.0%), HIV/AIDS (10.6%) and acute kidney failure (8.8%). 79% of these death occurred within the first 24 hours of admission.

Adeyemi (2005), stated that, MM causes in Nigeria are as follows: hemorrhage 23%, pregnancy-induce hypertension 11%, infections 17%, unsafe abortion 1%, and malaria 11% prolong obstructed labor 11%.

2.6 Prevention of Maternal Mortality

One important social and developmental challenge currently faced by Africans is reduction of maternal mortality. Available evidence suggested that out of eight Millennium Development Goals, the fourth goal aimed at reducing female death by 75% in 2015. (WHO 2008) identified four major intervention plans as crucial in the efforts to reduce maternal death in

developing countries? These are child space, ANC care, birth under a skilled supervision and obstetric emergency care.

In contrast to countries that have successfully recorded a fall in maternal death have consistently had a higher uptake of these interventions? As an example, Sweden presented the lowest maternal death in the world, with a contraceptive prevalence rate of 78%, antenatal care attendance by pregnant female of 98%, birth supervision of nearly 100% and un-restricted access to emergency obstetrics care. While, Nigeria records second highest maternal mortality rate in the world, with a contraceptive prevalence rate of 8%, ANC care of 60%, birth supervision of 30% and very poor access to emergency obstetrics careby pregnant females (Okonofua, 2008).

Increase access to evidence-based interventions is a key strategic method to promote safe motherhood, the quality of services available is also as important. Thus, safe motherhood initiatives must solely access and quality of service in other to reduce maternal death in Africa in a few years. Several socio-economic factors have been recognized as being associated with low access and poor quality of maternity services in many African countries. In addition to the above mentioned factor poverty, illiteracy, ignorance, harmful traditional practices, religious believes, socio-economic disempowerment of women and poor health infrastructures (Okonofua, 2008).

WHO in (2010) went further to explained that majority death during deliveries are as a result of hemorrhage which happens in hospital, and the only way it can be prevent will be by improving our early detection and response to hemorrhage. Some symptoms such as Hemodynamic compensatory mechanisms, tachycardia and hypotension may not be observed in most pregnant women until a severe decomposition has occurred. By under estimation of lost blood and hemodynamic changes may reduce fluid resuscitation and transfusion. If a system

adopt quick and uses other means to respond to extreme blood loss maternal illness and death can be reduced greatly.

2.7 Proficiency of Antenatal Care Personnel

Care from Skilled maternity personal throughout conception, delivery, and the after delivery is known worldwide as best methods to bring a decline in female death (UNFPA, 2007). The volume of trained health care service providers during delivery is used as a major signal to rate the continuity towards the targeted Millennium Development Goals of reducing female death by more than 50% in 2015 (MDG 5).Recently, most females from Africa delivery without any form of attention. Additionally, No prove on the study available to bring any efforts to increase the rate of skilled attendance. Miller., Moses and Williams (2009). Proved that, there are no clear guidelines on the best methods to give adequate care to women from developing countries that may need some life-saving interventions in their delivery and postpartum period (WHO, 2008). Global statistics have indicated that, an estimated 34% of the pregnant mothers conceive without any help from trained health care personal; which translate that there are about 45 million home deliveries occurring every year without any assistance from skilled health personnel. About 99% of deliveries in developed countries are done by trained attendants which is high when compared to 62% birth received in developing countries. In at least five countries in Africa with Ethiopia included that percentage falls to 20% (WHO, 2005). Presence of skilled attendant in delivery sessions is key indicators showing progress towards achieving the Millennium Development Goal of Improved maternal health. The initial agreement was 40% goal of all births delivered under the supervision skilled attendant by 2005, with 50% coverage by 2010 and 60% by 2015, among the countries with 80% death. A study from South India showed that supervised deliveries can reduce the risk of obstructed labor and in addition to the

place of delivery (Navaneetham., Ben and Tom 2000) Another study indicated roles played by skilled birth attendants in preventing direct and indirect causes of maternal deaths like, infection, shock, blood loss, convulsions, and surgical procedures, such as caesarean delivery (AbouZahr, 2003).

Maternal death maybe directly or indirectly related to societal/cultural factors impacting women's health and access to services (AbouZahr, 2003). Lack of access and control over resources, limited educational opportunities, poor nutrition, and lack of decision-making by pregnant female contribute to post pregnancy related outcomes. Review from international literatures emphasizes on factors like cultural beliefs, socio-demographic status, women's ability to make decisions, economic conditions, physical and financial accessibility, disease patterns and health service issues to be important determinants when using maternal health care services (AbouZahr, 2004).

Adequate skilled care presence at deliveries has been identified as one of the ways in reducing maternal death and improving neonatal health. Ensuring that all women have access to skilled care is particularly important because most obstetric complications are difficult to predict, and a woman can suddenly without warning signs, develop a life-threatening emergency condition. A key component of skilled care is to ensure that care providers are equipped with cognitive, clinical, and interpersonal competencies needed to provide care (UNPFA, 2007). WHO (2004) recommends that ANC care providers should receive a refresher training every three to five years. In the same vein, some care providers when interviewed could not list all appropriate steps for diagnosing and managing potentially lethal obstetric complications such as pre-eclampsia/eclampsia, postpartum hemorrhage, or postpartum sepsis. A midwife is a person trained to provide care to women during pregnancy, labor and after delivery; trained to recognize

problems, and is issued a license recognized by the government for him/her to practice. Another International definition recognized by World Health Organization (WHO), the International Confederation of Midwives (ICM) and the International Federation of Gynecologists and Obstetricians (FIGO), said midwifes are trained to act decisively and independently in conducting births; ascertain risks of pregnancy and labor when attending to a woman with conception (WHO, 2008).

2.8 Empirical Study on Maternal Mortality

From a Study conducted by Olabisi., Olabisi and Dairo (2016) on application of Antenatal Care in Nigeria—And an analysis was conducted from a 9 years period with Patterns and Trends of ANC from 1999–2008.the the interpretation of the result showed that: Most of the people interviewed did not go to school so there was no formal education (49.3%, 49% and 49.2%) and lived in rural setting (70.5%, 64.2% and 73.2%) in 1999, 2003 and 2008 respectively. generally, the amount of women using antenatal care reduced from 69% in 1999 to 61% in 2008. From the women taking advantage of ANC, those with at least the required four ANC visits dropped slightly from 84.3% in 1999 to 82.1% in 2008. Although more than half of the pregnant females had a minimum one ANC session conducted by a skilled birth attendant, this data dropped from 3–15% between 1999 and 2008. More than 80% of pregnant client come often for their routine observations and care, it was observed that there was in decline on women who took anti-malaria drugs during pregnancy from 52.3% (2003) to 31.9% (2008). From the data point of view there was a rapid decrease in the application of ANC across all socioeconomic and regional subgroups between 1999 and 2008 ($P<0.01$) only with except of those who obtained education to advance level ($P¼0.389$).

Patel.,Gurmeet., Sinalkar., Pandya., Mahen, and Singh (2016) carry out a study on knowledge practices of antenatal care among pregnant women attending antenatal clinic at a Tertiary Care Hospital of Pune, Maharashtra the study reveals that about 58% women had adequate knowledge regarding ANC. It was found that almost all the variables such as age, education, occupation, parity, type of family, and socioeconomic status (SES) had a link with awareness of ANC. 100% women were having a positive attitude toward ANC. Around 70%, women were attending ANC correctly, and variables such as education and social economic status (SES) had a link with ANC practices. In conclusion: These findings can be used to plan a Health Intervention Program aiming to improve the maternal health practices and eventually improve the health status of the women as a whole.

Study conducted by Oshinyemi, Aluko and Oluwatosin (2018) on Focused antenatal care: recommended that (1) making of favorable health policies: by Establishing favorable health policies will positively impact maternal and child health outcomes, and reduce the rate of maternal and infant mortality. (2) Setting achievable benchmarks for focused antenatal care: Focusing on attainable standards makes the objective of the new antenatal care model to be achievable in a stepwise way, thereby leading to the implementation all objective ANC visits. (3) Improving availability of human and material resources, Effective implementation of quality antenatal care service require the presence of adequate and qualified healthcare personnel; this will reduce the number of hours women spend waiting to be attended to in addition to the quality to services delivered. Subsidizing, providing resources and infrastructure would encourage pregnant women use all available care. (4) Increasing awareness: Dissemination of information on the importance of ANC utilization to increases compliance to treatment regimen. (5) Improvement ofQuality of service deliveries: Quality service deliveries improvement allows for the identification of constraints with awareness on ANC on client and ensures that care is evidenced based practice.

2.9 Summary of the Review Related Literature

The study ascertains association of pregnant female care with death control among pregnant females in Bauchi State. Different literatures that have a direct bearing with the research study have been reviewed. Various concept of maternal mortality had been discussed critically which include; Concept of Antenatal Care Services, degree of awareness of Antenatal Care, Utilization of Antenatal Care, Overview of Maternal death , Contributing Factors of Maternal death, Prevention of Maternal death, capability and the expertise of Antenatal Care Personnel, verifiedfactual Studies conducted on Maternal death.

It is relatively important to remember that Nigeria is one of the members of the many countries that signed the millennium development goals, on safe motherhood initiatives and reproduction health plans and policies by WHO, maternal mortality has been at the higher levels. Geographical differences in the country remain considerable. Maternal mortality trends allow for certain amount of optimism in some areas of Latin America, North Africa, Asia and Middle, East, but the current response in Nigeria for example and the sub-Saharan region of Africa still calls for attention. In fact, out of the health indicators, maternal mortality is where the differences between industrialized and developing countries are the most evident, with levels twenty times higher in the later than the formulary. In sub-Saharan Africa, one woman out of sixteen dies for reasons relating to maternity, when compared with one out of two thousand eight hundred in industrialized countries (WHO, 2008).

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This research is on Assessment of the relationship between Antenatal care and control of maternal death among pregnant females in Bauchi state. This chapter will discuss the research design, the target population of the study, sample and sampling technique, research instrument, validation of the research instrument, reliability of the instrument, questionnaire administration and finally statistical techniques.

3.1 Research Design

A descriptive survey research design was applied to investigate if there is any existing relation between control of maternal mortality and antennal care among pregnant women in Bauchi state. Survey design according to Njodi and Bwala (2010) is a systematic process and action which provides the necessary information on a specific population at a current status of one or more variable. The survey research design is suitable for this study because data from the research between relationship of Antenatal care and the prevention of maternal mortality among pregnant women was collected from 313 samples representing the total pregnant female's population in Bauchi state.

3.2 Population targeted of the Study

Pregnant females will be the target group for this study with a total number of one thousand seven hundred (1700) pregnant women registered and attending antenatal care services from January 2019 to September 2020. The population of each clinic is indicated here on table.

Table 3.1 Population of Pregnant Women in Bauchi State

S/N	Clinics Strata in Bauchi state	Type of Clinics	Population of Pregnant Women
1.	**Bauchi North,** Katagum,Zaki,Gamawa,Giade,Shira, Jama'are and Itas/ Gadau.	P.H.C.	650
2.	**Bauchi South** Bauchi,Toro,Alkaleri,Kirfi,Dass, T /balewa and Bogoro	P.H.C.	650
3.	**Bauchi Central** Ningi, WarjiMisau, Dambam,Darazo and Ganjuwa	P.H.C. .	400
Total			**1700**

Source: field survey 2020.

3.3 Sample and Sampling Techniques.

313 targeted female respondents will be drawn from the population of the study using multistage sampling procedure. Multistage sampling procedure is a procedure that is carried out in phases and usually involves more than one sampling method (Njodi&Bwala, 2010). According to Krejci and Morgan (1970), suggested that if the population is 1700 the required minimum sample size is 313

Stage 1: Bauchi state will be stratified/divided into (3) strata namely; Bauchi North, Bauchi South and Bauchi central.

Stage 2: Simple random sampling technique will use to select four (4) clinics from two stratums that is Bauchi north and Bauchi south and three clinics from Bauchi central which accounted the total number of Eleven (11) clinics selected for the study. This is because Bauchi north and Bauchi south has seven 7 local government each, while Bauchi central has only six 6 local government.

Stage 3: Simple random sampling technique was used to select one clinic from each category.

Stage 4: Proportionate sampling technique will be used to draw 313 respondents where each of the clinic's population will be divided by total target population (1700) of the sampled clinics and multiplied by the sample size (313).

Table 3.2 Distribution of sample

S/N	Local government selected	Type of clinics	Pregnant Population	Sample size
1.	Katagum,Zaki,Gamawa,andGiade,	P.H.C	650	120
2.	Bauchi,Toro,Alkaleri,Kirfi, Dass,	P.H.C	650	120
3.	Misau, Darazo, and Danbam	P.H.C	400	73
Total			**1700**	**313**

Source: field survey 2020.

3.4 Research Instrument

The researcher developed self-structure questionnaire that was used to collect all the necessary variables. For the purpose of data collection in this study a modified Likert's scale was used. And the ranking was as follows: Strongly Agree, 4 points: Agree, 3 points; Disagree, 2 points; and Strongly Disagree, 1 point.The questionnaire is divided into 6 parts A-G. part "A" ask about demographic data and the nature of all people interviewed; part 'B' asked about the

awareness level of pregnant females on ANC and the prevention of maternal mortality; section ”C” contains information on usage of ANC for the control of maternal mortality; section ”D” sought information on the major factors that contributes to maternal mortality; section “E” contains information on equipment and facilities of ANC services; section “F” contains general information on the proficiency of the personnel that provide ANC services, While section “G” contains information on the prevention of maternal mortality.

3.5 Validity of the Instrument.

For the research instrument to measure what is intended for , the research instrument will be given to two experts in the Department/Faculty of health sciences Near East university for content and face validity of the instrument. The corrected observations will be part of the final draft of the instrument, and the approval of the researcher’s supervisor before administration for pilot study.

3.6 Reliability of the Instrument.

Reliability of this instrument will be ascertained, from a pilot study conducted by the researcher’s assistant using 20 participants in Bauchi state. Split half reliability test will be used, and data obtained will be subjected to statistical tool of spearman brown formula.

3.7 Data Collection Procedure.

An introductory letter was issued by the Head of Department of Bio-statistics, faculty Health sciences Near East University and this letter was given to all officer in-charges of all selected clinics seeking permission to conduct the study. The questionnaire was administered to the respondents in their respective clinics with the help of three (3) research assistance (friends) and within a period of two (4) week.

3.8 Method of data Analysis

A Frequency count and percentages showing the minimum and maximum value was used to organize and describe the demographic information of the respondents, inferential statistics of correlation coefficient and chi square test was also used to test sub-hypotheses 1, 2, 3, 4 and 5. All at alpha of 0.05 level of significance as criterion for either retaining or rejecting the null hypothesis.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.0 Introduction

This study is on Assessment of the relationship between Antenatal care and control of maternal mortality among pregnant women in Bauchi state. Distributed questionnaires were Three hundred and thirteen (313) and all was filled and returned, after which data analysis was conducted. The data collected were tabulated and presented as follows:

4.1 Results

Tables 4.1.1: Demographic Information of the Participants on level of Education

S/N	Variables	Frequency	Percentage
1.	**Programme**		
	NCE	63	20..1%
	ND	97	31.0%
	HND	29	9.3%
	Degree	109	34.8%
	PG	15	4.8%
	Total	**313**	**100%**

Table 4.1.1 above indicated the educational qualification of the participants NCE holders constituted sixty-three 63 (20.1%), that of ND holders constituted of ninety-seven 97 (31.0%), those of HND twenty-nine 29 (9.3%), and Degree holders are one hundred and nine 109 (34.8%), PG holders 15 (4.8%). This indicated that Degree holder participants (109) have the highest number of participants, followed by National Diploma holders (ND) 97 participants while that of NCE holder were 63 participants. While the least number of participants were PG holders having 15 participants.respectively.

Tables 4.1.2: Demographic Information of the Participants on Age

S/N	Variables	Frequency	Percentage
2.	**Age**		
	18 – 23	203	64.9%
	24 – 29	73	23.3%
	30 – 35	21	6.7%
	36 & Above	16	5.1%
	Total	**313**	**100%**

Table 4.1.2 above indicated the age of participants 18-23years constituted 203 (64.9%), that of 24-29 years constituted 73 (23.3%), those 30-35 years 21 (6.7%) and 36 and above years constituted 16 (5.1%).This indicated that participants aged 18-23 have the highest number followed by aged 24-29 and participants aged 30-35 were the lowest and the least number of participants aged 36 and above with 16 (5.1%) respectively

Tables 4.1.3: Demographic Information of the Participants on marital status

S/N	Variables	Frequency	Percentage
3.	**Marital Status**		
	Single	5	1.6%
	Married	232	74.1%
	Divorced	76	24.3%
	Total	**313**	**100%**

Table 4.1.3 above indicated the marital status, married participants constituted 232 (74.1%), that of divorced participant 76 (24.3%), those of Single participants 5 (1.6%) and none of the participants are separated couple this indicates that married participants have the highest number followed by divorced participant and the lowest participants were single women participants.

Table 4.1.2: Summaryon sub- Hypothesis 1: There is no significant relationship between level of awareness/enlightenment of pregnant women attending ANC clinics and the prevention/control of maternal mortality in Bauchi state.

S/N	Variables	Mean	Std. Deviation	Mini	Maxi	N	r-cal	Dec.
1	Level of awareness	19.3355	2.62616	8.00	24.00	313	0.44	$H_{O.}$ Rejected
2	prevention of maternal mortality	18.8243	2.76501	9.00	24.00	313		

Table 4.1.2 summarized Pearson Product Moment Correlation (PPMC) on the degree of association of enlightens pregnant females coming for ANC and the control of female death in Bauchi state. The table reveals a coefficient of 0.44 which indicates a weak positive relationship. This implies that a weak positive relationship exist between the two variables.

Table 4.1.3: Chi-Square χ2 Summary Sub- Hypothesis 1: There is no significant relationship between level of awareness of pregnant women attending ANC clinics and the prevention of maternal mortality in Bauchi state.

Variable	FO	FE	χ^2	df	p
Not knowledgeable	57	156.5	126.5	1	.001
Knowledgeable	256	156.5			
Total	313				

Tab 3.84, df 1 ($P < 0.05$)

Table 4.1.3 revealed that 57 (18.2%) of the participants were not knowledgeable about level of awareness of pregnant women attending ANC clinics and the prevention of maternal mortality in Bauchi state. while 256 (81.8%) of the respondents were knowledgeable about level of awareness of pregnant women attending ANC clinics and the prevention of maternal mortality in Bauchi state. Chi-square statistical computation revealed that the calculated χ^2value of 126.5 is greater than the table value of 3.84 at df 1 ($P < 0.05$). The result indicates that pregnant women in Bauchi state have significant level of awareness in attending ANC clinics and the prevention of maternal mortality in Bauchi state. Therefore, the null hypothesis is rejected.

Table 4.1.4: Summaryon Sub-hypothesis 2: There is no significant relationship between level of utilization/usage of antenatal care services and prevention/control of maternal mortality in Bauchi state.

S/N	Variables	Mean	Std. Deviation	Mini	Maxi	N	r-cal	Dec.
1	Level of utilization	19.5751	2.68333	11.00	24.00	313	0.44	H_O. Rejected
2	prevention of maternal mortality	18.8243	2.76501	9.00	24.00	313		

Table 4.1.4 Summarized Pearson Product Moment Correlation (PPMC) on the association between usage of ANC services and control of female death in Bauchi state. The table also reveals a coefficient of 0.44 which shows that a weak positive relationship exists between the two variables.

Table 4.1.5: Chi-square χ^2Summaryon Sub-Hypothesis 2: there is no significant relationship between level of utilization of antenatal care services and prevention of maternal mortality in Bauchi state.

Variable	FO	FE	χ^2	df	P
Not knowledgeable	94	156.5	139.5	1	.001
Knowledgeable	219				
Total	313				

Tab 3.84, df 1 ($P < 0.05$)

The information on table4.1.5 revealed that 94 (30%) of the participants were not knowledgeable about level of utilization of antenatal care services and prevention of maternal mortality in Bauchi state. While 219 (70%) of the participants were knowledgeable about level of utilization of antenatal care services and prevention of maternal mortality in Bauchi state.Chi-square statistical computation revealed that the calculated χ^2value of 139.5is greater than the table value of 3.84 at df 1 ($P < 0.05$). The result indicates that pregnant women in Bauchi state have significant knowledge of level of utilization of antenatal care services and prevention of maternal mortality in Bauchi state. Therefore, the null hypothesis is rejected.

Table 4.1.6: Summaryon Sub-hypothesis 3: There is no significant relationship between factors contributing to maternal mortality among pregnant women and their ANC services on the prevention/control of maternal mortality in Bauchi state.

S/N	Variables	Mean	Std. Deviation	Mini	Maxi	N	r-cal	Decision
1	factors contributing to maternal mortality	18.9265	2.70287	9.00	24.00	313	0.44	H_O. Rejected
2	prevention of maternal mortality	18.8243	2.76501	9.00	24.00	313		

Table 4.1.6 revealed the summary of Pearson Product Moment Correlation (PPMC) on the degree of association between factors responsible for maternal mortality among pregnant women and their ANC services on the control of female death in Bauchi state. The table further reveals a coefficient of 0.44 which shows a weak positive relationship exist between both variable.

Table 4.1.7:Chi-square χ^2Summaryon Sub-Hypothesis 3: there is no significant relationship between factors contributing to maternal mortality among pregnant women and their ANC services on the prevention of maternal mortality in Bauchi state.

Variable	FO	FE	χ^2	Df	p
Not knowledgeable	94	156.5	100.0	1	.001
Knowledgeable	219				
Total	313				

Tab 3.84, df 1 ($P < 0.05$)

Table 4.1.7 revealed that 94 (30%) of the participants were not knowledgeable about factors contributing to maternal mortality among pregnant women and their ANC services on the prevention of maternal mortality in Bauchi state while 219 (70%) of the participants were knowledgeable about factors contributing to maternal mortality among pregnant women and their ANC services on the prevention of maternal mortality in Bauchi state

.Chi-square statistical computation revealed that the calculated χ^2value of 100.0 is greater than the table value of 3.84 at df 1 (P< 0.05). The result indicates that women in Bauchi state have significant knowledge of factors contributing to maternal mortality among pregnant women and their ANC services on the prevention of maternal mortality in Bauchi state Therefore, the null hypothesis is rejected.

Table 4.1.8: Summaryon Sub-hypothesis 4: There is no significant relationship between availability of equipment and facilities of ANC services and the prevention/control of maternal mortality in Bauchi state.

S/N	Variables	Mean	Std. Deviation	Mini	Maxi	N	r-cal	Dec.
1	availability of equipment and facilities	18.4952	2.82970	8.00	24.00	313	0.44	H_O. Rejected
2	prevention of maternal mortality	18.8243	2.76501	9.00	24.00	313		

Table 4.1.8 revealed the summary of Pearson Product Moment Correlation (PPMC) on the availability of equipment and facilities of antenatal care services in clinic and it contribution to the prevention of maternal death in Bauchi state. The table further reveals a coefficient of 0.44 which shows weak positive relationship between the 2 variables of interest.

Table 4.1.9: Chi-square χ^2Summaryon Sub-Hypothesis 4: there is no significant relationship between availability of equipment and facilities of ANC services and the prevention of maternal mortality in Bauchi state.

Variable	FO	FE	χ^2	df	p
Not knowledgeable	94	156.5	48.3	1	.001
Knowledgeable	219				
Total	313				

Tab 3.84, df 1 (P < 0.05)

Table 4.1.9 revealed that 94 (30%) of the participants were not knowledgeable about between availability of equipment and facilities of ANC services and the prevention of maternal mortality in Bauchi state. while 219 (70%)of the respondents were knowledgeable about between availability of equipment and facilities of ANC services and the prevention of maternal mortality in Bauchi state. Chi-square statistical computation revealed that the calculated χ^2value of 48.3 is greater than the table value of 3.84 at df 1 (P< 0.05). The result indicates that pregnant women in Bauchi state have knowledge of availability of equipment and facilities of ANC services and the prevention of maternal mortality in Bauchi state. Therefore, the null hypothesis is rejected.

Table 4.1.10: Summaryon Sub-hypothesis 5: There is no significant relationship between proficiency of ANC personnel and prevention/control of maternal mortality in Bauchi state.

S/N	Variables	Mean	Std. Deviation	Mini	Maxi	N	r-cal	Dec.
1	proficiency of antenatal care personnel	19.0831	2.58313	9.00	24.00	313	0.45	H_O. Rejected
2	prevention of maternal mortality	18.8243	2.76501	9.00	24.00	313		

Table 4.1.10 revealed the summary of Pearson Product Moment Correlation (PPMC) on the relationship between competencies of skilled ANC personnel on prevention of maternal death in Bauchi state. The table further reveals a coefficient of 0.45 which show weak positive relationship between the 2 variables of interest.

Table 4.1.11: Chi-square χ^2Summaryon Sub-Hypothesis 5: there is no significant relationship between proficiency of ANC personnel and prevention of maternal mortality in Bauchi state.

Variable	FO	FE	χ^2	Df	P

Not knowledgeable	105	156.5	33.9	1	.001
Knowledgeable	208				
Total	393				

Tab 3.84, df 1 ($P < 0.05$)

Table 4.1.11 revealed that 105 (33.5%) of the participants were not knowledgeable about proficiency of ANC personnel and prevention of maternal mortality in Bauchi state. While 208 (66.5%)of the respondents were knowledgeable about proficiency of ANC personnel and prevention of maternal mortality in Bauchi state.Chi-square statistical computation revealed that the calculated χ^2value of 33.9 is greater than the table value of 3.84 at df 1 ($P< 0.05$). The result indicates that pregnant women in Bauchi state have significant knowledge of proficiency of ANC personnel and prevention of maternal mortality in Bauchi state. Therefore, the null hypothesis is rejected.

4.2 Summary of Major Findings

Major findings of this study were:

1. A weak positive relationship exists between enlighten pregnant females attending ANC clinics and the control majority female death in Bauchi state.
2. Degree of usage of antenatal care services such as clinic does not really have any significant relationship with the control of female death in Bauchi state, therefore maternal death maybe occur due to other reason .
3. Significant relationship exists between factors contributing to maternal death among pregnant women and the ANC care given to control of maternal death in Bauchi state.
4. Also a significant relationship exists between present of equipment's, facilities, and drugs of ANC care services with control of female death in Bauchi state.
5. Significant relationship exists with competencies of skill health personnel's and control of female death in Bauchi state.

6. A weak positive relationship was seen to be present between the degree of enlightenment,level of usage, factors contributing to maternal death, presence of equipment and drugs and level of competencies of health personnel and control of maternal death in Bauchi state.

4.3 Discussion of the Findings

This study dive-deep into the estimation of the relationship of ANC and control of maternal death among pregnant females in Bauchi state. findings showed pregnant women in Bauchi state are benefiting from antenatal care services for preventing maternal mortality Mohammed and Isa (2015) From the finding it was seen that, a significance association is present between degree of enlightenment and the control of death among pregnant females in Bauchi state; also a degree of association exist between access of ANC services among pregnant females and control of female death, it is advisable for pregnant women to attend ANC services regularly. In the aspect of facilities, equipment and drugs of antenatal care, findings obtained was also in line with Patel.,Gurmeet., Sinalkar., Pandya., Mahen, and Singh (2016) on the knowledge and practices of ANC care among pregnant females attending ANC at a Tertiary Care Hospital of Pune, Maharashtra. The observation was, 58% from all interviewed women had adequate knowledge regarding ANC. It was found that almost all the variables such as age, education, occupation, parity, type of family, and socioeconomic status (SES) had a significant association with the awareness of ANC. All women had a positive attitude toward ANC. Around 70%, women were attending ANC correctly and adequately, other variables such as education and socioeconomic status (SES) had a significant association with ANC attendance respectively.

From the study it was seen that a low positive relationship is existing between ANC with and control of death among pregnant females in Bauchi state r-cal of 0.44 and was conducted at0.05 level of significance. Which indicates a low level of relationship?

CHAPTER FIVE

SUMMARY, CONCLUTION AND RECOMMENDATIONS

5.1 Summary

The study was carried out to investigate the assessment relationship between antenatal cares and control of death among pregnant females in maternity clinics of Bauchi State. This study set to achieve: five specific formulated objectives stated, five questions arisen from the research and five formulated null hypotheses. Survey design was descriptive which was equally adopted for this study. I used a multi stage sampling techniques to pick 313 respondents from a total population of 1700 pregnant females attending ANC across various maternity clinics in Bauchi State.

Data collected on demographic characteristics of participants were presented in tables and using frequency counts, Percentages, mean and standard deviation while pearson product moment correlations (PPMC) was used to verify the five (5) hypotheses at 0.05 level of significance. From above, following major findings were drawn:

1. A weak positive relationship exists between enlighten pregnant females attending ANC clinics and the control majority female death in Bauchi state.
2. Degree of usage of antenatal care services such as clinic does not really have any significant relationship with the control of maternal death in Bauchi state, therefore maternal death maybe occur due to other reason .
3. Significant relationship exists between factors contributing to maternal death among pregnant women and the ANC care given to control of maternal death in Bauchi state.

4. Also a significant relationship exists between present of equipment's, facilities, and drugs of ANC care services and control of female death in Bauchi state.

5. Significant relationship exists with competencies of skill health personnel's and control of female death in Bauchi state.

6. A weak positive relationship was seen to be present between the degree of enlightenment, level of usage, factors contributing to maternal death, presence of equipment and drugs and level of competencies of skilled health care personnel and to the control of maternal death in Bauchi state.

5.2 Conclusion

The following conclusions were drawnbased on the finding from this study:

1. Awareness (cognizance) of pregnant women on antenatal care plays a vital role in providing preventive measures of maternal mortality.
2. Pregnant women adequately utilized antenatal care services which certify safe motherhood and prevent maternal mortality.
3. Subsequently equipment and facilities play an important role in providing excellence antenatal care. Government should provide more equipment and facilities of antenatal care to hospitals and maternity clinics in Bauchi State.
4. Constant educational programs should be continued by the Bauchi State Ministry of Health for health professionals on antenatal care, safe motherhood initiatives and prevention of maternal mortality.

5.3 RECOMMENDATIONS

Some drawn recommendations made from the findings are as follows

1. Since awareness of ANC care plays important role in reducing risk factors responsible for maternal death. Professional should intensity on their enlighten campaigns on the benefits of antenatal care.
2. All Pregnant women are advised to attend ANC care clinics timely and regularly for early detection/confirmation of any dangerous conditions which may lead to death.
3. Since equipment and facilities plays an important role in providing quality antenatal care. Government should provide more equipment and facilities of antenatal care to hospitals and maternity clinics in Bauchi State and Nigeria at large.
4. Continues training program should be maintained by the Bauchi State ministry of Health and the Nigerian Government for health professional on antenatal care,Safe motherhood initiatives and prevention of maternal mortality.

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