

**COMPLEMENTARY AND ALTERNATIVE MEDICINE USE AMONG PREGNANT
WOMEN IN UDI LOCAL GOVERNMENT AREA OF
ENUGU STATE, NIGERIA**

**BY
ONYIAPAT, JANE-LOVENA E.
PG/MSc/09/53874**

**M Sc. DISSERTATION
PRESENTED TO DEPARTMENT OF NURSING SCIENCES,
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SUPERVISOR: PROF. B. C. OKAFOR

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APPROVAL

The use of Complementary and Alternative Medicine (CAM) among pregnant women in Udi LGA of Enugu State is the original research work of Enuma J. Onyiaapat, a post graduate student with registration number PG/M.Sc/09/53874 of the Department of Nursing Sciences, Faculty of Health Sciences and Technology, University of Nigeria, Enugu Campus.

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CERTIFICATION

This is to certify that this study on the use of Complementary and Alternative Medicine among pregnant women in Udi LGA is the original research work of Enuma J. Onyiatpat, a post graduate student with registration number PG/M.Sc/09/53874 of the Department of Nursing Sciences, Faculty of Health Sciences and Technology, University of Nigeria, Enugu Campus. The study embodied in this dissertation is original work and has not been submitted in part or full for any other degree in this institution or any other university.

Enuma J. Onyiatpat (student)

Date

Prof. B. C. Okafor

Supervisor

Date

DEDICATION

This work is dedicated to all men of good will.

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Although I wrote this dissertation myself, its development, completion and production are not the fruits of my personal effort alone. There are many people whom I owe my sincere thanks and filial gratitude. First of all, I express my indebtedness and gratitude to Jehova Over Do, the Lord that changeth not, for His Divine inspiration that got me started. He is a covenant keeping God and I judge Him faithful.

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Abstract

This study was designed to obtain information on the use of Complementary and Alternative Medicine (CAM) among pregnant women in Udi LGA of Enugu State. Cross sectional descriptive survey design was used for the study. A sample of 400 pregnant women was systematically drawn from the twenty political wards in Udi Local Government Area (LGA) of Enugu State. Interview administered questionnaire developed by the researcher was the only tool used for data collection. Major findings revealed that majority (81.2%) of pregnant women in Udi LGA use CAM during pregnancy out of which 53.8% were previous users while 87.7% were still using CAM at the time of study. Pregnant women use CAM ranging from one single type to sixteen different types with the most commonly used CAM being biological products eg, herbal tea, herbal mixture; and alternative medicine eg engaging the services of traditional birth attendant. While Most (89.5%) of the CAM used by pregnant women was consumed orally, approximately half use CAM together with conventional medicine. The most striking reasons for CAM use were easy access to CAM (44.6%) and to reduce the weight of the baby (41.5%). Majority of the respondents (79.1%) claimed that the CAM they used was beneficial and without adverse effect(s). In conclusion, the use of CAM by women during pregnancy is highly prevalent in Udi LGA. Therefore, maternity care providers especially midwives need to be conversant with CAM commonly used by women during pregnancy. This will equip the midwives to counsel their clients appropriately for best care and safety.

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CHAPTER ONE

INTRODUCTION

Background to the study:

Complementary and Alternative Medicine (CAM) use in Nigeria is becoming more popular, (Onyiapat, Okoronkwo & Ogbonnaya, 2011; Ezeome & Anarado, 2007; Amira, & Okubadejo, 2007), as in many other countries of the world. Globally, the prevalence of CAM use range from 30% to 75% (World Health Organization [WHO], 2002). CAM includes various approaches/techniques outside the western conventional medicine that are used to prevent and/or treat illnesses/diseases as well as promote health. CAM has been defined by the National Center for Complementary and Alternative Medicine [NCCAM], (2009), as a group of various medical and health care systems, practices and products that are not currently part of conventional medicine. When unconventional approach and/or product are used together with conventional medicine, it is said to be complementary; but when it is used in place of conventional medicine, it becomes an alternative medicine. Therefore CAM is an umbrella term used for both complementary and alternative health care practices.

The role played by CAM during pregnancy, can no longer be dismissed as a faddish whim accessed by poorer people. The trend is increasing globally and lack of robust evidence of safety, particularly when used in a vulnerable population such as pregnant women is not a deterrent to CAM use (Fraser & Cooper, 2009). Pregnancy is a vulnerable period especially the first trimester. This is the period of organogenesis when rapid cell division and migration takes place. Any alteration during the process of mitosis and meiosis could result to serious pregnancy complications that may affect both mother and baby adversely. This adverse effect could be temporal or permanent and could be in the form of foetal malformation. The pregnancy complications may consequently result to maternal and perinatal morbidity and

mortality. Pregnancy being a vulnerable period may be compounded in a rural community like Udi LGA where there is lack of functional conventional medical services.

Recently, just before this study was carried out, the researcher conducted a focus group discussion (FGD) on CAM use among pregnant women in Ezeagu LGA. Ezeagu LGA is a neighbouring LGA to Udi LGA. It was formerly in Udi LGA. The focus group discussion involved six pregnant women who were engaged in discussions of what women use during pregnancy, how and why pregnant women use such practices among others. The focus group discussion revealed that pregnant women use a plethora of products, services and practices under the umbrella of CAM. However, this present study will concentrate on three main categories of CAM including biological products, alternative medical systems and mind body interventions (spiritual therapy) selected from the NCCAM classification of CAM.

There is some evidence regarding the safety of CAM as well as evidence of its harm. Although CAM is believed to be natural, but natural does not imply safety and efficacy. While some CAM may have undetected benefits, others may contain substances that can cause miscarriages, premature birth, uterine contractions, foetal malformations, decreased clotting factors in the blood etc. Some CAM practitioners fail to appreciate the risks associated with the use of some of these therapies during pregnancy, (Tiran, 2007), and focus only on the benefits. The growing popularity of CAM use may increase the deliberate or inadvertent use of CAM during pregnancy, thus raising the possibility of adverse maternal and foetal effects. Even when therapy is considered safe for normal use, there is no evidence that it is effective in handling the condition that necessitated its use and that it is safe for the growing foetus. The implication is that the condition may get worse if effective treatment is not instituted. Therefore it is inappropriate to use some brands of CAM in place of therapies scientifically proven to be effective.

Compared to conventional medicine, scientific research on the efficacy and safety of CAM is limited, (Anderson, & Johnson, 2005; Warriner, 2007). Even when conventional maternity care providers discourage use of CAM especially during pregnancy, some women are likely to continue to use CAM despite professional advice and perceived lack of evidence, (Tiran, 2007). Many pregnant women self medicate and some do not disclose use to their orthodox maternity care provider, (Furlow, Patel, Sen & Lui, 2008; Holst, Wright, Haavik & Nordeng, 2009; LowDog, 2009). On the other hand, maternity care providers fail to assess pregnant women for use of CAM. The trend of non assessment and non disclosure of expectant mothers' use of CAM can lead to unintentional and unanticipated CAM-drug interactions when combined with conventional medicine (NCCAM, 2009). Maternity care providers' lack of assessment of their clients for use of CAM may be as a result of lack or poor knowledge about CAM practices. Therefore, midwives' understanding of CAM, its benefits and potential dangers is very important as they have to screen their clients for use of CAM, record and evaluate the outcome, to ensure best care and safety.

There have been explosion of various types of CAM in use. To create a kind of order, these types of CAM have been classified by some established committees. Two of such committees are the NCCAM and House of Lord Select Committee on Science and Technology. The NCCAM classified CAM into, alternative medical systems, for example, homeopathy and naturopathy; mind-body interventions, such as meditation, and prayer; biological products, examples: herbs and food; manipulative therapies, such as, chiropractics and massage; and energy therapies, examples: magnetic fields, therapeutic touch, (Fan, 2005). The House of Lords Select Committee on Science and Technology classification grouped CAM into three and is mainly based on therapies that have been professionally organized, eg, acupuncture, herbal medicine; therapies considered complementary to other

forms of health care, eg, nutrition, aromatherapy; and traditional systems, eg, Chinese medicine and other alternative medicines (Fraser & Cooper, 2009).

CAM is built on the philosophical orientation of holism and the recognition that optimum interaction between the body, mind and spirit establishes harmony. Unlike the reductionist approach of conventional medicine which treat human beings in part, CAM holds that the whole body is greater and more than the sum of its parts and recognizes the impact of the total life experiences on the health of the individual.

In developed countries, more females than males use CAM in the general adult population (Barnes & Bloom, 2008; Adams, Lui & Sibbritt, 2009; MacLennan, Myers & Taylor, 2006) and what is being used under the umbrella of CAM varies in form, number and ailment in different parts of the world. Prior to pregnancy, women may have used CAM and may continue to use or initiate using CAM during pregnancy and for parturition, regardless of the lack of scientific evidence concerning its safety (Fraser & Cooper, 2009) and efficacy. The use of CAM by pregnant mothers is very popular in developed countries and relatively common in developing countries (Forster, Denning, Wills, Bolger & McCarthy, 2006; Tabatabaee, 2011). Globally, the use of CAM among pregnant women ranges from 7% to 55%, (Tiran, 2003) and up to 96% (Forster, Denning, Wills, Bolger & McCarthy, 2006).

A significant use of CAM has been recorded among: English pregnant women, (57.8%) including herbs and spiritual therapy (Holst, et al., 2009); Australian Women, (36% to 73%), and the most prevalent being herbs such as castor oil and ginger (Skouteris, Werthein, Rallis, Paxton, Kelly, & Milgrom, 2008; Forster, et al, 2006); Canadian women, (9%) with evening primrose and ginger being the most popular, (Moussally, Oraichi, & Berard, 2009); Iranian women, (30.8%), including ammi, saatar and sweet basil (Tabatabaee, 2011), and Zambian women, (21% to 30%), (Banda, et al., 2007).

There exist distinct ethnic differences in the use of CAM among pregnant women in developed countries. Gibson et al, (2001), in their survey of CAM use among women in USA, recorded greater use among the white women than non white women. Forster et al, (2006), also stated that Australian women whose native (first), language was English were more likely than non-English natives to use CAM during pregnancy.

Expectant mothers turn to CAM for various reasons which may be pregnancy-related. This may include attempts to relieve morning sickness, (Forster et al, 2006; Tabatabaee, 2011), and concerns about the safety of the unborn child, (Dugoua, 2010). Pregnant women are also likely to use CAM because, they believe it provides additional strategies for managing disorders of pregnancy which may be seen as minor physiological discomforts of pregnancy by the conventional maternity care providers, and therefore may not be managed with conventional medicine, (Fraser et al, 2009).

Maternity care providers especially midwives have an increasing obligation to be conversant of various models of health care used during pregnancy including CAM. This is because midwives are usually consulted for professional opinion and advice during pregnancy. Conventional Midwives who are unaware of existing CAM may lose an important opportunity to make use of the positive features (cheap, safe, effective and accessible), of CAM as well as advice their clients accordingly on associated usage risks. Nigerian nurses/midwives may fail to live up to the above obligation. This is because most nursing and midwifery education in Nigeria is under the umbrella of Western Conventional Medical practices. There may be lack of general information or even misinformation/misconceptions about CAM used by women during pregnancy.

The use of CAM among Nigerian women during pregnancy is unknown. Studies carried out in Nigeria on CAM use were among: the general adult population, (Onyiapat et al, 2011);

cancer clients, (Ezeome et al, 2007); children with chronic health conditions, (Oshikoya, Sebanjo, Njokanma & Sovie, 2008); hypertensive clients, (Amira, & Okubadejo, 2007); and diabetic clients, (Ogbera, Dada, Adeyeye & Jewo, 2010). The present study was conceived based on the scarcity of empirical literature on CAM use particularly among women in Udi LGA of Enugu State and South East Nigerian women in general during pregnancy. Unfortunately, Studies carried out in Nigeria were limited to herbal medicine (an example of a class of CAM), use during pregnancy and were mainly hospital based. This has created a gap in knowledge which the researcher intends to fill. This present study is community-based and will reveal the types of CAM used by women during pregnancy under the three selected categories. This study will provide some fundamental information on the most common CAM practices during pregnancy in Udi LGA.

Statement of problem:

Globally, maternal mortality is the leading cause of death among women of childbearing age (United Nations Report, 2009). WHO (2008), estimates that out of more than 133 million babies born yearly worldwide, more than 3 million are stillborn. Ninety percent of these births are from developing and underdeveloped countries (WHO, 2008), including Nigeria. The causes of these deaths were mainly due to pregnancy and labour complications, (WHO, 2008), which advance in medical sciences and technology is expected to manage effectively.

Delay in decision making concerning the choice of health care, delay in accessing conventional health care institutions and adequate reproductive health care services and cultural practices could indirectly contribute to increase in maternal mortality. The persistent increase in maternal mortality is an indicator that most women (especially those in the rural area), do not access and utilize adequate reproductive health care services (WHO, 2012) especially during pregnancy.

Bearing in mind the issue of thalidomide effect in the 1960s (MIMS, 2009), as well as the influence of physiological changes of pregnancy on pharmacological action and pharmacokinetics of conventional medicine (Freyer, 2008; Gibbon, 2008; Erdejic, Francetic, Makar-Ausperger, Likic & Radacic-Aumiler, 2010), conventional maternity care providers and pregnant women may hesitate to prescribe and take conventional medicine respectively, as there may be perceived risks to mother, fetus, or both.

In Nigeria, people while being ignorant of the compositions, use, benefits and side effects of unconventional health care products, take for granted that because these products were approved by National Agency for Food Drug Administration and Control (NAFDAC), they are safe. The presence of NAFDAC number on the packaging of a product does not mean that such product has undergone stringent testing to prove their efficacy and safety. Moreover, ready to use herbal products with NAFDAC number have been found to be contaminated with heavy metals (Obi, Akunyili, Ekpo & Orisakwe, 2006; Orisakwe & Atuboyedia, 2012).

If pregnant women do not access and utilize conventional health care services as has been reported in literature (WHO, 2012), what then do they use? What happens during the periods of delays? Do pregnant women fall under the category of people who utilize unconventional health care products simply because they were approved by NAFDAC? These questions prompted the researcher to survey CAM use among pregnant women in Udi LGA.

Purpose of the study

The overall aim of this study is to determine the prevalence of CAM use among pregnant women under the three selected categories of CAM in Udi LGA. Specifically, the objectives of the study include to:

1. Determine the prevalence of CAM use among pregnant women in Udi LGA.
2. Ascertain the various types of CAM women in Udi LGA use during pregnancy.
3. Identify patterns of CAM use among pregnant women in Udi LGA.
4. Elicit the reasons for CAM use among pregnant women in Udi LGA.
5. Determine benefits of CAM use as perceived by pregnant women in Udi LGA.
6. Ascertain adverse effects associated with use of CAM as perceived by pregnant women in Udi LGA.
7. Elicit the association between the demographic characteristics of pregnant women in Udi LGA and use of CAM.

Research questions:

1. What is the prevalence of CAM use among pregnant women in Udi LGA?
2. What are the various types of CAM used by women in Udi LGA during pregnancy?
3. What are the patterns of CAM use among pregnant women in Udi LGA?
4. What are the reasons for CAM use among pregnant women in Udi LGA?
5. What are the benefits of using CAM as perceived by pregnant women in Udi LGA?
6. What are the adverse effects associated with use of CAM as perceived by pregnant women in Udi LGA?
7. What is the association between demographic characteristics of pregnant women in Udi LGA and use of CAM?

Significance of the study:

Results of the study will reveal the prevalence of CAM use, classes of CAM used, pattern of use, reasons for use, perceived benefits and adverse effects associated with CAM use among pregnant women in Udi LGA. This information will equip health care providers particularly, midwives and obstetricians & gynaecologists, inform them to device appropriate measures in

form of detailed CAM history, health education and counseling of pregnant women on the use of CAM.

Findings from demographic profile of women including level of education, income and age will be useful in understanding how these characteristics are related to women use of CAM. Findings from this study also, will be useful to stakeholders/policy makers (maternity care providers, NAFDAC, Safe Motherhood) in women's health and will offer guidance on the regulation of what is being used during pregnancy, under the umbrella of CAM. This will assist in safeguarding the health and life of mothers as well as decrease maternal mortality. This study will also serve as a source of reference in this area of research for future researchers.

Scope of the study:

The study is delimited to pregnant women in Udi LGA. The study will also be delimited to use of CAM during pregnancy. Variables for the study include CAM used during pregnancy, pattern of CAM use, reasons for use, perceived benefits and adverse effects associated with use. Demographic profile of CAM users is also included as a variable.

Operational definition of terms:

1. **CAM:** Complementary and Alternative Medicine implies therapies and approaches that are not orthodox, which are being used during pregnancy in Udi LGA. Within the context of this study, they include alternative medical systems such as engaging the services of TBAs, spiritual interventions such as prayer and biologically-based therapies such as herbs.

2. **Prevalence of CAM use:** This is the percentage of pregnant women in Udi LGA who used and/or is using CAM during the time of study (previous, current and/or both users).
3. **Categories of CAM:** It is the various types or classes of CAM women in Udi LGA use during pregnancy. They include the following:
 - Alternative medical systems: Examples are natural remedies, folk remedies, Traditional African medicine such as use of traditional birth attendant, traditional external cephalic version.
 - Mind-body interventions (Spiritual therapies): Examples, meditation, prayer, vision, pregnancy ritual/ cleansing/deliverance, divination, incantations, consultations with deities or spiritualists, music.
 - Biologically-based therapies: These make use of substances found in nature to alleviate discomforts or disorders of pregnancy, examples herbal mixtures, herbal tea, edible clay, dietary restrictions such as forbidden to eat snail or grass cutter meat, dietary supplements.
4. **Patterns of CAM use** in this study refer to the route of administration, time of CAM use during pregnancy, use of CAM and conventional medicine.
5. **Reasons for CAM use:** These include factors responsible for use of CAM among pregnant women in Udi LGA. It could be related to pregnancy, unborn baby, culture and access.
6. **Benefit of CAM use** in this study refers to positive expectations and satisfaction derived from using CAM as perceived by pregnant women in Udi LGA.
7. **Unwanted effect of CAM:** perceived adverse effects associated with use of CAM during pregnancy such as miscarriages, bleeding, low birth weight, fetal malformation etc.

8. **Demographic profile of pregnant women:** This includes age, parity, occupation, habits, marital status and educational level of pregnant women in Udi LGA who use CAM.
9. **Use of CAM:** This includes procurement, consumption and application of CAM. It also means patronizing (visits, consultations, engaging the services) CAM practitioners, consultation with deities, and self medication with CAM anytime during pregnancy.
10. **Pregnant women:** Females who harbour a child in the uterus, from conception to the period of delivery, with no existing medical or surgical conditions. And pregnancy would have been confirmed through positive signs of pregnancy such as foetal heart heard, foetal movements seen, palpation of foetal parts and hegar's sign.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter dealt with the review of conceptual, theoretical and empirical literature on complementary and alternative medicine. For the purpose of clarity; it will be discussed under the following headings:

- a. Conceptual Review
 - ❖ Definition of CAM
 - ❖ Classification of Cam
 - ❖ Benefits CAM
 - ❖ Risks associated with CAM practice.
 - ❖ Reasons for use of CAM
 - ❖ Description of some CAM remedies used in pregnancy
- b. Theory underpinning the study
- c. Empirical literature review
- d. Summary of literature review

Conceptual review

There are many terms used to describe approaches to healthcare that are outside the realm of western conventional medicine as practiced in Nigeria. Such terms include traditional medicine, unorthodox medicine, alternative medicine etc. Such alternatives may be used to complement or complete a conventional treatment plan. The variety of non-conventional approaches or remedies people use, either to influence the course of their illness or to influence their well being and quality of life is known as complementary and alternative medicine (CAM) or complementary and alternative therapy (CAT). CAM and CAT are synonymous and can be used interchangeably, although CAM is popularly used.

CAM involves health care practices that are rooted in cultural heritage which have been handed down over thousands of years both orally and as written records (traditional medicine). It also involves vast numbers of non conventional approaches integrated into other people's tradition. According to WHO (2008), traditional medicine is the sum total of knowledge, skills and practices based on theories, beliefs and experiences indigenous to different cultures that are used to maintain health as well as to prevent, diagnose, improve or treat physical and mental illnesses. WHO (2008), also stated that when traditional medicine has been adopted by other populations outside its indigenous culture, it is often termed complementary and alternative medicine.

The terms "complementary" and "alternative" medicines are generally understood in terms of their relationship to conventional medicines. Complementary medicine describes approaches/systems used alongside conventional medicine (NCCAM, 2009) in order to influence the existing process or satisfy a demand that is not met by conventional medicine, for example the use of aromatherapy to cope with discomforts of labour. Alternative medicine on the other hand describes approaches/systems used to diagnose, treat, prevent and/or promote health instead of conventional medicine, for example, the use of herbs to induce labour/stimulate contractions instead of conventional medicine such as oxytocin, and patronizing traditional birth attendants (TBA) instead of conventional maternity care providers. WHO (2002), estimates that TBAs assist in majority of births in several African countries. In some Asian and African countries, CAM practitioners were the first to be consulted by clients in up to 80% of cases (WHO 2008).

Other terms used to describe CAM health care practices include "natural medicine", nonconventional medicine and "holistic medicine" (WHO, 2005).

Davidson, London and Ladewig (2008) revealed another concept of CAM. According to their definition, CAM suggests the contemporary view that herbs, services of TBA, dietary and behavioural taboos, homeopathy and other such healing techniques are peripheral to conventional western medicine. This means that CAM is usually the most common first line treatment for ill health and if symptoms persist after that, conventional medical personnel may likely be consulted. Usually common illnesses are first managed outside the conventional health care system, and it is at the discretion of the caregiver to decide when a disease is beyond his/her capacity to treat and requires “professional” help (Ortiz, Shields, Clauson & Clay, 2007). Deductively, CAM is simply a term used to delineate all forms of health care that are separate and distinct from western conventional medicine.

Kozier, Erb, Synder and Berman (2008) identified six basic concepts that are common to most CAM practices. These concepts are holism, humanism, balance, spirituality, energy and healing environments. The focus of CAM is on the combination of these concepts to enhance healing of the whole person from birth to death (Kozier et al, 2008). The main difference between CAM and conventional medicine lies in their concepts of health and illness. CAM sees illness as a social, spiritual and physical imbalance that requires a natural remedy (Kooi & Theobald, 2006), while conventional medicine sees illness as manifestation of symptoms of disorder that requires reductionist approach. CAM utilizes the holistic approach which capitalizes on personal strengths and recultivates the values and beliefs about health that were common before the advent of technological innovations and the sophistication of biomedical science.

The concept of holism is based on the paradigm of whole systems and the belief that people are more than the physical bodies with fixable and replaceable parts (Kozier et al, 2008). The body, mind and spirit combined, play crucial and equal roles in a person’s state of health, therefore holistic approach deals with processes that promote the total health of mind, body

and spirit. Interventions are individualized within the entire context of the person's life (Kozier et al, 2008). Midwifery and CAM philosophy share the belief that benefit can be gained through supporting rather than overriding natural physiological processes (Mitchell & Williams, 2007). Thus the use of CAM fits into the holistic woman-centered approach advocated by the midwifery model.

Humanism perspective proposes that the mind and body are indivisible, people have power to solve their own problems, people are responsible for the patterns of their lives, and well-being is a combination of personal satisfaction and contributions to the larger community (Kozier et al, 2008).

Balance involves the existence of harmony and equilibrium among the various component of human, which include mental, physical, emotional, spiritual and environmental components. Kozier et al, (2008) states that physical aspects include optimal functioning of all body systems; emotional aspects include the ability to feel and express the entire range of human emotions; mental aspects has to do with feelings of self worth, a positive identity, a sense of accomplishment and the ability to appreciate and create; spiritual aspects involve moral values, a meaningful purpose in life and a feeling of connectedness to others and a Divine source; environmental aspects deal with physical, biologic, economic, social and political conditions.

Spirituality is systems and techniques that bring out the liveliness, richness and beauty of one's life. Spirituality is the most ancient healing practices (Kozier et al, 2008). It includes the drive to become all that one can be and is bound to intuition, creativity and motivation. It is the dimension that involves relationship with oneself, with others and with a higher power (Kozier et al, 2008). Spirituality places significant meaning in the entirety of life, including illness and death.

Energy is viewed as the force that integrates the body, mind and spirit. It is that which connects or links everything. Energy is the glue that holds the cosmos together (Eistein, 2008). Two terms common in healing practices that are related to energy are grounding and centering (Kozier et al, 2008). Grounding relates to one's whole contact with reality. Being grounded suggests stability, security, independence, having a solid foundation and living in the present rather than escaping into dreams (Kozier et al, 2008). Centering refers to the process of bringing oneself to the center or middle. It is the process of concentrating one's mind on the center of energy allowing one to operate intuitively with awareness, and to channel energy throughout the body (Kozier et al, 2008). When people are together (centered), they are fully connected to the part of their bodies where all their energies meet.

Healing environment is being created when holistic nursing care is provided with hands, heart and mind (Kozier et al, 2008). Empowering others through knowledge, skills and support that allow them to tap into their inner wisdom and make healthy decisions for themselves is a form of healing environment (Fontaine, 2005).

Classification of CAM

There are several classifications of CAM but only two will be reviewed in this paper. They include:

- ❖ Classification by the National centre for complementary and Alternative medicine (NCCAM), (Fan, 2005).
- ❖ Classification by the House of Lords Select Committee on Science and Technology (Fraser et al, 2009)

Classification of CAM by the NCCAM (Fan, 2005)

CAM therapies have been categorized into five domains by NCCAM viz:

Alternative medical systems: These are built upon complete systems of theory and practice. These systems have been found to evolve apart from, and earlier than the conventional medical approaches (Fan, 2005). They include homeopathic, naturopathic, traditional African medicines such as folk remedies, engaging the services of traditional birth attendant during child bearing period etc.

Mind-body interventions: This is also known as spiritual therapy. These are approaches that provide holistic health, taking into account the mind, body and spirit. It involves the use of techniques designed to facilitate the minds capacity to affect bodily function and symptoms (Fan, 2005). Some of these CAM techniques have become conventional e.g. patient support groups and cognitive behavioural therapy, while others that are still considered CAM include meditation, prayer, laughter, imagery, mental healing and therapies that use creative outlets to express one's feelings such as art, music or dance. Prayer is often used in conjunction with faith. Prayer is a form of communication or fellowship with the Creator or deity while faith refers to beliefs and expectations about life, self and others (Kozier et al, 2008). Others include pregnancy ritual or cleansing, deliverance.

Biologically based therapies (body basis): This is also referred to as botanical healing. This category of CAM makes use of substances found in nature such as herbs, foods, and vitamins, minerals (Fan, 2005). Examples are dietary supplements, herbal products and the use of other so-called natural but scientifically unproven therapies such as olive oil, urine therapy, crude oil, animal bone in various treatments.

Manipulative and body-based methods: This is also known as healing touch. This involves the manipulation and/or movement of one or more parts of the body. Examples are chiropractic or osteopathic manipulations, traditional external cephalic version, correction of cephalo-pelvic disproportion using specialized skills and massage. Others include acu-punctures (using needles to stimulate certain points on the body), reflexology (using

touch to stimulate certain points on the feet), and therapeutic touch (balancing the body's energy fields through touch).

Energy therapies: These are based on the alleged spiritual energy. They are divided into two: Biofield and Bioelectromagnetic based therapies.

Biofield therapy: It is believed that there are energy fields that purportedly surround and penetrate the human body, although the existence of such fields has not yet been scientifically proven. There are some forms of energy therapy that manipulate biofield by applying pressure and/or manipulating the body by placing the hands in or through these fields. Examples include qigong, and therapeutic touch. Qigong is a Chinese discipline consisting of breathing and mental exercises combined with body movements (Kozier et al, 2008). The movement is soft, slow and continuous in a circular manner. The softness of movements develops energy without nervousness. The slowness of movements requires attentive control that quiets the mind and develops one's powers of awareness and concentration. The continuous circular nature of movements develops strength and endurance (Kozier et al, 2008).

Bioelectromagnetic-based therapy: This involves the unconventional use of electromagnetic fields, such as pulsed fields, magnetic fields or alternating current or direct current fields to balance energy in the body.

Classification of CAM by the House of Lords Select Committee on Scientific and Technology, cited in Fraser and Cooper, (2009).

There are in excess of two hundred therapies that are complementary or alternative to conventional health care systems. In December, 2000, the House of Lords Select Committee on Science and Technology published its sixth report on CAM and classified the most commonly used therapies in Britain into three main categories or groups. They include:

Group 1.

This group has been classified as those therapies that are professionally organized with good standards of basic and ongoing education, national statutory or voluntary self-regulation and disciplinary code of practice (Fraser et al, 2009). These are homeopathy, herbal medicine, acupuncture, osteopathic and chiropractic manipulation. Osteopaths and chiropractors are now regulated by statute since 1993 and 1994 respectively in Britain. Their titles are protected in much the same way as the title of a nurse or a doctor. Both of these aspects of CAM require qualified practitioners to undertake the treatment.

Acupuncturists register with one of three main organizations, according to whether they are already doctors, physiotherapists or lay practitioners (including nurses and midwives), but all 2000 acupuncturist in Britain are registered with the British Acupuncture Accreditation Board.

Homeopathy, the only therapy to have been available on the National Health Service since its inception in 1948, is largely classified into medical and non-medical (lay) homeopaths and is regulated by the faculty of homeopaths and society of Homeopaths respectively.

Most medical herbalists are trained and registered with the National Institute of medical Herbalist (NIMH), with education being at undergraduate level.

Group 2

This group is classified as those therapies which are considered to be complementary to other forms of healthcare (Fraser et al, 2009). It includes aromatherapy, Bach flower remedies, counseling, stress management, Yoga, meditation and healing.

Education and regulation of therapies vary, although the aroma therapists and reflexologists have instigated a form of self regulation via the Aromatherapy/Reflexology Organization

Councils, both of which have as their members the combined schools and registers of relevant practitioners throughout Britain (Fraser et al, 2009).

Most of the other therapies have several regulatory organizations, but significantly, it is not a legal requirement in the UK to be registered in order to practice or even to be adequately trained. Sixteenth century English common law allows anyone to do anything unless it contravenes existing law, whereas most of Europe used Napoleonic law, which prevents people from doing anything unless it is permitted by law (Fraser et al, 2009).

Group 3

This is subdivided into 3a-Traditional systems such as Traditional Chinese medicine (TCM), African Traditional medicine, Ayurvedic medicine, Tibetan medicine, Anthroposophical medicine and Naturopathy, and 3b-other alternatives including crystal therapy, dowsing, iridology, Kinesiology and radionics (Fraser et al, 2009). It is interesting to note that, while TCM which includes acupuncture is relegated to group 3, western-style acupuncture is included in group 1. This may be due to medico-political distinctions and a continuing desire to treat people in the reductionist manner of conventional medicine rather than a true representation of the nature of the practices.

Reasons for CAM use:

Pregnant women engage in the use of CAM for various reasons. The reasons for CAM preferences are usually associated with traditional and cultural beliefs and practices (historical circumstances) (WHO, 2002, DeBoer & Lamxay, 2009), spiritual beliefs (Makunga, Philander & Smith, 2008) as well as comparison of experiences between conventional health care professionals and CAM practitioners by the client.

In Africa many people (80%) use CAM to meet their primary health care needs because the therapy is easily accessible (WHO,2002; Frenkel, BenArye, Carlson & Sierpina, 2008) and

the only affordable source of health care in some countries especially the world's poorest clients (Frenkel et al, 2008). Still in African culture, infants are considered to be particularly susceptible to harm from evil spirits and certain CAM are taken as a positive measure against bewitchment or to avoid misfortune as well as to ensure the baby's survival (Ngubane in Mupfumira, 2012). Certain rituals are also performed in order to acknowledge the ancestors who were believed to be protective. Since it is believed that infants are susceptible to harm from evil spirits, acknowledgement of pregnancy is denied for as long as possible by the woman (Chalmers in Mupfumira, 2012).

Peltzer, Phaswana and Treger (2009) revealed that pregnant women consulted CAM practitioners during pregnancy for the following reasons: lack of foetal movement, post date, problems with foetal position and lie, morning sickness, abdominal pain, constipation, uterus being "full of wind" or "dirty"

Women also use CAM because of the perception that CAM is safe alternatives to conventional pharmaceuticals, (Chitty, 2009, Holst et al, 2009, Fakeye et al, 2009). A Canadian interview study on use of herb including 27 purposively selected pregnant women, found that women considered CAM to be safer than conventional pharmaceuticals because CAM were "milder", "more natural", "simpler", "more familiar" and "caused fewer side effects" (Westfall, 2003). An Italian survey of herbal medicine use among 1420 women showed that women considered CAM to be an important and effective way to promote health and wellbeing and to manage diseases as well as being safer than conventional medicine (Baccini, Cuzzolin, Camerlengo, Velo & Benoni, 2008).

Harding et al, (2009) in their survey of New Zealand and Canadian midwives' use of CAM, grouped the primary reasons for CAM use into four composite and connected themes as revealed by the respondents' responses. Out of 336 midwives, 37% had reasons which were grouped under resistance. Resistance is related to avoiding medical interventions, seeking

natural alternatives instead of following conventional obstetrical management and providing more options in care including informed choice. The belief that CAM offers a greater choice, control and participation to women in the child bearing experience was also reported by Warriner, 2007 and LowDog, 2009).

The theme efficacy included the responses of 35% of the respondents. Efficacy has to do with notions of CAM being helpful, safe, gentle and effective in the process of birth. The reasons for CAM use given by 18% of the respondents were grouped under women's choice. This dealt with women's interest in or preference for CAM options. This is also an important factor in using CAM and part of supporting women's choice and autonomy. Keeping birth normal (10%) is related to supporting the normal process of birth and health promotion which is perceived to be in line with midwifery practice. According to Anderson and Johnson, 2005, Warriner, 2007 and LowDog, 2009, pregnant women use CAM in order to have a holistic health philosophy which is in line with the women's health belief.

Other reasons for using CAM included conditions such as breech, mal presentation, prolonged labour, common discomforts of pregnancy, reducing the incidence of post dates or imminent inductions of labour (Harding et al, 2009).

Benefits of CAM

The decision to use CAM must be thoughtfully considered because many CAM therapies are not evidence based and as a result may pose potential risk. However CAM undisputedly may have undetected benefits for the child bearing family and other health care consumers. The benefits from CAM may have its roots on the following features of CAM including but not limited to: emphasis on prevention and wellness, the value of holistic approach to health care, the non invasive approach and techniques of some CAM therapies with fewer side effects, and the easy access to CAM in terms of availability and cost.

Emphasis on prevention and wellness. Conventional western medicines are basically prescribed after a disease or illness has already set in with manifestation of its signs and symptoms. It is appropriate of course to engage these therapies which may be life saving in certain conditions (Davidson et al, 2008). For example, the use of aminophylline to relieve acute asthmatic attack or use of pethidine for severe post operative pain. However, these conventional therapies may be limited in effectiveness for sub acute conditions. On the contrary, most CAM therapeutic systems emphasize maintenance of wellness and prevention of illness (Davidson et al, 2008). For example, a woman consulting a physician for fatigue might be tested for iron deficiency anaemia. If the result rules out iron deficiency anaemia, the woman might be advised to try to sleep more and the physician may prescribe a sedative to help her achieve a full night's rest. On the other hand, if this woman consults a CAM practitioner for example a naturopath, a full case history would be taken about every aspect of her life, including her childhood, relationships, work habits, diet, lifestyle, spirituality, personality, temperament and even how she feels about sunny days versus rainy days (Davidson et al, 2008). These questions would attempt to reveal the underlying cause of even the most subtle complaints. Remedies from varying domains may be prescribed such as herbs, life style and nutritional modifications, massage, exercise etc, early enough in order to restore wellness before significant disease manifests. CAM practitioners believe in health promotion rather than simply eliminating symptoms. Treatment focuses on the overall condition of the individual client rather than on the ailment or disease (WHO, 2005). While conventional medicine is grounded into positivist ideology which values an objective and reductionist approach, many CAM therapies engage in holistic paradigm which emphasizes complex systems and their interrelationship (Jones, 2012).

Emphasis on healing rather than cure. The CAM therapeutic systems try to assess, diagnose and treat the whole person. The individual seeking help is understood to be a

unified human being with needs which span the spiritual, intuitive, emotional, physical, mental and psychological dimensions. Therefore the goal of care extends beyond curing an illness to healing the client's psyche, spirit, body and even community (Davidson et al, 2008). Remen in Davidson et al, (2008) describes healing as a process people are involved in all the time, which includes education. Education is viewed as the leading forth of wholeness in people. Many CAM systems recognize the body's natural healing ability and acknowledge the role of life style choices and personal responsibility for wellbeing (Braun & Cohen, 2007; Mitchell & Williams, 2007). Client may be healed in one dimension of being without healing in other dimensions. For example, it is possible for a client to be healed physically without being healed emotionally or mentally or spiritually. CAM takes into account all the several dimensions that make an individual a unified human being in order to preserve wholeness.

Non invasive approach. Many of the therapeutic modalities offered by CAM systems of health care are non invasive with potentially enriching effects (Davidson et al, 2008). For example, guided imagery is often used to help people with cancer to enhance their immune function and also help to increase their optimism and gain new access to feelings of love and nurturing that may have been buried by fear of their diagnosis. Prayer/faith, meditation, incantations, laughter, support group network are mind-body based therapies that are entirely non invasive and can affect bodily function at several dimensions. Music, dance, art are other non invasive mind-based therapies that have the capacity to subtly influence the neurochemistry, circulation, memories and/or emotions of the client (Davidson et al, 2008). Massage is body-based therapy that promotes physical healing and enhances the psyche function. It is worthy to note that CAM use is a way of avoiding conventional medical intervention, avoid transfer of care, to support pregnancy and childbirth to be normal and a way for women to take responsibility and maintain control in their care (Harding & Fourer, 2009).

Accessibility: CAM therapies may be less expensive and more readily available to the communities that use them. For example herbal mixtures and herbal tea are usually prepared from locally available plant roots, bark and leaves by CAM practitioners who are indigenes of that community. Most herbal remedies may be obtained at little or no cost to the consumer. A cost of a liter of herbal preparation may be less than five hundred naira. Davidson et al (2008) stated that flower essences, essential oils, herbs and dietary supplements tend to be far less expensive than most conventional pharmaceuticals. Some CAM therapies such as prayer/faith, meditation, vision, self massage, dietary and life style modifications, exercise, and behavioural taboos are free. Visits to CAM practitioners are usually less expensive than visits to medical doctors although insurance does not cover CAM therapies (Davidson et al, 2008). In United States, many pharmacy shops and even grocery stores have a sit in herbalists, nutritionists and others trained in a wide range of CAM therapies. Appointment is not needed to consult with them and there is no consultation fee charged (Davidson et al, 2008). Easy access to CAM are usually influenced by significant others. Studies have revealed that the most common source of information on CAM accessed by pregnant women is family and friends (Furlow et al, 2008; Holst et al, 2009).

Risks associated with CAM use.

The above benefits of CAM notwithstanding, it is necessary that CAM practitioners, conventional health care providers and consumers alike be aware of the potential risk associated with use of CAM. Such risks include lack of standardization, lack of regulation and research substantiating safety and effectiveness, inadequate training and certification of some CAM practitioners and financial and health risk of unproven therapies.

Lack of standardization: There is a lack of common standards and understanding and appropriate methods for evaluating CAM to ensure safety, efficacy and quality control (WHO, 2005). This lack of standardization implies that one preparation of the same kind may be highly potent while another is ineffective. Out of the 141 WHO member States, only 45 (32%) countries have a national policy on CAM, (WHO, 2005). In Africa, only 12 out of 46 countries have a national policy on CAM. In Nigeria, the national policy on CAM is currently in progress (WHO, 2005). A single CAM product may be defined as food, a dietary supplement, or herbal medicine in different countries depending on the standards that apply to foods and medicines in each of those countries. In the same vein, preparation of a particular herbal product may use the flowers, leaves or stem, all of which vary in potency, and preparations may contain various concentrations of the actual herb versus carrier material (Davidson et al 2008). In addition, some manufacturers may subject the herb to harsh chemical process that may lead to loss or reduction of their healthful properties. Different storage systems could also affect the potency of the remedies over time whereas there are variations in strength according to soil in which they were grown or the season in which they were harvested (Davidson et al, 2008).

Lack of laws and regulation: A law on CAM is defined by WHO (2005), as the first stage of legislative procedure. It establishes the legal condition under which CAM should be organized in line with a national CAM policy or other relevant policies. It covers areas such as education of professionals, licensing of practitioners and manufacturers, manufacture of products used in CAM sales and practices (WHO, 2005).

Regulation of CAM is defined as the second stage of legislative procedure specifically designed to achieve the administrative and technical goals of the law (WHO, 2005). Activities that may be covered here include description of obligations and responsibilities of

licensed practitioners, the penal sanctions if these are not respected, the obligations incumbent on manufacturers of CAM products (WHO, 2005).

Out of the 141 WHO member States, 84 (60%) countries do not have laws and regulations on CAM (WHO, 2005). In Africa, only 10 out of the 46 WHO member States had law or regulation on CAM. In Nigeria, the 1993 Decree number 15 which was revised in 1999 regulates CAM; yet, CAM products are sold without restriction by licensed practitioners (WHO, 2005). CAM remedies are generally unregulated and their claims may not be backed by valid, reliable research (Davidson et al, 2008), therefore may lead to exposing the users of CAM to health related risks.

Lack of national research institute on CAM: As defined by WHO (2005), National Research Institute is an institute that performs research on CAM either partially or fully funded by the government. Results of the WHO (2005) survey on national policy on CAM revealed that only 9 (6%) countries had a research institute on CAM. Harding and Fourer (2009), in their study of midwives use of CAM stated that respondents acknowledged lack of research and evidence on CAM use during pregnancy and child birth; however this did not appear to affect the incidence of CAM use. Most of the practices related to CAM is not evidence based (Anderson & Johnson, 2005), although this may also be true of many conventional medical practices. It is estimated that only 10 to 20% of all medical procedures have been assessed according to the principles of evidence based practice (EBP), (Coulter, 2007). While few CAM therapies have been found to be teratogenic, most do not have strong evidence for either effectiveness or safety (Coulter & Willis, 2007; Chitty, 2009). Traditional knowledge and empirical wisdom rather than scientific experiment form the basis for a great deal of CAM expertise (Braun & Cohen, 2007). Much of the knowledge gained from historical use is not being valued by the modern approach to health care (Coulter, 2007). Approval of medicines by relevant agencies such as Food and Drug Administration (FDA)

guarantees that the drug has been subjected to and passed a rigorous process. This process in most cases involves development of the medicine under strictly controlled conditions, precise molecular delineation of all components and double-blind research studies, substantiating the safety and effectiveness of the drug for the purpose under investigation (Davidson et al, 2008). In contrast, CAM remedies may be unsubstantiated because of flawed or inadequate research. The current inadequacy of research into CAM is often due to lack of funding. Drug manufacturers commit millions of dollars to research and development of new pharmaceuticals, because if successful in developing safe and effective drugs, financial gain will cover what has been invested into the research (Davidson et al, 2008). On the contrary, there is no financial profit from consumers who use meditation, prayer, vision, dietary and life style modifications, exercise, water therapy. Even the profits from herbs, flower remedies, essential oils and body-based therapies are minimal compared to the cost of research studies to substantiate their use. The nature of CAM therapies is another factor that hinders its research. Designing a reliable, valid study of therapies that attempts to maintain wellness or prevents illness, that values healing rather than cure, that claims to work on subtle vibration levels, or that admits to the necessity of therapeutic relationship with the healer is more difficult compared to providing a control group with either the drug being studied or a placebo and then measure reduction in symptoms (Davidson et al, 2008).

Safety and effectiveness: Currently, there is very limited research on safety and efficacy of CAM especially when consumed by pregnant women, thus making informed choice difficult for women, (Mitchell & Allen, 2008; Chuntharapat, Petpichetchian & Hatthakit, 2008). Although traditional use may provide some level of confidence in a therapy's action, but it does not ensure safety and efficacy. For example, herb traditionally used for birth preparations (blue cohosh) has been associated with the development of heart failure in an infant and is now contraindicated during pregnancy (Mills et al, 2006). The evidence of

CAM effectiveness during pregnancy is predominantly anecdotal (Williams & Mitchell, 2007), despite its popularity. The belief that CAM is harmless has failed to recognize that even if the therapy is safe, the woman may not be receiving the best care. For example, the use of bitter cola to treat hyperemesis gravidarum. Bitter cola may be harmless when taken by pregnant women, but if bitter cola is ineffective in treating hyperemesis gravidarum, the woman may continue to vomit with catastrophic consequences. Certainly, until there is strong evidence that a treatment works, it is inappropriate to use it in preference to treatments known to be effective.

Inadequate training and certification: Many CAM therapies require rigorous training and testing that applicants must fulfill before being certified as practitioners. In contrast, many titles of CAM practitioners such as herbalists, TBAs are unregulated (Davidson et al, 2008). Some CAM therapies may be handed over from generation to generation without any special training and certification by accredited councils if any. Commercialization of CAM has increased its availability and accessibility outside the domain of professional practitioners.

Financial and health risks of unproven therapies. The risk of harm caused by medicines exist throughout entire pregnancy and not just limited to the first trimester. The pharmacological action as well as the pharmacokinetics of medicines is influenced by the physiological changes occurring in the woman's body during the course of the pregnancy (Gibbon, 2008; Erdejic et al, 2010; Mattison & Zajicek, 2006; Freyer, 2008). Medication in pregnancy should be evidence based as the potential risks need to be weighed against the advantages that the therapy may have for both mother and child. There have been cases of foetal death reported among child bearing families who chose to engage the services of unlicensed birth attendants in home settings (Davidson et al 2008).

It is certain that CAM therapies may be cheaper than conventional medicine, but making the mistake of investing reasonably in unproven therapies which may not improve wellbeing, prevent illness or promote healing is a financial risk.

Description of Some CAM Remedies Used in Midwifery

CAM Used During Pregnancy

Herbal medicine: Herbal medicine existed before the advent of pharmaceutical companies. Some conventional drugs have their root from plants and its derivatives. Examples are digoxin from foxglove, quinine from Peruvian bark, aspirin from willow tree bark (Kozier et al, 2008). Most herbalists in Britain are registered with the National Institute of Medical Herbalists (NIMH) or the European Herbal Practitioners Association (EHPA). Herbal medicine involves the therapeutic use of plants in various forms which work pharmacologically. It is worthy of note that because herbal remedies act pharmacologically, they may be harmful if used inappropriately. There is a common misconception that herbal medicines are safe because they are natural. There is a growing body of evidence about the risks of possible interaction between herbal and conventional medicines (Fraser et al, 2009). Many herbs should be avoided, especially during the first trimester as they may have some systemic effect on both mother and child. Examples are St. John's wort, blue cohosh and Kava-Kava, raspberry etc, should be used with caution, (Tiran 2003a, 2005a).

Some herbal remedies used during pregnancy

Ginger: This is a well known traditional herbal remedy for sickness and there is considerable research to demonstrate that it is an effective antiemetic (Jewell & Young 2003, Winetts, Ekangaki & Eden, 2003), although other studies have disputed their claims (Arfeen, Owen, Phummer in Fraser et al, 2009; Visalyaputra, Petcpaisit,

Somcharoen in Fraser et al, 2009). There is increasing professional concern over the safety of herbal remedies in general (Marcus & Snodgrass, 2005) and ginger in particular (Tiran & Budd, 2005), especially in relation to its effects on clotting times. Women who use ginger continuously for more than 3 weeks should be advised to request an investigation of blood clotting factors; those on prescribed medications such as anticoagulants, antihypertensive and non-steroidal anti-inflammatory should avoid ginger, (Fraser et al, 2009). This is because ginger has anti cholinergic and anti serotonin effect (King & Murphy, 2009). An alternative remedy to ginger is peppermint, although this should not be taken by those with cardiac disease, epilepsy or concomitantly with homeopathic remedies (Fraser et al, 2009).

St John's wort: This is one of the herbal remedies which have gained reputation as an antidepressant, especially for seasonal affective disorder. It is used during pregnancy to manage depressive states in pregnancy (Dugoua, 2010).

Vitamin B6: The American College of Obstetrics and Gynecology in 2004 recommended the use of vitamin B6 for treatment of nausea and vomiting in pregnancy, (Dugoua, 2010). Vitamin B6 is a water soluble B complex and co-enzyme that helps in the metabolism of lipids, carbohydrates and proteins.

Bach flowers remedies: It is made up of 38 liquid plant remedies used to promote emotional and psychological wellbeing. It is thought to be safe in pregnancy. It is preserved in alcohol and may be contraindicated for women with alcohol-related conditions, (Expectancy 2012).

Echinacea: it is commonly given to expectant women to treat upper respiratory tract infection (Dugoua, 2010).

Berberine-containing herbs: It is often given as immune stimulants during pregnancy for upper respiratory tract infection. They include goldenseal, (*Hydrastis canadensis*),

Barberry (*Berberis vulgaris*), and Oregon grape (*Berberis aquifolium*). There are some concerns that berberine given around the time of birth can displace albumin-bound bilirubin. This is based on animal data, where it has been shown in rats that berberine displaces bilirubin bound to albumin and may aggravate newborn jaundice (Chan, in Fraser et al 2009).

Homeopathy: This is different from herbal medicine. It is a form of "energy" medicine which is based on Hahnemann's principle of treating "like with like" (Kozier et al, 2008). This principle involves use of small, highly diluted doses of substances to treat symptoms, which will occur if highly concentrated doses were given. The remedies are diluted beyond the point at which any molecules of the substance can theoretically still be found in the solution. For example, minute highly diluted dose of arsenic is used to treat some kinds of severe vomiting and diarrhoea, although taking arsenic undiluted could actually cause these symptoms, (Fraser & Cooper, 2009). These homeopathic doses however stimulate a person's self healing capacity (Kozier et al, 2008). According to Davidson et al, (2008) homeopathic remedies are believed to achieve their effects by stimulating the client's immune system to mount a response against the diluted substance. Hence it is the individual's own body rather than the ingested remedy that opposes the symptoms. Therefore homeopathy can be said to be working in similar principle as most vaccines. Most homeopathic medicines are in tablet form but do not work pharmacologically and will not interact with prescribed drugs, although certain drugs may inactivate the homeopathic remedies, since they are chemically fragile. It concentrates on the whole person rather than the disease itself, taking into account other factors that may affect the symptoms. However, it is not entirely "safe" as inappropriate, incorrect pattern of use or prolonged use can cause adverse effect in which the user

develops the symptoms for which the remedy intended to treat (Fraser et al, 2009).

Examples of homeopathic remedies used during pregnancy are:

Nuxvomica: used by women whose symptoms are worse in the morning and who tend to be workaholics

Ipecacuanha: Used in severe cases of morning sickness with incessant vomiting and heartburn.

Cocculus: This remedy is popularly used when movement is the precipitating factor for nausea.

Colchicum: Used to treat nausea exacerbated by odours.

Pulsatilla: Used for ever-changing symptoms and mood.

Anecdotal reports suggest that when the remedies are prescribed appropriately, they produce positive results, although there is no real evidence for the effectiveness of homeopathic remedies for nausea and vomiting in pregnancy, (Fraser et al, 2009).

Aromatherapy: Regulated by the Aromatherapy Council in Britain, (Fraser et al, 2009). It involves the use of highly concentrated plant essential oils administered via the skin (massage, water or compresses); via the respiratory tract (inhalation, and vapourizers); via Gastro intestinal tract (orally) (Fraser et al, 2009; Tiran, 2007). The odour or aroma or fragrance is believed to have therapeutic effects. The clinical effect of aromatherapy comes from the combination of the therapeutic properties of the oils' chemical constituents with mood enhancing effect of the aromas, and relaxation effects of the administration method, especially massage. When essential oils are used in maternity, it is very important to remember that all people exposed to the aromas will be inhaling the chemicals and could theoretically be adversely affected eg pregnant staff or epileptic relatives. All essential oils act in the same way as pharmaceutical drugs, being absorbed, metabolized and excreted via similar biochemical pathways, and may therefore interact with prescribed drugs (Tiran, 2007;

Kozier et al, 2008). Because there is no real contrary evidence, essential oils are assumed to be safe in pregnancy, but midwives should continue to be cautious when advising expectant mothers about their uses (Tiran, 2007). Because they act pharmacologically can be absorbed into the circulation through the skin and as well as cross the placenta to the fetus. Dermal irritation, photosensitivity or changes in blood pressure, temperature or fluid balance may result from inappropriate or incorrect use. Antenatal aromatherapy can aid relaxation, thereby reducing the possible adverse effect of maternal anxiety on the fetus (Bastard & Tiran, 2006). Examples of safe oils in pregnancy are bergamot, black pepper, chamomile, cypress, frankincense, lavender, lemon, lime, peppermint, spearmint, orange, tangerine, tea tree etc (Expectancy, 2012).

Massage is the applied use of touch. Massage comes in many different forms including but not limited to traditional Swedish massage, lymphatic drainage, Hawaiian lomi lomi and specific deep techniques such as rolfing. It is not yet formally regulated. It has been shown to be very relaxing, reducing blood pressure and increasing excretory processes, however it is not without risk. (Fraser et al, 2009).

Hypnosis is the use of deep relaxation technique and verbal triggers to help change behaviour. It is very useful to alleviate pain and stressful condition. Studies have shown that hypnosis in pregnancy reduces duration of labour and postnatal depression (Expectancy, 2012).

THEORY UNDERPINNING STUDY

The Health Belief model (HBM) is the theory underlying this study. The HBM is used to predict behaviour and have been applied to broad range of behaviours and populations. It is a good model for addressing behaviours that may evoke health concerns, (Croyle, 2005), and it has been applied broadly to people's variety of responses to public health measures and their uses of health services. CAM is a public health issue that may evoke maternal and foetal

health challenges. Its use carries a health risk as well as undetected benefit, and consumer behaviour that require regulation and control. The researcher therefore found the HBM to be suitable for the study.

The Health Belief Model

The Health Belief Model is a psychological tool that tries to explain and predict health behaviours. The focus is on people's attitudes and beliefs. It was originally developed by social psychologists, Hochbaum, Rosenstock and Kegels in the 1950s, (Rosenstock, 1974 cited in Kozier et al, 2008) and was updated in the 1980s, (Glanz, Lewis & Rimer, 2002). The Health Belief model suggests that one's belief in personal threat together with one's belief in the effectiveness of the proposed behaviour will predict the likelihood of that behaviour, (Rosenstock, Strecher & Becker, 1998). HBM has four major constructs, which represents the perceived threat and net benefits. These constructs are also responsible for people's readiness to act.

The constructs of HBM are:

Perceived susceptibility: This describes an individual's risk of getting a condition. The greater the risk of getting a certain condition, the more the individual will engage in behaviours that will decrease risk.

Perceived severity: This involves assessment of the seriousness of the condition, and its potential consequences. If one perceives a condition to be critical and its consequences grave, the individual is likely to engage in behaviours that will avert such condition.

Perceived benefits: This describes an individual's assessment of the positive consequences of adopting a particular behaviour. If a particular behaviour proves favourable, there is tendency for continuous adoption of that behaviour.

Perceived barriers: This is an individual's assessment of the factors that facilitate or discourage the adoption of a particular behaviour. Perceived barriers can be in form of one's own thoughts about the deterring factors to adopting a behaviour and also the consequences of continuing an old behaviour. Perceived barriers are the most influential of the constructs, because they determine if one will assume a new behaviour or not depending on if the benefits outweigh the consequences.

Cues to action are external influences promoting the desired behaviour. These could be in form of information provided or sought, reminders by powerful others, persuasive communications and personal experiences.

Self efficacy describes a measure or level of control exerted by an individual. That is one's confidence in the ability to successfully perform an action.

Application of the HBM to the study

Three constructs of the HBM- perceived susceptibility, benefits and barriers may explain the decision making process that informs CAM use among pregnant women. A pregnant woman who believes that she is vulnerable to health related problems during pregnancy might adopt healthier behaviours that she believes will decrease her chances of getting certain conditions. For example if a pregnant woman believes that certain diet or using some traditional medicine will help decrease the chances of encountering any health related problems during pregnancy as well as protect the baby, she will likely adopt such remedies. The constructs are also tailored by other variables such as socio demographic characteristics, past experiences etc.

Perceived susceptibility: Pregnant women are likely to use CAM if they believe that use of conventional medicine may expose the unborn child to congenital malformations and

other conditions. They may as well not use CAM if they perceive CAM to be harmful to themselves and the baby.

Perceived benefits: Pregnant women may believe that CAM is beneficial in terms of safety, efficacy, cost etc, and therefore advocate use of CAM and vice versa.

Perceived Barriers: Women may identify personal barriers to using CAM or conventional medicine, including fear of harm to the foetus, availability, accessibility and utilization of quality conventional medicine, cultural practices and beliefs.

Cues to action: This may be in form of reminders for CAM use by mothers, mother-in-laws, peers, easy access to CAM and proximity of CAM practitioners to pregnant women. For example if a practice such as use of herbal tea, did not cause harm to other people or family members that adopted its use, the practice may be perceived as safe and possibly effective.

Conceptual Framework

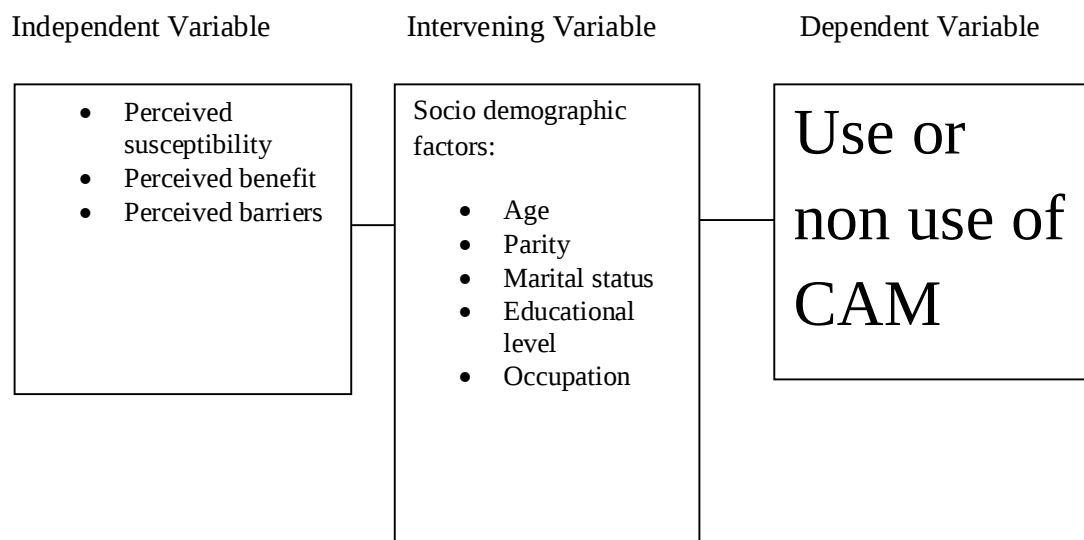


Figure 1: Adapted from Rosenstock's and Becker's HBM cited in Kozier et al, 2008.

Empirical review

Use of CAM among pregnant women is an interesting area that requires more research work. In developed countries, research studies on use of CAM among pregnant women are fairly available. Skouteris et al, (2008) carried out a descriptive study on CAM use among expectant women in Australia. Questionnaire was used to elicit information on CAM use from 321 pregnant women who were recruited for the study. Out of this number, 321 (73%) had used CAM and approximately one third (37%) had consulted a CAM practitioner in the previous eight weeks of pregnancy. A little above half of the respondents (51.4%) had used multiple therapies and most of them (95.7%) were of the opinion that CAM used had a positive effect. Almost one quarter (24%) had future intention of using CAM for birth.

Forster et al, (2006) in a cross sectional survey used questionnaire to elicit information from 705 Australian women on herbal medicine use during pregnancy. The major findings indicated that 36% of 588 who consented to participate in the study took at least one herbal remedy during the current pregnancy. Raspberry leaf (14%), ginger (12%) and chamomile (11%) were among the most common herbs taken by the women. The study also demonstrated a demographic relationship with herbal use. They stated that women who were older, tertiary educated, English speaking, non- smokers and primiparous were likely to use herbal supplements during pregnancy. Although most herbs used were in no particular pattern in relation to gestational age, raspberry leaf was commenced from 30 weeks gestation and upwards in 89%, of the women, whereas ginger was commenced in early pregnancy in 98% of the women. The reasons stated for use of herbs were mostly pregnancy-related, such as use of ginger for relief of nausea and vomiting in pregnancy. In conclusion the researchers asserted that use of herbs during pregnancy is relatively high and it is very important that maternity care providers should be aware of herbs that are common to women during pregnancy and also aware of evidence of safety.

Holst et al, (2009), provided information on the use of herbal remedies during pregnancy among English women. The descriptive survey which used questionnaire as an instrument for data collection, observed that out of 578 women studied, more than half (57.8%) used herbal remedies during pregnancy and about (75%) of them did not disclose use to their conventional maternity care providers. The findings also revealed that many of the women self medicate.

In a descriptive survey of medicinal cannabis use among child bearing woman in British Columbia, Canada, Westfall, Janssen, Lucas and Capler, (2009), looked into pattern of cannabis use in pregnancy and its efficacy against, *ómorning sicknessô*. Questionnaire was the instrument used for data collection. Eighty-four (84), female cannabis users were recruited for the study, out of which 79 had experienced pregnancy. Out of the 79 women who had experienced pregnancy, 59 (77%) reported having nausea and vomiting during pregnancy and 51(65%) reported using cannabis during their pregnancies. Out of these 59 women who had experienced nausea and vomiting in pregnancy, 40 (68%) had used cannabis to treat the condition and 37 (over, 92%) rated cannabis effective in managing nausea and vomiting related to pregnancy. In conclusion the researchers suggested the need to evaluate the safety of cannabis use during pregnancy.

In developing countries, Tabatabaee, (2011), provided information on the use of herbal medicine among pregnant women in South of Iran. This cross sectional survey interviewed 513 pregnant women recruited for the study on herbal medicine use during pregnancy. The study revealed that 158 (30.8%) of the 513 women had used herbal drugs during pregnancy with a mean of 1.4 herbal product per woman. Out of this 158, 21 (13.3%) consumed at least one prescribed conventional medicine concomitantly. More than three quarter 130 (82.3%) reported taking herbal medicines for pregnancy related reasons and problems such as

gastrointestinal tract problems, nausea and vomiting, common cold and cough. 28 (17.7%) used herbs for selection of the male sex, relaxation, increase in intelligence or beauty in the foetus. Most of the women (36.7%) who used herbs did so during the first trimester. 15.2% and 31% used herb during second and third trimesters respectively, while the rest 17.1% used theirs throughout pregnancy. Family members (87.3%) were the most commonly cited as recommending herbal medicine use. Primary conventional maternity care providers were rarely (7.6%) cited as the person recommending use. It was also identified that (99.1%) of the women consumed the herbs orally while (0.9%) used theirs topically. There was no statistically significance difference between women using and women not using herbs during pregnancy in terms of age, parity, educational level, place of living and job.

The researcher concluded that use of herbal medicine during pregnancy is relatively high among Iranian women. It is important to ascertain the type of medicine women are taking and maternity care providers should be aware of the common herbal medicine used by women and also the evidence regarding potential benefit or harm needed to be ascertained.

In a study of herbal medicine use during pregnancy and perinatal mortality in Tumpat District of Malaysia, Rahman, Ahmad, Naing, Sulaiman, Hamid and Daud (2007) recruited 316 mothers (106 cases with a history of perinatal mortality and 210 controls who do not have history of perinatal mortality) for the study. This case control study interviewed the respondents using a structured questionnaire. It was discovered that 41 (38.7%) cases and 108 (51.4%) had used at least one type of herbal medicine during pregnancy. The most common herb used by both cases (46.3%) and controls (63.9%) was coconut oil, which was ingested only during the third trimester of pregnancy. As reported by 61% of cases and 89.8% of controls, coconut oil was used to facilitate labour. The uses of unidentified herbs prepared by traditional midwives, and other types of herb, during the first trimester were positively associated with perinatal mortality. Those who used unidentified herbs were 5.24

times more likely to have perinatal mortality than those who did not take such herbs. They however reported that the use of unidentified "orang asli" herbs and coconut oil during the third trimester of pregnancy were protective factors against perinatal mortality, although the protective effect could not be explained. The researchers concluded by suggesting that some herbs are harmful while others may be protective to the foetus. These findings should be confirmed by conducting further studies to identify pharmacological compounds of these herbs and evaluate its effect on the foetus.

In South Africa, Mupfumira (2012) carried out a study on assessment of African traditional medicines in pregnancy and on birth outcomes and pharmacists' perceptions of complementary medicines in pregnancy using semi-structured interview and questionnaire. Ten (10) pregnant women and four (4) community pharmacists were enrolled in this triangulation designed (quantitative and qualitative) study. The study revealed that all the women used traditional medicine in addition to conventional health practices. Six (60%) of the participants did not believe traditional medicine could harm the unborn baby while 4 (40%) stated that traditional medicines are harmful or potentially harmful during pregnancy. The study also indicated that many women do not disclose being pregnant for fear of endangering the baby, and use of CAM was more common after the first trimester. The major reasons for using traditional medicines were to shield the woman and her unborn baby from evil spirits and witchcraft as conventional medicine cannot take care of such issues and for the growth of the baby. CAM used by the participants ranges from traditional medicine, faith healing and "Dutch medicine". The overall pregnancy outcome indicated that all the babies delivered were in good health and there was no record of defects. The researcher concluded by stating that there was no adverse effects experienced by the women and their babies from the ingestion of traditional medicine. However this does not mean that all traditional

medicines are safe. People using CAM should be carefully monitored especially during pregnancy.

Another South African study investigated into traditional medicine in late pregnancy and labour: perceptions of “*KGABA*” remedies amongst the Tswana in South Africa (Vanderkooi & Theobald, 2006). This qualitative descriptive study elicited information from 51 respondents (30 were interviewed and 21 were involved in focus group discussions) on the knowledge, beliefs and practical experiences of pregnant women, traditional healers and midwives with regards to “*kgaba*”. “*kgaba*” was seen as a social problem between a pregnant woman and a relative or ancestor who disagreed with her behaviour and could cause harm in pregnancy. This was often regarded as witchcraft and treatment with “*kgaba*” medicine protects the individual from harm. All the participants asserted that “*kgaba*” medicines were most commonly ingested in the third trimester of pregnancy, in order to prevent and solve difficulties and stimulate a smooth delivery. Other reasons for using “*kgaba*” medicines include to protect from evil and harm, induce labour and manage prolong labour. All the participants stated that usually, the grandmothers, mother-in-laws and mothers champion the decision to take “*kgaba*” medicines while few of the participants made their own decision whether to use “*kgaba*” or not. In conclusion the researcher suggested further study on the effects of traditional medicine and incorporating assessment of dose, preparation and benefits.

In other African countries, Banda et al, (2007), carried out a descriptive study on the use of traditional medicine among pregnant women in Lusaka, Zambia. Questionnaire was used to elicit information from 1128 pregnant women enrolled in a clinical trial of perinatal Human immune-deficiency virus (HIV) prevention strategies. Of 1128 pregnant women, (30%) had visited a traditional healer in the past pregnancies; (21%) had used a traditional healer during

the current pregnancy. More than half (54%) of the women believed that using traditional healer could result to worse medical care while 61% believe that herbs would not harm the unborn baby . There were no demographic differences observed among users when compared to those who had not utilized the services of a traditional healer. Instead use was likely to be associated with alcohol consumption, initiation of sex with their partner, dry sex, contraception and previously treated sexually transmitted diseases. This implies that use can be linked to life style and habits. The researchers then concluded that use of traditional medicine during pregnancy is common, stigmatized and may be linked to non- adherence to conventional antiretroviral medications.

A descriptive study carried out by Fakeye et al, (2009) on Attitudes and Use of Herbal medicines among pregnant women in Nigeria using questionnaire as a tool for data collection, revealed that more than two- third of the respondents (67.5%) had used herbs, out of which (74.3%), preferred self- medication formulas. These they used either in crude forms or as pharmaceutical prepackaged dosage forms. Approximately (30%) of users claimed that herbal medicine use during pregnancy is safe. Reason given by the respondents for using herbs during pregnancy include: that herbs are more effective than conventional medicine (22.4%), herbs are natural and safe alternatives to conventional medicine during pregnancy(21.1%), conventional medicine has low efficacy (19.7%), easier access to herbs (11.2%), the cultural belief that herbs cure many illnesses (12.5%), and low cost of herbal remedies (5.9%). More than half (56.6%) of the respondents did not agree that herbs should be used in combination with conventional medicine while (33.4%) were of the opinion that herbal remedies do not have adverse effect, and (30.4%) stated that some herbs could be dangerous.

The researchers concluded by stating that herbal medicine use among pregnant women is wide spread in Nigeria. They emphasized the need for health care practitioners to be aware of

this practice and endeavor to obtain information on herbal medicine from their clients during internal visits.

A cross sectional survey carried out in Antenatal Clinic of Amino Kano Teaching Hospital, Northern Nigeria, by Tamuno et al, (2011) on use of herbal medicine among pregnant women. Questionnaire was employed to collect data from 500 pregnant women recruited for the study. Findings revealed that out of 500 pregnant women recruited for the study, (31.4%) had used herbal medicine in the current pregnancy. The most popular herbs used were ginger (83.4%) and garlic (74.5%). Users of herbs use various herbs during pregnancy but could only remember ginger and garlic. About two fifth (40%) of herbal medicine users had used herbs during the first and second trimester; and similar number admitted to be self medicating with conventional medicine. Their use of herbal medicine was found to be statistically significant in the first trimester ($p=0.001$) and the second trimester ($p=0.009$) of pregnancy but not in the third trimester ($p>0.05$).

There was no statistically significant relationship between herbal medicine use and parity of the women ($p>0.05$). There was a statistically significant relationship between use of herbs during pregnancy and self medication with conventional medicine, ($p=0.006$). 52 (33.1%) of the users opined that herbal medicine use during pregnancy is not safe for mother and fetus, 100(63.7%) of them believe that use of medicine during the first trimester is dangerous and 33.8% were of the opinion that use of drug generally is dangerous throughout the period of pregnancy.

Reasons identified for using herbal medicine include; herb is our traditional medicine (94.3%), use of herbs since birth (87.3%). Whereas approximately (80%) of users were not sure of its efficacy, 58.6% said they have future intention of using herbs. Educational status has a statistically significant association with their opinion on dangers of herbal medical use to the fetus ($p<0.05$). The study was concluded by the researchers by stating that female

education, health education and economic empowerment will help to enlighten women and empower them to appreciate the effects of drugs on the fetus. They further stressed the need for proper regulation and licensing as it concerns herbal medicine use in pregnancy.

Summary of literature review

The literature on CAM use was reviewed under definition of CAM, classification of CAM, benefits and risks associated with CAM use, reasons for CAM use and description of some CAM remedies used in pregnancy.

CAM as defined by the NCCAM (2009) involves a group of various medical and health care systems, practices and products that are not currently part of conventional medicine. Complementary medicine describes approaches used alongside conventional medicine while alternative medicine describes approaches used in place of conventional medicine (NCCAM, 2009).

CAM has been classified by two outstanding bodies. One is the classification by National Centre for Complementary and Alternative Medicine (Fan, 2005), and two is the classification by the House of Lords Committee on Science and Technology (Fraser et al 2009). The former classified CAM into five categories while the later classified CAM into three main domains. This study investigated CAM use among pregnant women under three selected categories from the NCCAM classification.

Pregnant women engage in use of CAM for various reasons which could be cultural (WHO 2002); spiritual (Makunga et al, 2008); accessibility (Frenkel et al, 2008) and protection from evil spirits.

The benefits as well as the risks associated with use of CAM were also reviewed. The benefits of CAM have its root on the features of CAM including the value of holistic

approach to health care (Davidson et al, 2008). Risk associated with CAM use is linked to the lack of standardization, regulation and research among others (Davidson et al, 2008)

CAM remedies used during pregnancy were also described. Examples are herbal medicine (Fraser et al, 2009, Tiran 2005a), aromatherapy (Tiran, 2007), massage (Fraser et al, 2009).

Use of CAM among pregnant women is an interesting area that requires more research work. This is because some potential features such as low cost, safety, accessibility may be overlooked as a result of misconceptions from conventional health care practitioners and may as well pose a health concerns to both mother and child since CAM is not evidence-based.

Empirical literature review was done from developed to developing countries. In developed countries, literature revealed that only one study was done on CAM use among pregnant women (Skouteris et al, 2008), the remainder of the four studies reviewed were narrowed down to herbal medicine use among pregnant women (Forster et al, 2006; Holst et al, 2009; and Westfall et al, 2009). The prevalence ranges from 36% to 73%.

In developing countries, Tabatabaee, (2011), Rahman, et al, (2007), Vanderkooi et al, (2006), Mupfumira, (2012) and Banda et al, (2007) carried out studies on either herbal medicine or traditional medicine use among pregnant women with a prevalence ranging from 30% to 100%.

In Nigeria, there is paucity of literature on CAM use among pregnant women. The few existing literatures were limited to herbal medicine use among pregnant women (Fakeye et al, 2009; Tamuno et al, 2011) with prevalence ranging from 31.4% to 67.5%.

Generally most of the studies were zeroed down to herbal medicine use among pregnant women. Herbal medicine is just an aspect of a class of CAM. This study determined other types of CAM used by pregnant women based on the three selected categories of CAM. In

Nigeria however, nothing has been done on CAM use among pregnant women, particularly in South Eastern Nigerian where Udi LGA of Enugu State is located. The few studies discussed were conducted in North central, North West and South West and were all facility based study. This present study is a community based study and will fill the gap in knowledge which previous studies have created.

CHAPTER THREE

Research methods

This chapter dealt with the research design, area of study, population of study, sample, sampling technique, instrument for data collection, ethical consideration, procedure for data collection and method of data analysis.

Research design

Cross sectional descriptive survey design was used for the study. This research design is deemed appropriate for this study on the Use of CAM among pregnant women in Udi LGA because it seeks to find out the conditions or relationships that exist, opinions that are held, processes that are going on, effects that are evident or trends that are developing. This design was successfully used in similar studies on herbal medicine use among pregnant women in Australia (Forster et al, 2006) and in Nigeria (Tamuno et al, 2011).

Area of study

The study was carried out in Udi Local Government Area (LGA). Udi is one of the LGA located in Enugu West senatorial district with its head quarter at Udi town. Politically, Udi LGA is subdivided into North and South with development centers in both subdivisions. Overall, Udi comprises twenty political wards formed by the different towns in Udi LGA.

Udi LGA is bounded on the east by New market, Iva valley and Enugu East LGA; on the west by Ituku, Ozalla, Agbani and Aninri LGAs; on the north by Ogbede and Igbo-etiti LGA and on the south by Oji River. As at 2006, Udi LGA had a population of 238,305 comprising 117,914 males and 120,391 females (National Population Commission [NPC], 2006). Udi is well known for their special palm wine which is personified by bearing the name of man: ‘*Aneke Achime*’. This palm wine is believed to be made of Divine stuff which placed him

above palm wine from other sources. The people of Udi LGA are mainly subsistent farmers, civil servants and palm wine tappers.

Population of the study

The population of study constituted pregnant women between the ages of 15 to 49, who registered for antenatal care in the various health centers in Udi LGA from July 2012 to December, 2012. The total number of women who fell within this category was estimated at 1,204 (Monitoring & Evaluation unit, Ministry of Health, Enugu State, 2013).

Sample

A sample size of 400 pregnant women was determined using the formula for calculating sample size by Creative Research System, 2012 as follows:

$$n = \frac{z^2 \cdot P(1-P)}{d^2} \quad (\text{Creative Research System, 2012})$$

where n= minimum sample size required

$$z = 1.96 \text{ (at 95\% confidence interval)}$$

p= proportion or a best guess about the value of the proportion of interest. In this study, there is no information on the proportion of interest on CAM use. Therefore the 50% usually used for unknown proportion is used. It is expressed in decimal. That is 0.5

$$d = \text{error margin i.e } 0.05$$

Applying the formula thus:

$$n = \frac{1.96 \times 1.96 \times 0.5 (1 - 0.5)}{0.05 \times 0.05}$$

$$n = 0.9604 / 0.0025 = 384.16$$

$$n = 384$$

This sample size ($n = 384$) was further increased in order to make room for non response rate. This was done by determining the adjustment factor (q), thus:

$$q = n / 1-f$$

where, q = adjustment factor

n = estimated sample size (384)

f = non response rate determined through pilot study (0.03)

therefore, $q = 384 / 1 - 0.03 = 384 / 0.97$

$$q = 396$$

This figure 396 was rounded off to nearest hundreds to accommodate attrition.

Sample size = 400.

Inclusion criteria

- Pregnant women in all the twenty wards between the months of February, 2013 to July, 2013.
- Pregnant women between the ages of 15 to 49 who were confirmed pregnant through hospital records.
- Pregnant women who consent to participate in the study.
- Pregnant women, who were ill or have other underlying medical or surgical conditions, were excluded from the study.

Sampling procedure

Systematic sampling method was used to select 400 pregnant women from the political wards according to the estimated population for each ward (Ref. Table 1). This involved selection of every n th item (sampling interval). The sampling interval was determined as follows:

Population $\div$ sample size, where population = 1204, sample size = 400.

Therefore sampling interval = $1204 \div 400 = 3$.

One out of every three pregnant women was selected for the study. This was achieved by using an attendance list of pregnant women generated for each ward. The first respondent was selected at random. Other selections were made at intervals of three until a sample of 400 pregnant women was obtained.

Table 1: Sample

Wards	Population	Sample
Abia	21	7
Abor	31	10
Afa/Ikono/Oghu	44	15
Akpakwume/Nze	25	8
Amokwe	71	23
Ebe	0	0
Egede/Umuoka	0	0
Eke	28	9
Nachi	29	10
Ngwo Asaa	0	0
Ngwo Uno	4	1
Nsude	186	62
Obinagu	45	15
Obioma	41	14
Okpatu	66	22
Udi/Agbudu	463	154
Ukana/Awhum	37	12
Umuabi	65	22
Umuaga	20	7
Umulumgbe	28	9
Total	1204	400

Instrument for data collection

Questionnaire developed by the researcher was the only tool used for data collection. The questionnaire was used to interview the women in order to elicit information on women's use of CAM during pregnancy in Udi LGA. The questionnaire comprised mainly closed ended questions and very few open ended questions. The total number of questions was thirty-one. The tool was divided into two sections; section A sought information on demographic profile of the respondents while section B obtained information on CAM use, types, patterns, perceived benefits and adverse effects associated with CAM use. The questionnaire was drawn strictly based on extensive literature search on CAM, information on various types of CAM obtained from focus group discussion and the seven stated objectives of the study.

Validity of instrument

To ensure face and content validity, the initial questionnaire was fine tuned by effecting the corrections and suggestions made by the researcher's supervisor and two other lecturers in Nursing Science Department. This was achieved through the critical assessment of the contents, clarity and logical accuracy of the instrument in line with research topic and objectives.

Reliability of the instrument

To establish reliability of the instrument, a pilot study was conducted. Forty copies (i.e 10% of the estimated sample size) of the developed questionnaire were administered to pregnant women in Ezeagu LGA, who have similar characteristics with the actual population of study. The data generated was tested using split half reliability co-efficient statistics. Pearson Product Moment Correlation formula was applied to obtain the reliability. The result of the test was $r = 0.95$, which indicated the reliability of the instrument.

Ethical consideration

Ethical clearance was obtained from the Enugu State Ministry of Health Ethical Committee. Written administrative consent was obtained from the chairman, Udi LGA. Oral informed consent was obtained from the ward heads and officers in charge of the health centers in the wards while written informed consent was also obtained from the respondents who met the inclusion criteria before administration of the questionnaire. Confidentiality of respondents' information was strictly observed.

Procedure for data collection

The letter of identification signed by the Head of Nursing Department, UNEC, copies of the ethical clearance and consent letter from the chairman of Udi LGA were used for formal introduction of the researcher to various ward heads and officers in charge of the health centers during a courtesy visit. Formal briefing with regards to the purpose and objectives of the study was done, after which the date, time and venue for the collection of data was agreed upon by the researcher and the ward heads. The research and its procedure including date, time and venue were subsequently announced in the various wards via town criers. On the scheduled date for each ward, there was a brief introduction and proper explanation of the purpose of the study before data collection from the respondents. The respondents were recruited systematically using the sampling interval of three from the list bearing their names which was written on first come basis. Upon signing the informed consent, the questions in the questionnaire were interpreted in Igbo language to the selected respondents who met the inclusion criteria and their responses were recorded into the questionnaire. Each selected and consenting respondent had only one opportunity to participate in the study. This one opportunity was controlled by a form of identification on the certificate of informed consent. Four trained research assistants assisted with data collection. The research assistants were trained on the purpose and objectives of the study, sampling and recruitment of respondents who met the inclusion criteria, interpretation of questions and recording of the respondents' information.

answers to the questions into the questionnaire. Data was collected until the sample size was attained. A total of 400 questionnaires was completed and returned. Data collection lasted from February, 2013 to July, 2013.

Method of data analysis

Data collated were analyzed using descriptive statistics including frequencies and percentages. Chi-square at 95% confidence interval was used to determine the association between the demographic characteristics of pregnant women in Udi LGA and use of CAM. The data is parametric (normally distributed) and of nominal nature. According to Du-Prel, Rohrig, Hommel, & Blettner, (2010), chi-square is a statistical test applied to a parametric, unpaired and nominal data with sample size greater than sixty. This was done using the computer programme graph pad prism version 5.03. The results were presented on Tables and charts. The statistical decision rule is that if $p < 0.05$, the association is said to be significant.

CHAPTER FOUR

PRESENTATION OF RESULTS

In this chapter, the data generated including the demographic characteristics of the respondents were presented using tables and charts according to the research questions. The entire 400 questionnaire was appropriately filled and returned.

Table 2: Cross tabulation of demographic profile of user and non user. (n= 400)

Parameter	User (%)	Non user (%)	Total (%)
Age range 15 ñ 24 (mean = 27.8)	84 (21)	37 (9.3)	121 (30.3)
25 ñ 34 (SD = 6.4)	193 (48.2)	32 (8)	225 (56.2)
35 ñ 44	48 (12)	6 (1.5)	54 (13.5)
Total	325 (81.2)	75 (18.8)	400 (100)
Marital status			
Married	313 (78.2)	70 (17.5)	383 (95.7)
Not married	12 (3)	5 (1.3)	17 (4.3)
Widow	0 (0)	0 (0)	0 (0)
Total	325 (81.2)	75 (18.8)	400 (100)
Educational level			
No formal education	0 (0)	0 (0)	0 (0)
Primary education	36 (9)	5 (1.3)	41 (10.2)
Secondary education	252 (63)	58 (14.5)	310 (77.5)
Tertiary education	37 (9.2)	12 (3)	49 (12.3)
Total	325 (81.2)	75 (18.8)	400 (100)
Occupation:			
House wife	28 (7)	13 (3.2)	41 (10.2)
Petty trader	152 (29)	32 (8)	184 (46)
Learnt trade	116 (29)	21 (5.3)	137 (34.3)
Professional	29 (7.2)	9 (2.3)	38 (9.5)
Total	325 (81.2)	75 (18.8)	400 (100)
Parity:			
1 ñ 4	262 (65.5)	70 (17.5)	332 (83)
5 ñ 8	63 (15.7)	5 (1.3)	68 (17)
Total	325 (81.2)	75 (18.8)	400 (100)
Trimester:			
First	14 (3.5)	10 (2.5)	24 (6)
Second	115 (28.7)	26 (6.5)	141 (35.2)
Third	196 (49)	39 (9.8)	235 (58.8)
Total	325 (81.2)	75 (18.8)	400 (100)
Health Condition			
Satisfactory	150 (37.5)	25 (6.3)	175 (43.8)
Good	175 (43.7)	50 (12.5)	225 (56.2)
Total	325 (81.2)	75 (18.8)	400 (100)

From table 2 above, out of the 400 respondents, 225 (56.2%) were within the ages of 25 and 34. The number 225 represents 198 (48.2%) users and 32 (8%) non users of CAM. Least number of respondents 54 (13.5%) fell within the ages of 35 and 44, with 48 (12%) being users and 6 (1.5%) being non users of CAM. The mean age is 27.8.

The respondents were mostly married women 383 (95.7%), out of which 313 (78.2%) were users and 7 (1.75%) were non users of CAM.

Whereas 310 (77.5%) of the respondents comprising 252 (63%) users and 58 (14.5%) non users of CAM attained secondary education, 41 (10.2%) comprising 36 (9%) users and 5 (1.3%) non users of CAM attained primary education.

The major occupation of the respondents was petty trading, 184 (46%) representing 152 (38%) users and 32 (8%) non users of CAM. The least number 38 (9.5%) of the respondents were professionals, out of which 29 (7.2%) and 9 (2.3%) were users and non users of CAM respectively.

With regards to parity, 332 (83%) had been pregnant one to four times. 262 (65.5%) of this 332 were users while 70 (17.5%) were non users of CAM. 68 (17%) of the pregnant women studied had also been pregnant five to eight times with 63 (15.7%) being users and 5 (1.3%) being non users of CAM.

While 196 (49%) of users and 39 (9.8%) of non users of CAM representing 58.8% of the respondents were in their third trimester of pregnancy, 115 (28.7%) users and 26 (6.5%) of non users representing 35.2% of the respondents were in the second trimester of pregnancy. Only 24 (6%) made up of 14 (3.5%) users and 10 (2.5%) non users of CAM were in their first trimester of pregnancy.

The general condition of the respondents was either good 225 (56.2%) including 175 (43.7%) users and 50 (12.5%) non users of CAM, or satisfactory 175 (43.8%) representing both users (37.5%) and non users (6.3%) of CAM.

Research question 1

What is the prevalence of CAM use among pregnant women in Udi LGA?

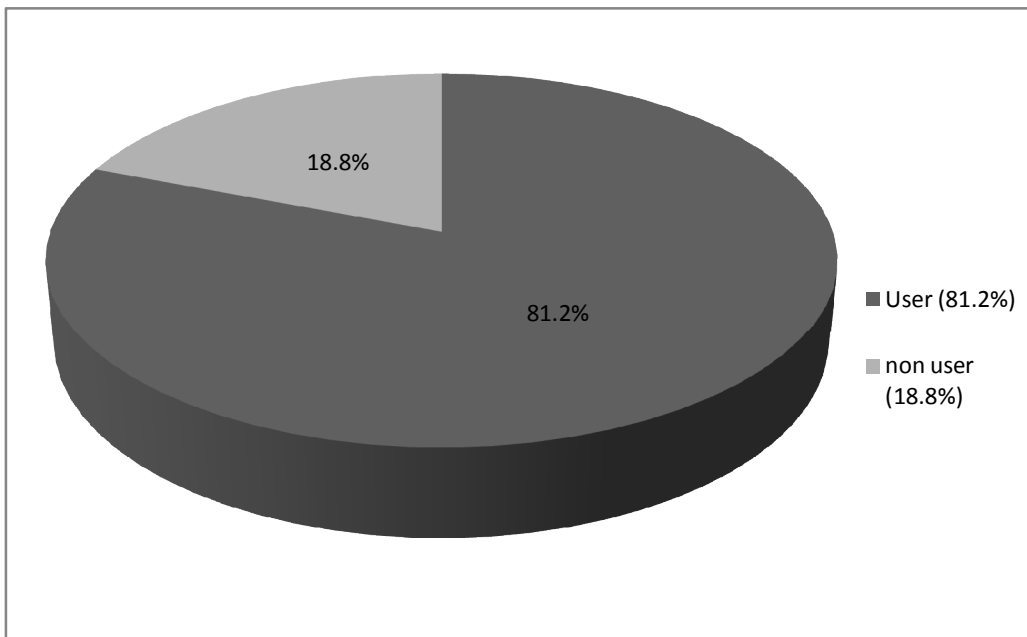


Figure 2: Prevalence of CAM use among pregnant women in Udi LGA

Figure 2 above reveals that out of 400 respondents, 325 (81.2%) were using CAM during pregnancy while 75 (18.8%) were not using CAM during pregnancy.

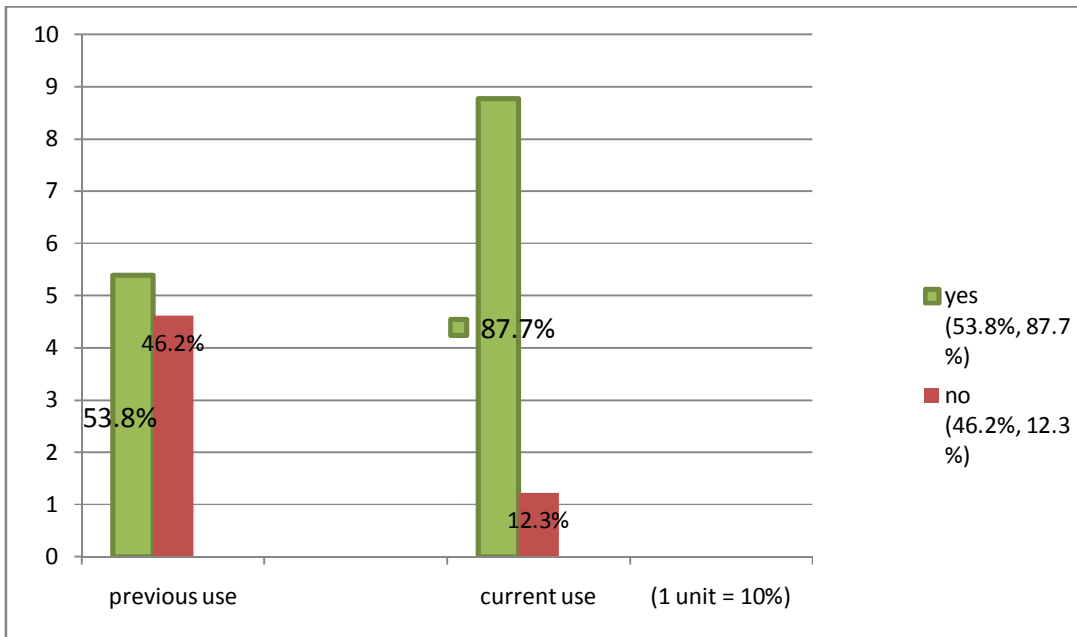


Figure 3: prevalence (previous and current) of CAM use among pregnant women in Udi LGA.

As shown in Figure 3, 175 (53.8%) had used CAM previously while 285 (87.7%) were still using CAM at the time of the study.

Table 3: Number of CAM used by pregnant women in Udi LGA. (n=325)

Number of CAM used by pregnant women		Frequency (%)
1 ñ 4		225 (69.2%)
5 ñ 8		77 (23.7%)
9 ñ 12	(Mean = 4.1)	20 (6.2%)
13 ñ 16	(SD = 2.58)	3 (0.9%)
Total		325 (100)

The result in table 3 indicates that 225 (69.2%) used 1 to 4 different types of CAM while 77 (23.7%) of the respondents used 5 to 8 different types of CAM and only 3 (0.9%) used 13 to 16 various types of CAM. The mean number of CAM used was 4.1 with standard deviation of 2.58.

Research question 2

What are the various types of CAM used by pregnant women in Udi LGA?

Table 4: Various categories of CAM used by pregnant women in Udi LGA.

Categories of CAM	Frequency (%)
Biological products	250 (76.9)
Alternative medicine	232 (71.4)
Spiritual therapy	98 (30.2)

*Respondents ticked more than one option.

Table 4 indicates that biological products 250 (76.9%) and alternative medicine 232 (71.4%) were the class of CAM highly favoured by the respondents. Spiritual therapy 98 (30.2%) was the least prevalent among the respondents.

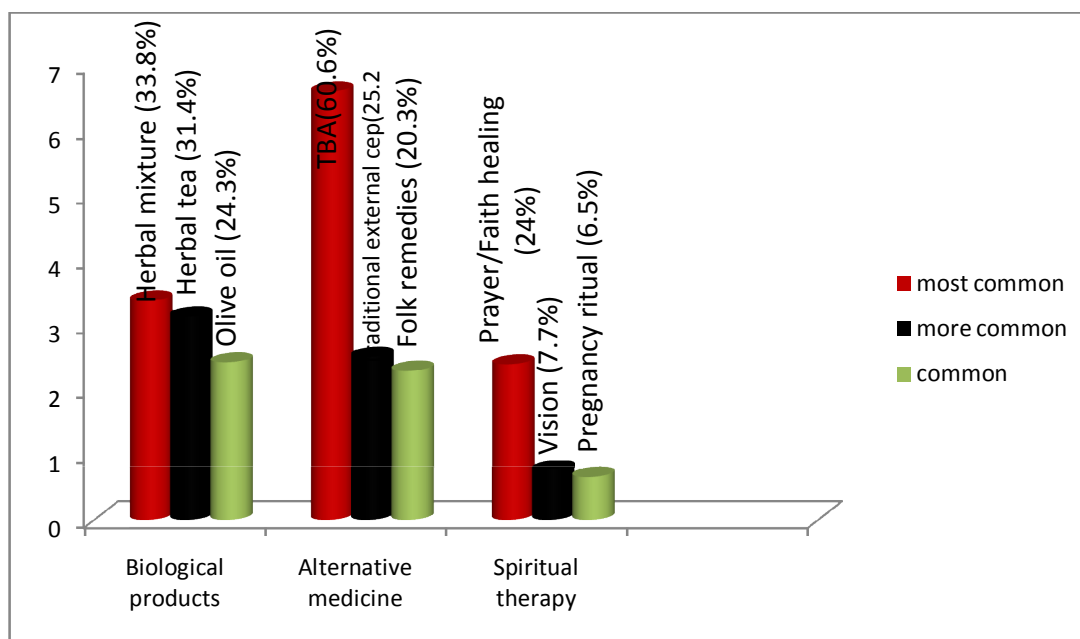


Figure 4: specifics under the categories of CAM used by pregnant women in Udi LGA.

As presented in figure 4, herbal mixtures 110 (33.8%), herbal tea ‘*mvuruinu*’ 102 (31.4%) and olive oil 79 (24.3%) were biological products predominantly used by the respondents. TBA 197 (60.6%), traditional external cephalic version 82 (25.2%) and folk remedies 66 (20.3%) were common alternative medicines used by the respondents while prayer/faith healing 78 (24%), vision 25 (7.7%) and pregnancy ritual 21 (6.5%) were highly rated under the class of spiritual therapy.

Research question 3

What are the patterns of CAM use among pregnant women in Udi LGA?

Table 5: Pattern of administration or consumption of CAM. n = 325

Pattern of administration	Frequency (%)
Oral administration	291 (89.5)
Consultations/ adherence to TBA advice,	164 (50.5)
Topical application	101 (31%)
Body manipulations	98 (30.1)
Spiritual consultations, cleansing and deliverance	89 (27.3)
Insertion into the vagina	29 (8.9)

Respondents ticked more than one option*

The result in table 5 reveals that the most frequent pattern (route) of administration of CAM is orally 291 (89.5%), followed by consultations/adherence to the advice of TBA 164 (50.5%) and topical application 101 (31%). Others include body manipulation 98 (30.1%), spiritual cleansing and deliverance 89 (27.3%) and insertion into the vagina 29 (8.9%).

Table 6: Use of CAM by stage of pregnancy. n = 325.

Stage of pregnancy	Frequency (%)
Third trimester only	89 (27.4)
Throughout pregnancy	81 (24.9)
Second trimester only	66 (20.3)
First trimester only	49 (15.1)
Second and third trimester	32 (9.8)
First and second trimester	8 (2.5)
Total	325 (100)

Table 6 shows that the respondents used their CAM mainly during the third trimester 89 (27.4%) and throughout pregnancy 81 (24.9%). Women used CAM least during the first & second 8 (2.5%) and second & third 32 (9.8%) trimesters.

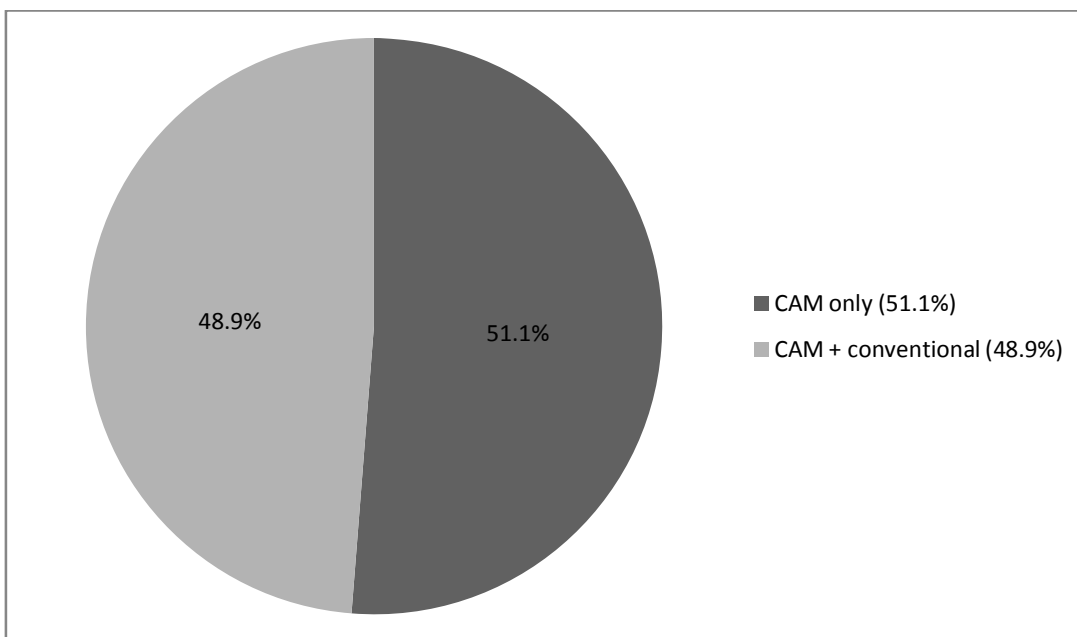


Figure 5: Use of CAM and conventional medicine. (3.6 degrees = 1%).

As shown in figure 5 above, 166 (51.1%) used only CAM while 159 (48.9%) used CAM and conventional medicine together during pregnancy.

Research question 4

What are the reasons for CAM use among pregnant women in Udi LGA?

Table 7: Reasons for CAM use. n = 325

Reasons for CAM use	Frequency (%)
Easy access (cheap and always available)	145 (44.6)
To slim or reduce the weight of the baby	135 (41.5)
Cultural reasons	107 (32.9)
Safety and protection of the baby against evil spirit and people (witchcraft)	86 (26.5)
Correct abnormal lie and position of the baby	81 (24.9)
To prevent exchange of baby's sex	35 (10.8)
To beautify the baby	33 (10.2)
Reduce the incidence of cephalo-pelvic disproportion and cesarean section	31 (9.5)
To relieve morning sickness	29 (8.9)
For sex selection	28 (8.6)
Prevent abortion	21 (6.5)
Relieve oedema and draw out excess water from the uterus	17 (5.2)
Relieve waist pain	17 (5.2)
Relieve symptoms of malaria and cough	8 (2.5)
Treat fibroid	7 (2.2)
Induction labour	7 (2.2)

Respondents ticked more than one option*

The most prominent reasons for using CAM as perceived by the respondents in table 7 above include, to reduce the weight of the baby in utero 135 (41.5%), easy access 145 (44.6%) and cultural reasons 107 (32.9%). Other reasons such as safety and protection of the baby against evil spirit and evil people 86 (26.5%), correction of abnormal lie and position 81 (24.9%), prevent exchange of baby's sex 35 (10.8%) and to beautify the baby 33 (10.2%) were also stated by the respondents.

Research question 5

What are the benefits of CAM use as perceived by pregnant women in Udi LGA?

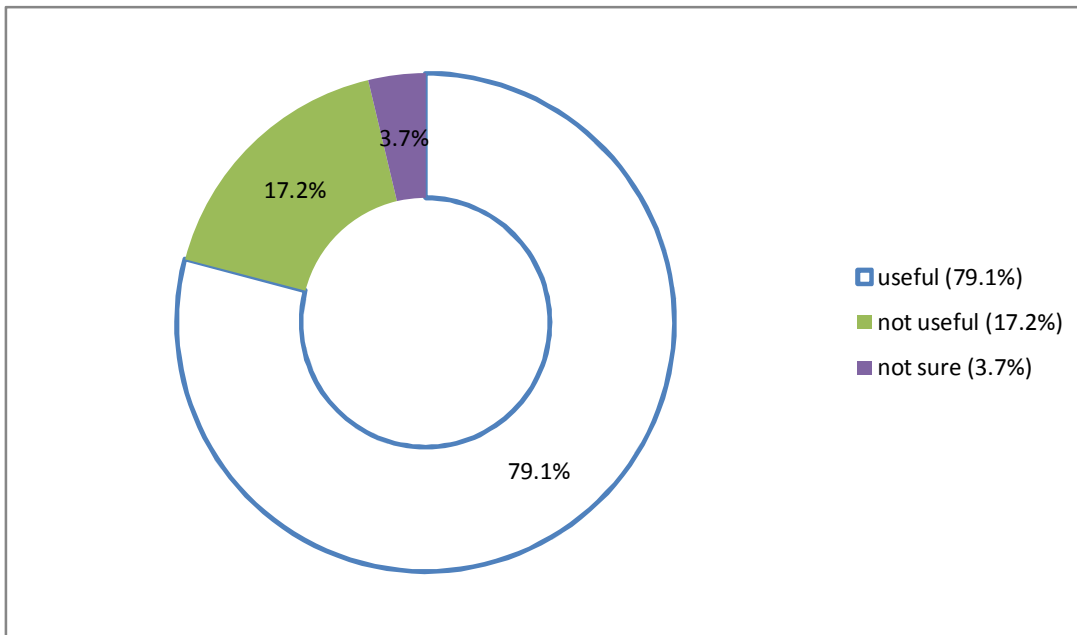


Figure 6: Usefulness of CAM as perceived by pregnant women in Udi LGA.

Figure 6 indicates that 257 (79.1%) of the respondents perceived the CAM used to be useful, 56 (17.2%) stated that the CAM they used was not useful, while 12 (3.7%) were not sure whether the CAM used was useful or not useful.

Table 8: CAM identified as useful and their benefits as perceived by pregnant women in Udi LGA.

CAM	Frequency (%)	Benefits
Herbal mixture	82 (31.9)	Decreased the weight of the baby making it easier to be delivered, Sex selection and beautification of the baby.
Herbal tea	64 (24.9)	Slimmed the baby, preserved the baby's sex, clean baby, and decrease the incidence of cesarean section.
Traditional external Cephalic version	34 (13.2)	Ensures normal lie, normal position and safety of the baby, and reduce the incidence of cesarean section.
Olive oil	26 (10.1)	Clean baby and protection against witchcraft.
Prayer	15 (5.8)	Protection from witchcraft, sorcery and exchange of baby's sex
Bitter cola	11 (4.3)	Relieved morning sickness.
Ginger	5 (1.9)	Relieved morning sickness.
Pregnancy ritual/ Deliverance	5 (1.9)	Safety in the pregnancy journey, preservation of baby's sex and prevention of abortion.
Hitting animal bone on the pelvic region	4 (1.6)	Corrects cephalo pelvic disproportion.
Safety pin or office pin attached to the navel	3 (1.2)	Prevents abortion.

Table 8 shows that out of 257 respondents who asserted that the CAM they used was useful, 82 (31.9%) and 64 (24.9%) reported herbal mixture and herbal tea respectively to be the most useful. Hitting a specific type of animal bone on the pelvic region 4 (1.6%) and use of safety pin or office pin attached to the navel to prevent abortion were the least useful.

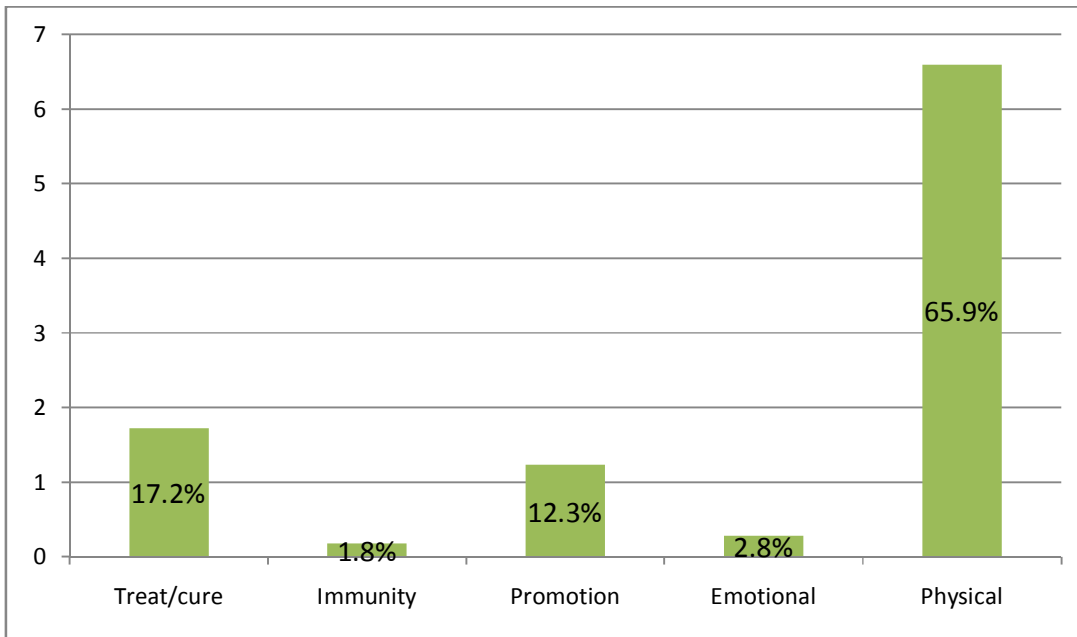


Figure 7: Benefits the respondents hoped to get from the CAM used.

Figure 7 reveals that majority 214 (65.9%) of the pregnant women expected their CAM to improve their physical wellbeing and that of their baby. 56 (17.2%) and 40 (12.3) expected the CAM they used to relieve pregnancy discomfort that they have and to promote and maintain their health respectively.

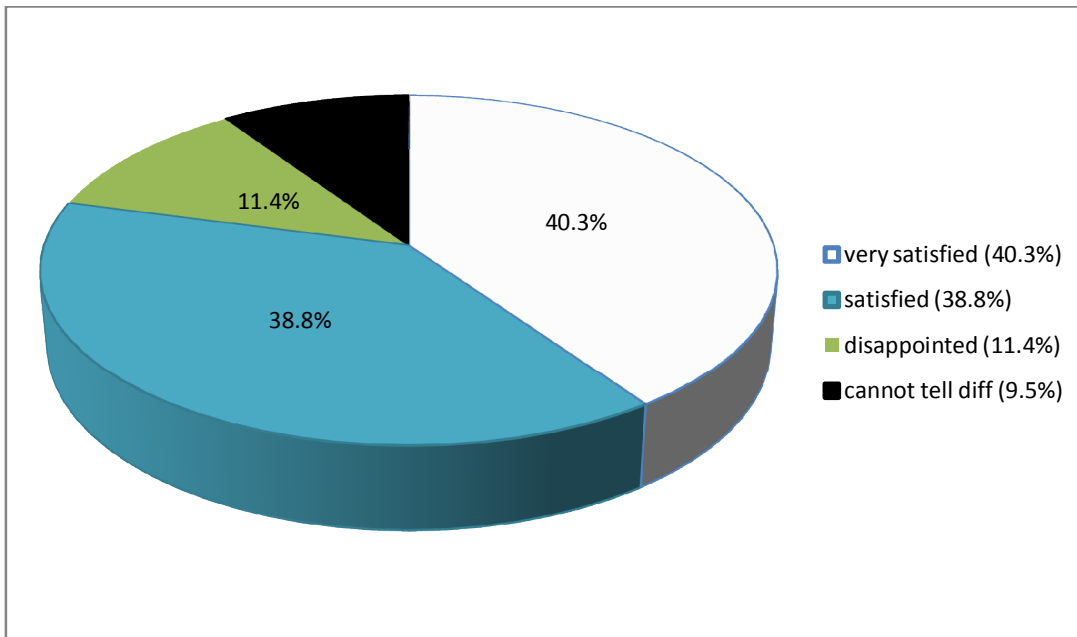


Figure 8: Level of satisfaction derived from CAM. (3.6 degrees = 1%).

As shown in figure 8, majority of the respondents were either very satisfied 131 (40.3%) or satisfied 126 (38.8%) with the effect of the CAM used while 37 (11.4%) were disappointed and 31 (9.5%) cannot tell any difference in their status with the CAM used.

Research question 6.

What are the adverse effects of CAM use as perceived by pregnant women in Udi LGA?

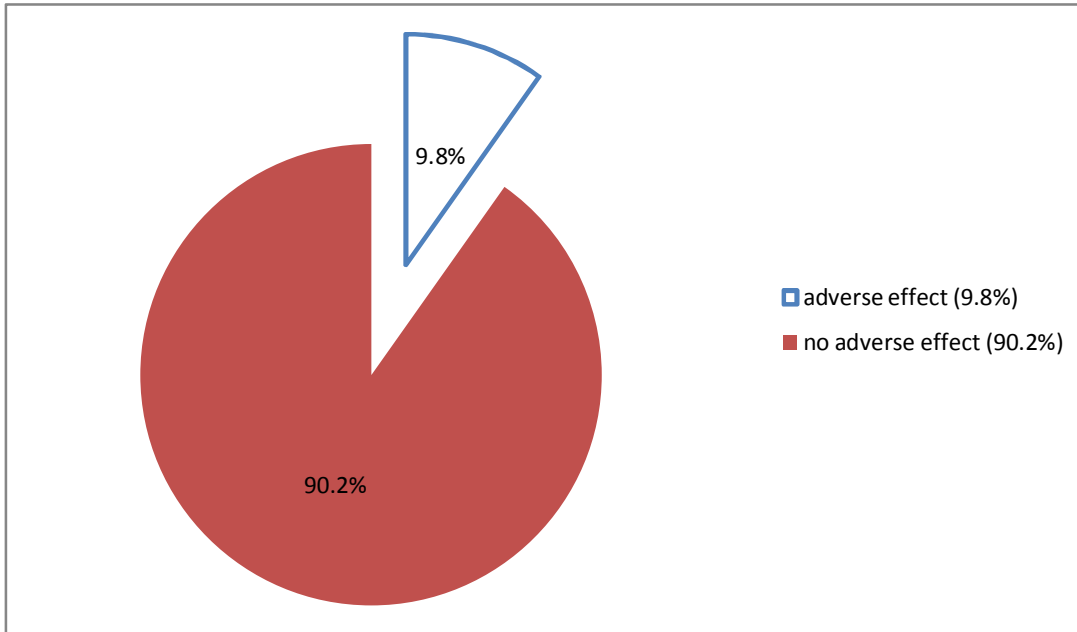


Figure 9: Adverse effect of CAM use as perceived by pregnant women in Udi LGA.

From figure 9 above, 293 (90.2%) of the respondents claimed that they did not experience any adverse effects from the CAM used while 32 (9.8%) reported experiencing adverse effects from CAM used during pregnancy.

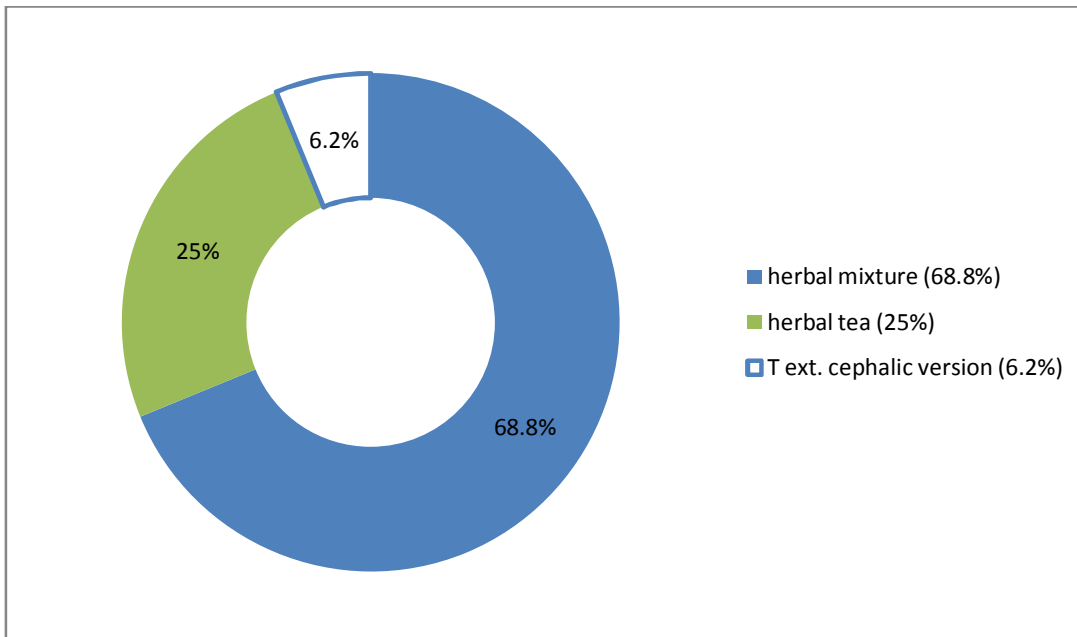


Figure 10: CAM that caused adverse effect. (n = 32)

As shown in figure 10, 22 (68.8%) identified herbal mixture to cause bleeding from the vagina, diarrhea, while 8 (25%) reported excessive urination which is brought about by the use of herbal tea. Traditional external cephalic version was linked to spotting by 2 (6.2%) of the respondents.

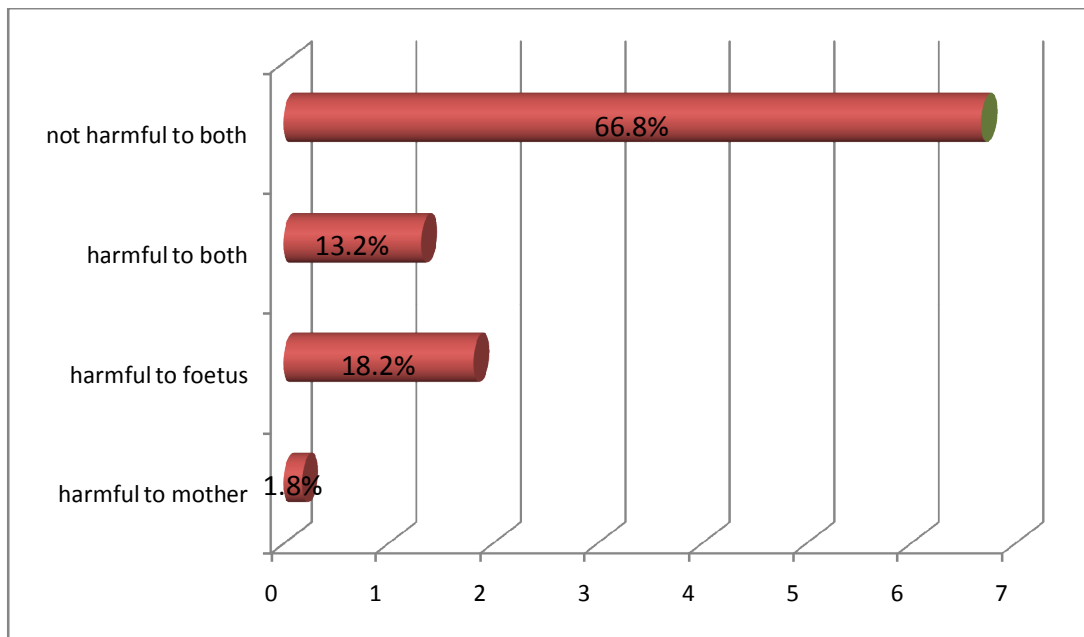


Figure 11: Harmfulness of CAM.

Figure 11 reveals that most 217 (66.8%) of the respondents did not perceive CAM as being harmful to either mother or foetus, while 59 (18.2%) stated that CAM is harmful to the baby only.

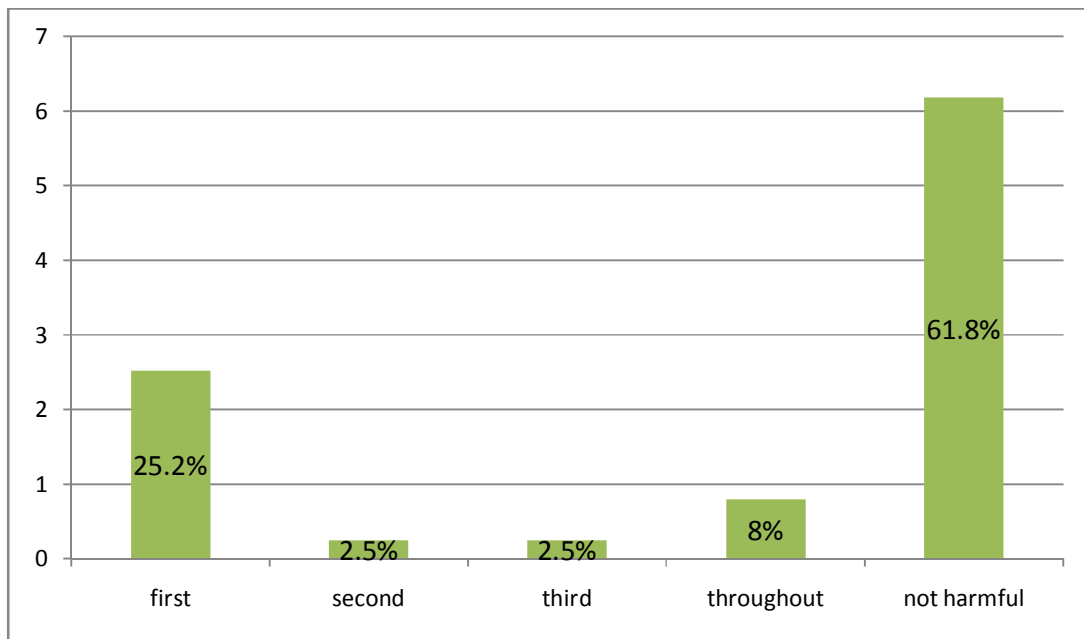


Figure 12: Perceived harmfulness of CAM by stage of pregnancy.

The result in figure 12 indicated that 201 (61.8%) of the pregnant women who used CAM perceive CAM to be safe at any stage of pregnancy, whereas a quarter 82 (25.2%) of them stated that CAM is harmful during the first trimester of pregnancy.

Research question 7

What is the association between the demographic characteristics of pregnant women in Udi LGA and use of CAM?

Table 9: Chi-square test of the association between the demographic characteristics of pregnant women in Udi LGA and use of CAM

CAM use	Demographic characteristics				Total	Chi-square (P- value)
Age:	15 ñ 24	25 ñ 34	35 - 44			
Yes	84	193	48		325	16.212 (0.0003)***
No	37	32	6		75	
Marital sta:	married	not married				
Yes	313	12			325	1.325,1 (0.2497)
No	70	5			75	
Education:	primary	secondary	tertiary			
Yes	36	252	37		325	2.216,2 (0.3302)
No	5	58	12		75	
Occupation	House wife	petty learnt trade	professional			
Yes	28	152	116	29	325	6.401,3 (0.0936)
No	13	32	21	9	75	
Habit:	Drinks alcohol	neither drinks nor smokes				
Yes	56	269			325	4.547,1 (0.0330)*
No	21	54			75	
Parity:	1 ñ 4	5 ñ 8				
Yes	262	63			325	6.985,1 (0.0082)**
No	70	5			75	
Trimester:	first	second	third			
Yes	14	115	196		325	8.998,2 (0.0111)*
No	10	26	39		75	

*strength of association

Based on the decision rule of $p < 0.05$, Table 10 revealed that age ($p = 0.0003$), habit ($p = 0.0330$), parity ($p = 0.0082$) and trimester ($p = 0.0111$) had association with CAM use among pregnant women in Udi LGA. Other demographic variables such as marital status

($p=0.2497$), educational level ($p=0.3302$) and occupation ($p=0.0936$) were not significantly associated with use of CAM.

Summary of major findings

Majority of the pregnant women (81.2%) in Udi LGA used CAM ranging from one single type to sixteen different types. The most frequently used CAM were under the biological and alternative categories including herbal mixture and engaging the services of TBAs.

Majority of the pregnant women (89.5%) who used CAM consumed their CAM orally. Whereas 27.4% of the pregnant women used their CAM during the third trimester, 48.9% used their CAM in combination with conventional medicine.

The most prominent reasons for CAM use according to the respondents were easy access (44.6%), reduction of baby's weight (41.5%) and culture (32.9%).

Majority of the respondents (79.1%) perceived the CAM they used to be very useful while only 9.85% reported experiencing adverse effects such as bleeding and diarrhoea from the CAM used. Most of the respondents (66.8%) did not perceive CAM to be harmful to either mother or baby and similar percentage stated that CAM is not harmful at any stage of pregnancy.

At 0.05 level of significance, age ($p= 0.0003$), habit ($p=0.0330$), parity ($p=0.0082$ and trimester ($p=0.0111$) had association with CAM use among pregnant women in Udi LGA. Other demographic variables such as marital status ($p=0.2497$), educational level ($p=0.3302$) and occupation ($p=0.0936$) were not significantly associated with use of CAM.

CHAPTER FIVE

DISCUSSION OF FINDINGS

This chapter presented the discussion of major findings, implication for nursing, limitations of the study, suggestions for further studies, summary, conclusion and recommendations.

Research question 1

What is the prevalence of CAM use among pregnant women in Udi LGA?

The findings of this study revealed that majority of the pregnant women in Udi LGA used CAM. It is inferred from the findings that the number of pregnant women in Udi LGA who used CAM during pregnancy is estimated at 975 per annum. That is 810 users of CAM per 1000 pregnant women per annum. Slightly more than half of the CAM users had a record of previous use while approximately eighty-eight percent were still using CAM at the time of study. This prevalence falls within the range (30% - 96%) reported in literature among pregnant women (Skouteris et al, 2008; Tabatabaee, 2011; Holst et al, 2009; Westfall et al, 2009; Forster et al, 2006) and among the general adult population (WHO, 2002).

However, this result is higher when compared with other findings on related studies in Nigeria. Fakeye et al, (2009) and Tamuno et al, (2011) reported a prevalence of 67.5% and 31.4% respectively on herbal medicine use among pregnant women in Nigeria. This high prevalence may be attributed to ethnic differences and wide coverage of unconventional health care systems in this study. The present study was carried out in a rural community, while the previous studies were health facility based, conducted in Northern part of Nigeria and limited to herbal medicine use only.

The finding also conforms to WHO (2008) report that 80% of the population in Africa depend on CAM for their primary health care needs. The number used by each user of CAM

ranges from one single type to sixteen different types with a mean of 4.1. This implies that for every pregnant woman in Udi LGA who used CAM engaged in approximately four different types of CAM. This result on the number of CAM used by each user is higher than what was reported by Tabatabaee (2011) who recorded a mean number of 1.4 per each CAM user. The variation may be as a result of what is included as CAM in the study.

Research question 2

What are the various categories of CAM used by pregnant women in Udi LGA?

Biological products and alternative medicine were the most frequent category of CAM used by women during pregnancy. Herbal mixtures and herbal tea (*mvuruinu*) were the most commonly used among the biological products while engaging the services of traditional Birth Attendants (TBA) and traditional external cephalic version gained popularity among the alternative category. This finding is in line with Skouteris et al, (2009); Dugoua, (2010) and Mupfumira, (2012) who identified herbal remedies as the most commonly used CAM among pregnant women. It also agrees with WHO (2002) who estimated that alternatives such as TBAs assisted in majority of births in several African countries including Nigeria.

Spiritual therapy was another significant class of CAM employed by women during pregnancy. Close to one quarter of the pregnant women who used CAM engaged in prayers as a form of CAM therapy. Other religious practices such as vision, cleansing/deliverance and pregnancy ritual were also reported by users of CAM. Mupfumira, (2012) identified faith healing as one of the commonest used CAM among pregnant women in South Africa. Kozier et al, (2008) stated that spirituality is the most ancient healing practices. The relative high prevalence of prayer/faith healing among pregnant women may be attributed to the African ancestry affinity to spiritual and transcendental phenomenon. Considering spirituality in the

light of holistic philosophy of CAM, it involves relationship with oneself, with others and with a higher power.

Research question 3

What are the patterns of CAM use among pregnant women in Udi LGA?

The major route of consumption of CAM was orally, followed by topical application. Almost ninety percent of CAM used by pregnant women was consumed orally. Tabatabaee, (2011) reported similar findings of 99.1% for oral consumption of herbs among pregnant women in South Iran.

Half of the pregnant women users of CAM had to either consult and/or visit the CAM practitioners to obtain the CAM therapies. Very few visited deities in order to enjoy the CAM practices required. Pelter et al, (2009); Skouteris et al, (2009) and Banda et al, (2007) reported similarly in their studies that women consulted CAM practitioners during pregnancy for some pregnancy related reasons. A small but significant number of women also used their CAM through direct insertion of remedies such herbs in to the vagina.

The most frequent stage of pregnancy during which women used CAM was the third trimester and nearly the same number used their CAM throughout the period of pregnancy. This finding is in line with Rahman et al, (2007), Forster et al, (2006) and Vanderkooi & Theobald, (2006) who identified third trimester as the stage when pregnant women frequently use CAM. However, this does not correspond with the findings of Tamuno et al, (2011) and Tabatabaee (2011) who recorded that use of herbs among pregnant women occurred mostly during the first trimester. This difference may be related to ethnicity, the women's knowledge on CAM and its properties and what were perceived to constitute CAM therapies. Different ethnic groups have different belief system and practices peculiar to them.

Forster et al, (2006) reported that ethnic differences exist in the use of CAM among pregnant women.

Although more than half of the women do not use CAM in combination with conventional medicine, a little lower than half use CAM concomitantly with conventional medicine. This result agrees with the report of Fakeye et al, (2009) which stated that more than half of the respondents did not agree that herbs should be used in combination with conventional medicine. The finding also conforms to Tabatabaee, (2011) and Mupfumira (2012) whose studies stated that some pregnant women use CAM in addition to conventional health practices. The implication of using CAM in combination with conventional medicine is that, there may be possible interaction between CAM remedies and conventional medicine and such interaction could be very toxic to the body. Moreover, in Nigeria, there have been reports of some ready to use herbal products being contaminated with heavy metals such lead (Obi et al, 2006 and Orisakwe et al, 2012). This contamination could lead to liver and kidney overload and consequently failure of these organs.

Research question 4

What are the reasons for CAM use among pregnant women in Udi LGA?

The most striking reasons for using CAM during pregnancy as reported by the respondents were accessibility, reduction of baby's weight and culture. Accessibility dealt with the low cost and within reach of CAM therapies among the respondents. Almost all the CAM users spent less than one thousand naira on CAM used. The respondents were of the opinion that if the baby's weight was reduced, the baby will be delivered effortlessly and most importantly without caesarean section. This finding is in harmony with the findings of Deboer & Lamxay, (2009); Fakeye et al, (2009); Tamuno et al, (2011) and WHO, (2002) who noted in their reports that traditional and cultural practices were some of the reasons behind the use of

CAM by pregnant women. Frenkel et al, (2008) also stated that many people use CAM because it is easily accessible and the only affordable source of health care in some countries especially the world's poorest clients. Cultural or generational use of remedy may be pointing to the safety of such remedy, although it may or may not be effective.

Other reasons identified by more than one third of the respondents were grouped into pregnancy- and baby- related reasons. Correction of abnormal lie and position and reducing the incidence of cephalo-pelvic disproportion (CPD) were among the commonest pregnancy-related reasons identified by the women for using CAM during pregnancy. Baby- related reasons include sex selection, safety and protection of the baby against evil spirit and evil people.

Some of these current findings have been reported in other studies. Dugoua, (2010) stated that women use CAM during pregnancy because of the concerns about the safety of the unborn child. Vanderkooi et al, (2006) and Mupfumira, (2012) asserted that CAM are taken to shield the woman and her unborn baby from evil spirit and witchcraft. Peltzer et al, (2009) reported that lack of foetal movement, abnormal position and lie among others, were the reasons why pregnant women consulted CAM practitioners. Tabatabaee, (2011) opined that women use herbs during pregnancy for selection of the male sex, increase in intelligence or beauty in the foetus. All these reasons are pointing to the safety of the unborn child.

Research question 5

What are the benefits of CAM use as perceived by pregnant women in Udi LGA?

Approximately eighty percent of the respondents perceived the CAM they used to be very useful. This corresponds to the finding of Skouteris et al, (2008) who stated that majority of the respondents studied believed that the CAM they used have positive effects.

CAM that were mostly identified as useful in this present study include herbs and traditional external cephalic version. Herbs were useful in reducing the weight of the baby in utero, selecting the preferred sex of the baby as well as preserving the selected sex. It was noted that if herbs reduced the weight of the baby, it will be easier to deliver hence saves the mother the stress of undergoing caesarean section as a result of big baby.

Traditional external cephalic version is believed to ensure normal lie and position of the baby, thus reduces the incidence of caesarean section.

Other trivial CAM practices identified by the respondents to be beneficial include: unidentified animal bone was said to be effective in the correction of CPD when it is hit by skilled practitioner on the pelvic region; olive oil, prayers and pregnancy ritual were believed to protect the baby from evil spirit and witchcraft; safety pin attached to the umbilicus was perceived to be useful in preventing threatened abortion. Some of these benefits of CAM identified by the respondents may be insignificant by virtue of the low numerical strength of the respondents who stated them, but it is worthy of note. This is because some of the CAM therapies identified as useful may not really be effective in managing the conditions claimed by the respondents although some may have undetected benefits.

Almost two third of the CAM users expected CAM used to improve their physical wellbeing and that of their baby while majority were either very satisfied or satisfied with effect(s) of CAM used. God desires good health for man and therefore every man desires good health. This affinity for good health may explain why majority of the users expected their CAM to improve their physical wellbeing and that of their baby. It is also not surprising that almost all the users were either very satisfied or satisfied with the effect(s) derived from the CAM used as all the users had either a satisfactory or good health status. It is more likely that

satisfaction derived from the effect(s) of CAM used would probably be rated appropriately by those whose health status were neither good nor satisfactory.

The benefits of CAM as identified by the respondents despite lack of scientific evidence of safety may be pointing to a promising potential. The theory of the HBM asserted that a health behavior may be adopted or strengthened if it is perceived to be beneficial with little or no barrier in accessing the health behavior. It could be argued that the respondents perceived the advantages of the CAM to outweigh the potential risk associated with unproven therapies and this may explain the high prevalence of CAM use among the respondents. Following holistic approach to health, the women are trying to heal or prevent conditions that they know conventional medicine could not address.

Research question 6

What are the adverse effects of CAM use as perceived by pregnant women in Udi LGA?

Although most of the pregnant women who used CAM asserted that they did not experience any adverse effects from the CAM used, supporting the usual assumption that CAM is natural and therefore safe, low but significant number (9.8%) reported adverse effects from the CAM used. Bleeding, diarrhoea and excessive urination were among the adverse effects reported in this study. This is in harmony with Ezeome & Anarado, (2007) study which stated that majority of the respondents did not experience any adverse effect from the CAM they used. The finding however does not agree with the result of Fakeye et al, (2009) who indicated that majority of the pregnant women studied were of the opinion that herbal remedies have adverse effects. This variation may be rooted on what is included under the umbrella of CAM, the pregnant women's level of knowledge on CAM and its constituents. It may also be that women are strongly convinced about the safety of CAM through

generational/historical use and therefore reluctant and/or biased against reporting any adverse effect(s).

Two thirds of the pregnant women who used CAM perceived CAM to be safe to both foetus and mother. About the same proportion were of the opinion that CAM is not harmful at any stage of pregnancy. This agrees with the report of Fakeye et al, (2009) which stated that approximately 30% of users claimed that herbal medicine use during pregnancy is safe. However, it contradicts Tamuno et al, (2011) who reported that more than half of users opined that herbal medicine use during pregnancy is not safe for both mother and foetus and about one third were of the opinion that use of drugs is dangerous throughout the period of pregnancy. Banda et al, (2007) stated that more than half of the respondents believed that traditional medicine could result to worse medical care.

In this study, the perception that CAM used is safe, that is do not have adverse effect(s) to mother, foetus and throughout pregnancy is not surprising. This is because most users utilized the CAM during the third trimester of pregnancy while users in Tamuno et al, (2011) used CAM mainly during the first and second trimester of pregnancy. CAM or even conventional medicine may carry less risk during the third trimester of pregnancy when mitosis and meiosis have been completed and the woman's body had relatively adjusted to the physiological changes that occur during pregnancy. Rahman et al, (2007) noted in their study that the use of unidentified herbal medicines during the first trimester were positively associated with perinatal mortality. They further stated that the use of unidentified herbs and coconut oil during the third trimester of pregnancy were protective against perinatal mortality. But they failed to explain the protective effects.

However it is unwise to use unproven therapies in favour of evidence based therapies. Even if the unproven therapies are safe, it may not be effective in dealing with the conditions for which it is being used, thereby posing both health and financial risks.

Research question 7

What is the relationship between the demographic characteristics of pregnant women in Udi LGA and use of CAM?

The result of the findings indicated that age has a very strong association with CAM use. Pregnant women who were middle aged (25 ñ 34 years) were found to be frequent users of CAM. This finding does not agree with Tabatabaee (2011) and Banda et al (2007) who reported that age is not associated with use of herbs during pregnancy. Forster et al, (2006) discovered a significant association between age and CAM use. According to Forster et al, (2006) women who are older use CAM more than those who are younger. The differences in age may be attributed to the age of marriage. There may be differences in age at which women from developed and developing countries marry.

Habits and pregnancy stage has mild association with the use of CAM during pregnancy. Women who neither drink alcohol beverages nor smoke tobacco use CAM more frequently than those who drinks or smokes. This result corresponds with Banda et al, (2007) who identified lifestyle and habit to be associated with use of herbs during pregnancy but in the opposite direction. Banda et al, (2007) stated that women who consume alcohol beverages are more likely to use herbs. Forster et al, (2006) also reported similar findings as in this current study. According to them, women who do not smoke seem to be frequent users of CAM.

Pregnant women were more likely to use CAM during the third trimester of pregnancy. The association between stage of pregnancy and CAM use as reported in this study is not in line with Tamuno et al, (2011) study which stated that first and second trimester were statistically significant with herbal use. This variation in the two studies is quite clear as most of the respondents in Tamuno et al, (2011) study used herbs mainly during the first trimester of pregnancy while in this present study, majority of the women used CAM during the third trimester.

Parity also has a moderate association with use of CAM among pregnant women in Udi LGA. Women who had four or less number of pregnancies were found to use CAM more than women who had more than four pregnancies. This agrees with Forster et al, (2006) who stated that parity is associated with CAM use, most especially primiparous use CAM more than multiparous women. However, the finding is not in harmony with Tabatabaee (2011) who stated that there was no statistically significant difference between women using and women not using herbs during pregnancy in terms of parity.

Marital status, level of education and occupation were not significantly associated with use of CAM in this study.

Implication of the study for nursing

Majority of pregnant women use CAM and conventional medicine concomitantly and lack of scientific evidence of safety and effectiveness is not a deterrent. This implies that nurses and midwives need to have a fundamental knowledge of CAM used during pregnancy, the benefits as well as adverse effect(s) of such therapies. This knowledge equips them to take history concerning their clients' use of CAM, record and evaluate the effect(s) of CAM used for future references. The clients should also be counseled appropriately to ensure best care and safety.

Most women claimed that CAM used was very useful. This implies that some CAM may have undetected benefits. Maternity health care providers especially midwives need to identify such remedies in order not to lose the opportunity to make use of the positive side of CAM in caring for their clients. Nurses/midwives are encouraged to participate in research in various aspects of CAM in order to validate safety and efficacy of CAM therapies.

Limitations of the study

Poor administrative and filing systems of the local government area authorities made it very difficult to obtain the statistics for the target population, and consent from the LGA chairman. It was also not easy to access the respondents. Several visits were made before obtaining the required sample size. It was very rigorous and time consuming collecting the data as the respondents could neither read Igbo nor comprehend the English version of the questionnaire. Each question in the questionnaire had to be interpreted and the answer recorded into the questionnaire. Paucity of literature as it concerns indigenous African traditional medicine was also a limitation to the study.

Suggestions for further studies

This study is a preliminary for further studies as there are lots of variables to be researched under CAM use among pregnant women. The researcher therefore suggests the following:

1. Determinants of CAM use among pregnant women.
2. CAM use and pregnancy outcome among pregnant women in rural and urban communities.
3. CAM use in the treatment of infertility among child bearing families.

Summary

This study was designed to determine the use of complementary and alternative medicine among pregnant women in Udi LGA. The specific objectives of the study were to determine the prevalence, types, patterns, reasons, benefits, adverse effect(s) and relationship between the demographic characteristics of pregnant women in Udi LGA and CAM use.

Literature was extensively reviewed on the concepts, theory and empirical studies. Cross sectional descriptive survey design was successfully adopted for the study. Systematic sampling technique was employed to draw a sample size of 400 pregnant women from the twenty wards in Udi LGA. Questionnaire was the only tool used for data collection. The data generated was statistically analyzed based on the research questions using graph pad prism version 5.03.

The major findings include a higher prevalence of CAM use among pregnant women in Udi LGA, more than that reported in similar studies carried out in Northern part of Nigeria. CAM used by pregnant women varied in number from one single type to sixteen different types with a mean of 4.1. The most frequently used CAM were among the biological products and alternative medicine. The most striking reasons for using CAM were to reduce the weight of the baby, cultural usage and accessibility of CAM. Most respondents believed that CAM used were beneficial despite the few that reported adverse effect such as threatened abortion from the CAM used.

Conclusion

Certainly most pregnant women in Udi LGA used some form of CAM including biological products, of which herb is the most common. Most of the CAM therapies were consumed orally and concomitantly with conventional medicine. CAM was mainly used for both

pregnancy- and baby- related reasons. While some CAM has adverse effect, some also have undetected benefits.

However, the perception that CAM is safe and therefore effective may be misleading. This is because safety does not transcribe into effectiveness. An approach or therapy may be safe but not effective in handling the condition that necessitated its use. If it is used in line with such conception, it may lead to worse conditions with associated health and financial implications.

Therefore maternity care providers especially midwives need to be conversant with CAM commonly used by women during pregnancy and rid themselves off misconceptions about CAM.

Recommendations

The role played by CAM in the contemporary maternity setting can no longer be dismissed as a faddish whim accessed by the less privileged people. It is certain that women use CAM during pregnancy despite lack of scientific evidence of safety. Based on this, the researcher recommends the following:

1. CAM should be included in the nursing and midwifery curriculum. This equips future nurses and midwives to be aware of therapies under the umbrella of CAM within their environment, identify the constituents, benefits and adverse effect(s).
2. Stake holders and policy makers in maternal and child health issues should draft and implement national policies and regulations to ensure sound evidence of safety, efficacy and quality of CAM. There is need to device measures to ensure rational use of CAM.
3. Enactment of policies to regulate the integration of scientifically proven CAM into conventional medicine should be considered.

4. The role of CAM practitioners as one of the important resources of primary health care services particularly in low income countries like Nigeria should be recognized.
5. The National Drug Law Enforcement Agency (NDLEA) and the National Agency for Food and Drug Administration (NAFDAC) should set up or expand and strengthen existing national drug safety monitoring systems to monitor use of CAM therapies.

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APPENDIX I

QUESTIONNAIRE ON USE OF COMPLEMENTARY AND ALTERNATIVE MEDICINE (CAM) AMONG PREGNANT WOMEN IN UDI LGA, ENUGU STATE

Department of Nursing sciences,
University of Nigeria
Enugu campus (UNEC)

Dear Respondents,

This questionnaire is designed to find out to what degree pregnant women employed complementary and alternative medicine during pregnancy. It is only a research work. The answer you give to the questions here will in no way influence how you are treated as an individual. The findings of this research will help us to understand our women better and improve the care that we render to them. I implore you to give as honest an answer to each question as possible. I guarantee your confidentiality.

SECTION A: Demographic data

Please circle and fill in as applicable

1. Age as at last birthday -----
2. Marital status
 - a. Married
 - b. Not married
 - c. widow
 - d. divorced /separated
3. Highest level of education attended:
 - a. No formal education
 - b. Primary education
 - c. Secondary education
 - d. Tertiary education
4. What do you do for a living (occupation)? -----
5. What is your religion?
 - a. Christian religion
 - b. Islamic religion

- c. Traditional religion
- 6. What are your habits?
 - a. Drinks at least 500ml of alcohol beverages daily-----, weekly----, monthly----
 - b. Smokes cigar or tobacco daily-----, weekly----, monthly----
 - c. Others, please specify -----
 - d. Not applicable
- 7. How many times have you been pregnant? -----
- 8. How old is this current pregnancy? -----
- 9. How many surviving children do you have? -----

SECTION B:

- 10. How would you rate your overall health?
 - a. Satisfactory
 - b. Good
 - c. Not good
 - d. Seriously sick
- Objective one: To determine the prevalence of CAM use among pregnant women in Udi LGA.
- 11. Have you used any medicine or remedy (traditional medicine) since you discovered you were pregnant?
 - a. Yes
 - b. No
 - 12. Are you currently using any traditional medicine or remedy since you discovered that you were pregnant?
 - a. Yes
 - b. No

Objective two: To ascertain the various classes of CAM women in Udi LGA use during pregnancy.

- 13. If yes to 12 and 13 above, please tick all the traditional medicine you have used and/or currently using and the route of administration.

	Traditional medicine/ products	Oral consumption	Topical application	Insertion	
✚	Plants products				
	Ginger				
	Aloe Vera				
	Pumkin seed				
	Morringer seed				
	Garlic				
	Unripe whole fruits				
	Cowpea leaves				
	Herbal mixtures				
	Herbal tea				
	Aboshi				
	Vegetable (Ariraa)				
	Olive oil				
	Castor oil				
	Nutritional supplement				
	Bitter cola				
✚	Animal products	Drinks it thru the mouth	Robs it on the body	Massage/ manipulation	Consultations with provider
	Wall gecko				
	Honey				
	Hitting the pelvic region with a specific animal bone				
✚	Alternative medicine				
	Folk remedies				
	Natural remedies				
	Traditional birth attendant				
	Traditional external cephalic version				
✚	Spiritual therapies	Fasting	Recitation	Incantation	Visits
	Faith/ prayer				
	Vision				
	Meditation				
	Divination				
	Cleansing				

14. Are there other traditional medicine or remedies/products/ not listed above which you have used and/or using?

a. Yes

b. No

15. If yes, please specify-----

16. Do you hope to use such traditional medicine or remedies again during subsequent pregnancy

- a. Yes b. No C. may or may not use

Objective three: to identify patterns of CAM use among pregnant women in Udi LGA.

17. At what stage of pregnancy did you use the traditional medicines or remedies you ticked?

- | | |
|------------------|------------------|
| a. 0 to 3 months | d. 0 to 6 months |
| b. 4 to 6 months | e. 4 to 9 months |
| c. 7 to 9 months | f. 0 to 9 months |

18. Which of the following statement best explain how you have been using the traditional medicines or remedies and medicine given to you in the hospital by a medical practitioner?

- a. You use only one of the medicine at a time
- b. You use both the traditional medicine or remedies and medicine given to you in the hospital together

Objective four: to determine reasons of CAM use as perceived by pregnant women in Udi LGA.

19. What are your reasons for using each of the traditional medicine or remedies you ticked?

- a. To reduce the weight of the unborn child (Slimming)
- b. For sex selection of the baby
- c. To relieve morning sickness
- d. Prevents exchange of the sex of the baby
- e. Protects the unborn child from evil people and evil spirit
- f. To beautify the unborn baby.
- g. Such remedies are safe alternatives to drugs obtained from the hospital
- h. It allows women to have a holistic health philosophy in line with their health belief
- i. It is traditionally and culturally accepted to use such remedies in our place
- j. Traditional remedies are easily accessible
- k. I have been using it from birth
- l. Other reasons for using traditional remedies not listed in (22) above, please specify -----

20. How much money do you think you have spent on traditional medicines since you discovered you were pregnant?

- a. Less than N1,000
- b. N1,000-5,000
- c. More than N5,000
- d. Cannot remember

21. Do you regret spending such amount on CAM?

- Yes
- b. No

Objective five: to determine benefits of CAM use as perceived by pregnant women in Udi LGA.

22. Did you find any of the traditional remedies useful (beneficial)?

- a. Yes
- b. No

23. If yes, which one? Please specify _____

24. What was the benefit? -----

25. If you are currently using any traditional medicine, what benefits do you hope to get from the use? Please tick only one.

- a. To help treat/cure any pregnancy discomfort which you have
- b. To boost your immune system
- c. To help promote and maintain your health
- d. To improve your psychological/emotional well-being
- e. To improve your physical well being and that of the baby

26. How satisfied are you with the effects you derive from the use of traditional remedies?

- a. Very satisfied
- b. satisfied
- c. disappointed
- d. Cannot tell any difference

Objective six: to ascertain adverse effects associated with use of CAM as perceived by pregnant women in Enugu State.

27. Did you experience any unwanted effects from the CAM you used?

- a. Yes
- b. No

28. If yes, which one? Please specify -----

29. What was the unwanted effect? Please specify -----

30. Traditional medicine use is harmful to:

- a. Mother
- b. Fetus
- c. Both mother and fetus
- d. It is not harmful at all

31. Traditional medicine use is harmful during:

- a. 0 to 3 months of pregnancy
- b. 4 to 6 months of pregnancy
- c. 7 to 9 months of pregnancy
- d. Throughout pregnancy
- e. It is not harmful in any stage of pregnancy

APPENDIX II

AJUO AZAA MAKAA OGWU MGBOROGWU NA NKPOAHIHIA NKE A NA- AKPO COMPLEMENTARY AND ALTERNATIVE MEDICINE (CAM) NA ONU OYIBO, NA ETITI UMUNWANYI DI IME UDI LGA NKE DI NA ENUGWU STETI.

Ngalaba nke ndi nos,
Mahadum nke ala anyi bu Nigeria
Ngalaba nke Enugwu (UNEC)

Ndi nkem, umunwanyị di ime,

Akwukwo ajuo azaa a bum aka I choputa ihe di iche iche na abughi ogwu oyibo, umunwanyị di ime ji elekota onwe ha na nwa ha bu na- afo tupu amuo ya bu nwa. Osisa I ga enye maka ajuju o bula ajuru gi agaghi emetuta etu ndi ahu ike si elokota gi. Nchoputa obula e nwetara na nyocha a ga- enyere anyi aka iji lekota umunwanyị di ime nkeoma. Biko a na m ayo ka osisa I ga- enye gbasara ajuju obula ajuru gi buru nke ziri ezi. O nweghi ihe obula ga- egosi na o bu gi nyere osisa ahu.

Isi nke A: ajuju iji mata onye I bu

Biko dejuo ma obu tinye akara uhie na ebe kwesiri.

1. Afo ole ka igbara site na mgbe ncheta omumu gi nke ikpeazu? -----
2. Nkwudo gbasara alum din a nwunye
 - a. Onye luru di
 - b. Onye alughi di
 - ch. Onye di ya nwuru anwu
 - e. Onye ya na di ya gbasara ma obu kewaa
3. Kedu ebe I gudebere akwukwo?
 - a. A gughi m akwukwo ma oli
 - b. Akwukwo primari
 - ch. Akwukwo sekondiri
 - e. Akwukwo mahadum
4. Kedu oru ma obu ihe I na- eme I ji e nyere onwe gi aka? -----

5. Kedu ofufe nro gi ma obu uka I na- ekpe?
 - a. Uka ndi otu Christ

b. Uka alakuba

ch. Uka omenala

6. Kedu ihe ndi na amasikari gi?

a. Inu mmanya na- aba na anya, opekata mkpe out ololo bia. kwa ubochi -----, kwa izuuka----
, kwa onwa----

b. Ise anwuru: kwa ubochi -----, kwa izuuka----, kwa onwa----

ch. O nwee ihe ndi ozo na amasi gi a na- edeghi na akwukwo a, biko denye ya -----

d. O nweghi ihe ndia nke na amsi mē ē ē ē ē ē ē ē ē ē ē ē ..

7. Ntu ime ole ka I tuolala? -----

8. Onwa ole ka afo ime nkea di? -----

9. Umu gi ole di ndu? -----

NGALABA B:

10. A si gi kwuo, kedu ka ahu di gi?

a. Ahu di m mma nke ukwu

b. Ahu di m mma

c. Ahu adighi m mma

d. ahu adighi m mma ma oli

11. O nwere ogwu mbgorogwu na mkpoahihia I jirila lekota onwe gi na afo ime a?

a. Eee

b mba

12. O nwere ogwu mbgorogwu na mkpoahihia I ji elekota onwe gin a afo ime gi ugbua?

a. Eee

b mba

13. O buru na osisa gi bu eee na ajuju maka ajuju nke iri na otu na ajuju nke iri na abuo,
biko tinye aka na akwukwo gbasara ogwu ndi I jirila lekota onwe gi na afo ime.

	Ogwu mbgorogwu	Inu site na onu	Ite ya na ahu	Itinye ya nāme ahu	
✚	Ogwu osisi				
	jinja				
	Alo Vera				
	Mkpuru ugu				
	Mkpuru moringa				
	Galik				
	Mkpuru osisi achaghi acha				
	Akwukwo fio-fio				
	Akwukwo osisi di iche iche				
	Mmiri akwukwo ma obu mgborogwu				
	Akwukwo Aboshi				
	Ariraa				
	Mmanu olive				
	Mmanu ukpaka				
	Akurungwa erimeri di iche iche				
	Aki ilu				
✚	Ihe ndi esi na ahu umu anumani meputa	Inu ya site na onu	Ite ya na ahu	Iji aka mibaa ya nāme ahu	Ijekwuru ndi na ahu maka ya
	Ogwu eji aghauno meputa				
	Mmanu anu				
	Iku okpukpu anumani na ukwu				
✚	Ogwu nochiri anya ogwu oyibo				
	Ogwu ndi nna nna anyi ha jirila				
	Umunwanyi na eji ime nāme obodo				
	I chighari onodu nwa no nāme afo				
✚	Ogwu nke ime mmuo	ebumonu	Ihe ogugu	Ime amansi	Ije hu ndi o bu olu ha
	Okwukwe/ekpere				
	Ifu ofu ma obu ihu uzo				
	Itughari uche/ mmuo nāhe gbasara mmuo				
	Igba afa				
	Inucha mmadu				

14. O nwere ogwu mgborogwu na mkpoahihia ndi ozo a na edeghi na akwukwu a I jirila lekota onwe gin a afo ime gi?
a Eee
b mba
15. O buru na osisa gi bu eee na ajuju nke iri na ano, biko deputara anyi ogwu ndi ahu----

16. I nwere nchekwube iji ogwu mgborogwu na mkpoahihia lekota onwe gi ma idi ime mgbe ozo?
a. Eee b. mba C. amabeghi
17. Onwa ole ka afo ime gi di mgbe I bidoro nuba ogwu ndia I deputara?
a. onwa efu ruo onwa ato d. onwa efu ruo onwa isii
b. onwa ano ruo onwa isii e. onwa ano ruo onwa iteghete
ch. Onwa asaa ruo onwa iteghete f. onwa efu ruo onwa iteghete
18. Kedu ka isi eji ogwu mgborogwu na mkpoahihia na ogwu oyibo elekota onwe na afo ime?

a. A na m anu otu nāime ha mgbe m choro inu ogwu
b. A na m anukota ha abuo otu mgbe
19. Kedu ihe ndi kpatara iji anu ogwu ndi ahu I deputara?
a. O na- eme ka nwa ghara ibu oke ibu na afo
b. E ji ya ahoro nwa nwokeFor
c. O na akwusinata ahu ina nwanyi di ime
d. O na eme ka sex nwa hapu ichighari
e. O na- echekwa nwa ebu na afo nāaka ajo mmuo na ajo mmadu
f. E ji ya acho nwa ebu na afo mma.
g. Ogwu ndi ahu di ire karia ogwu oyibo, ahu nwanyi di ime na anbatakwa ya
h. O na enye umunwanyi di ime ohere ihoru ogwu ha choro dika okwukwe ha siri di
i. O bu ogwu ndi be anyia nabatara maka umunwanyi di ime
j. I nwere ike inweta ya mge obula I choro, onaghikwa agara onu
k. A nubara ya ka mgbe m bu nwata
l. O buru na o nwere ihe ndi ozo kpatara I ji anu ogwu ndia a na- edeputaghi na ajuju nke iri na iteghete, biko deputa ihe ndi ahu -----

20. Ego ole ka o di gi ka I tinyere na ogwu ndi ahu Inuru na afo ima a deputara?
- Orughi otu puku naira
 - Site na ootu puku naira ruo puku naira ise
 - Ihe kariri puku naira ise
 - E nweghi m ike icheta Cannot remember
21. O na ewute gin a I mefuru ego di etu ahu?
- Eee
 - mba
22. O nwere ogwu ndi ahu bara gi uru?
- Eee
 - mba
23. O buru na osisa gi eee na ajuju nke iri abuo na abuo, biko deputa ndi ahu bara gi uru?
- ë ë ë ë ë ë ë ë ë
24. Kedu uru ogwu ndi ahu baara gi? -----
25. o buru na I ka na nu ogwu ndi ahu I deputara, kedu uru I chekwubere na I ga enweta na ha? Biko tinye akara na otu osisa.
- O na enyere aka igwo oria ma obu mmekpa ahu so afo ime
 - O na bulite ihe na cho oria na ahu mmadu
 - O na edozi ma na abulitekwa ahu ike
 - O na ebulitekwa mmuo, na eme ka
 - O na ebulite ahu ike nwanyi di ime na nke nwa o bun a afo
26. Kedu ka isi huta oru na uru ogwu ndi ahu I deputara bara?
- E nwere m obi anuri na afo ojuju nāhe ogwu ahu ruru nke ukwu
 - E nwere m obi anuri na afo ojuju nāhe ogwu ahu ruru
 - Afo ejughi m gbasara ogwu ndi ahu
 - E nweghi ike I kowa ma afo ejuru
- 27 O nwere ihe mmekpa ahu I nwetara na ogwu ndi ahu ijirila lekota onwe gi?
- Eee
 - Mba
- 28 O buru na osisa gi bu eee na ajuju nke iri abuo na asaa, biko deputa ogwu ndi butere ihe mmekpa ahu ndi ahu -----
- 29 biko deputa ihe mmekpa ahu ndi ahu -----
- 30 ogwu mgborogwu na mkpoahihia adighi mma na ebe:
- nne no
 - nwa ebu na afo no
 - nne na nwa ebu na afo no
 - odighi emetuta ndu nne na nwa ebu na afo ma oli

31. ogwu mgborogwu na mkpoahihia di njo site na:

- a. onwa efu ruo na onwa ato
- b. onwa ano ruo onwa isii
- c. onwa asaa ruo onwa iteghete
- d. onwa efu ruo onwa iteghete
- e. Odighi na onwa obula nke afo ime

APPENDIX III

Break down of CAM used by pregnant women in Udi LGA of Enugu State.

Types of CAM	Frequency (%)
Biological products:	
Ginger	19(5.8)
Aloe Vera	3(0.9)
Pumpkin seed	2(0.6)
Morringer seed	7(2.2)
Garlic	12(3.7)
Unripe whole fruit	2(0.6)
Herbal mixtures	110(33.8)
Herbal tea <i>mvuruinu</i>	102(31.4)
<i>Aboshi</i> stem and leaves	8(2.5)
Vegetable <i>ariraa</i>	14(4.3)
Olive oil	79(24.3)
Castor oil	1(0.3)
Nutritional supplement	3(0.9)
Bitter cola	34(10.4)
Wall gecko-honey remedy	2(0.6)
Honey	16(4.9)
Alternatives:	
Traditional birth attendants	197(60.6)
Folk remedies	66(20.3)
Traditional external cephalic version	82(25.2)
Natural remedies	11(3.4)
Hitting animal bone on the pelvic region	11(3.4)
Spiritual therapy:	
Faith/prayer	78(24)
Vision	25(7.7)
Pregnancy ritual	21(6.5)
Cleansing/deliverance	15(4.6)
Divination	11(3.4)

Others:	Meditation	2(0.6)
	Holy water	6(1.8)
	Mustard seed	4(1.2)
	Dogo yaro leaves	3(0.9)
	Coconut water	2(0.6)
	Safety pin attached to the umbilicus	5(1.5)
	Sperm	3(0.9)
	Utazi	3(0.9)

APPENDIX IV

Reliability Test of the Instrument used to collect data using split half reliability co-efficient
and Pearson Product Moment Correlation formula

Let the odd numbers represent X and even numbers represent Y. n=38

S/N	X	Y	X ²	Y ²	XY
1	33	34	1089	1156	1122
2	32	32	1024	1024	1024
3	31	31	961	961	961
4	28	31	748	961	868
5	31	33	961	1089	1023
6	20	33	400	1089	660
7	32	28	1024	784	896
8	32	30	1024	900	960
9	33	33	1089	1089	1089
10	34	29	1156	841	986
11	30	31	900	961	930
12	33	34	1089	1156	1122
13	30	28	900	784	840
14	31	28	961	784	868
15	33	33	1089	1089	1089
16	30	33	900	1089	990
17	28	28	784	784	784
18	31	32	961	1024	992
19	32	30	1024	900	960
20	28	0	784	0	0
Total	612	591	18,904	18,465	18,164

$$R = \frac{N \sum XY - \sum X \sum Y}{\sqrt{[N \sum X^2 - (\sum X)^2] [N \sum Y^2 - (\sum Y)^2]}}$$

$$R = \frac{40 \times 18164 - 612 \times 591}{\sqrt{[40 \times 18904 - 612 \times 612] [40 \times 18465 - 591 \times 591]}}$$

$$R = 0.9595.$$

APPENDIX V

Proportionate Sample Size Calculation for the twenty wards

S/N	Wards	Calculations	Sample Size
1	Abia	$186 \times \frac{400}{1204}$	62
2	Abor	$41 \times \frac{400}{1204}$	14
3	Afa/ Ikono/ Oghu	$463 \times \frac{400}{1204}$	154
4	Akpakwume/ Nze	$21 \times \frac{400}{1204}$	7
5	Amokwe	$45 \times \frac{400}{1204}$	15
6	Ebe	$65 \times \frac{400}{1204}$	22
7	Egede/ Umuoka	$71 \times \frac{400}{1204}$	23
8	Eke	$20 \times \frac{400}{1204}$	7
9	Nachi	$29 \times \frac{400}{1204}$	10
10	Ngwo Asaa	$4 \times \frac{400}{1204}$	1
11	Ngwo Uno	$0 \times \frac{400}{1204}$	0
12	Nsude	$31 \times \frac{400}{1204}$	10
13	Obinagu	$44 \times \frac{400}{1204}$	15
14	Obioma	$25 \times \frac{400}{1204}$	8
15	Okpatu	$28 \times \frac{400}{1204}$	9
16	Udi/ Agbudu	$0 \times \frac{400}{1204}$	0
17	Ukana/ Awhum	$37 \times \frac{400}{1204}$	12
18	Umuabi	$66 \times \frac{400}{1204}$	22
19	Umuaga	$28 \times \frac{400}{1204}$	9
20	Umulumgbe	$0 \times \frac{400}{1204}$	0
	Total		400

APPENDIX VI

Focus Group Discussion

Introduction

Greetings to all. My name is Enuma, Onyia from Department of Nursing Sciences, University of Nigeria, Enugu Campus. With me here is Chidiebere Ezenwugo and Okolo Nancy from the same department. We are students conducting research on Traditional medicines or remedies used by women during pregnancy in this community. But before we continue, we would like to know your names. We are here this morning to discuss what pregnant women use during pregnancy in terms of traditional medicines and practices, nutritional and /or behavioural taboos etc. This is a discussion meeting. You are to answer questions and also ask questions. Please provide details when answering the questions.

Questions:

1. Tell us all you know about what pregnant women use during pregnancy in order to sustain the pregnancy, maintain and promote health?
2. How are the items mentioned used and at what stage of pregnancy do they use such items?
3. What do you think are the reasons why pregnant women use such products or practices during pregnancy?
4. Why do pregnant women use traditional medicine in place of conventional medicine?
5. What do you have to say about the effect(s) of such products / practices on both mother and child?
6. Are there questions you want to ask us?

Thanks. Please respond to us if we call you next time.

APPENDIX VII

CERTIFICATE OF INFORMED CONSENT

Title of Project: Complementary and Alternative Medicine (CAM), use among pregnant women in Udi LGA of Enugu State.

I understand the purpose of the study as well as the potential benefits of participating in the study. I had the opportunity to ask questions and my questions have been answered. I hereby give my informed consent to participate in this study. I understand that by signing this informed consent, I authorize the researcher to obtain information from me regarding use of CAM in line with procedures for data collection.

I realize that the information obtained from this study, including results of the findings will be held in both computerized and paper filing system without identifying me.

I understand that I am free to withdraw from the study at any time without giving a reason for withdrawal and that it will not affect my future medical care.

Respondent's Signature _____, Date _____

Respondent's Name _____

I the undersigned have fully explained the relevant details of this study to the respondent signed above to consent.

Researcher's Signature _____, Date _____

Researcher's Name _____