UNIVERSITY FOR DEVELOPMENT STUDIES

PERSPECTIVES OF MIDWIVES ON THE USE OF KALIGUTIM (LOCAL OXYTOCIN) FOR INDUCTION OF LABOUR AMONG PREGNANT WOMEN IN THE THREE MAJOR GOVERNMENT HOSPITALS IN TAMALE

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BY

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Thesis Submitted to the Department of Population and Reproductive Health, School of Public Health, University for Development Studies, in partial fulfilment of the requirements for award of Master of Public Health in Maternal and Child Health

AUGUST, 2022

DECLARATION

Student

I hereby certify that this thesis is original and the result of my own hard work under the guidance of Dr. Alhassan A. Sukerazu, with the exception of reference to other writers' works that have been appropriately acknowledged. It excludes any documents that have already been submitted by another person and accepted for the award of a degree at this university or somewhere else.

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ABSTRACT

The use of herbal medicine and/or its products is common throughout the world. In Tamale metropolis, pregnant women frequently use local oxytocin to induce labor, as shown by the fact that 90% of midwives reported managing patients who used kaligutim(local oxytocin) to speed up labor. Early career midwives are also aware of this and have personally observed it being used by their clients. The purpose of the study was to assess midwives' opinions on pregnant women's use of the well-known kaligutim (local oxytocin) for labor induction in the Tamale Metropolis. A facility-based cross-sectional research design was used for the study using a quantitative method. A total of 214 working midwives from Tamale's three main public hospitals participated. Data for the study were gathered through a standardized questionnaire. For the analysis and presentation of the data, descriptive and analytical statistics, such as basic frequencies, percentages, fisher's exact test, chi square test and multivariate analysis were employed. According to the findings of this study, the safety, dosages, and contraindications of kaligutim during pregnancy and labor are unknown. A cessation in contractions was reported by 44 (22.4%) of the respondents whose clients took the local oxytocin. The study also discovered that women in Tamale metropolis use "walgu", a spiritual form of oxytocin, to induce and augment labor. Respondents who responded yes to baby was admitted at the New-born Care Unit were 25% more likely to use kaligutim (local oxytocin) as compared to those who responded no to baby was admitted at the New-born Care Unit [(AOR= 0.25 95% CI (0.01, 0.53), P=0.021)]. It can be concluded that using kaligutim to start labor has negative effects on both the mother and the fetus. Additional research is required to evaluate the efficacy, effectiveness, biochemical makeup, and safety of these herbal medicines, particularly during pregnancy and delivery, as well as the spiritual significance of kaligutim (Walgu) and its forms.

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DEDICATION

This piece of work is dedicated to the almighty God for his guidance and protection throughout my study.

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LIST OF ABBREVIATIONS/ACRONYMS

ANC	Antenatal care
CAM	Complementary and alternative medicine
DIC	Disseminated intravascular coagulation
ENT	Ear, nose and throat
FMHCP	Free maternal health care policy
GHS	Ghana health service
GES	Ghana education service
HTI's	Health training institutions
MMDA	Metropolitan, municipal and district assemblies
MOH	Ministry of health
MDG's	Millennium development goal's
NHIS	National health insurance scheme
OPD	Outpatient department
PNC	Postnatal care
РРН	Postpartum hemorrhage
SDG's	Sustainable development goals

- TBA Traditional birth attendant
- TM Traditional medicine
- TCH Tamale west hospital
- TWH Tamale central hospital
- TTH Tamale teaching hospital
- WHO World health organization

CHAPTER ONE

INTRODUCTION OF THE STUDY

1.0 Introduction

This chapter presents information about the background of the study, what the problem is and why it is important to study it, research questions, objectives of the study and conceptual framework of the study.

1.1 Background of the study

Maternal and child health is a major priority in healthcare service delivery all over the world (Azaare et al., 2020). Women in both developed and developing countries use herbal medicine before pregnancy, during pregnancy and delivery and this comes with several consequences (John & Shantakumari, 2015). And the use of herbal medicine has a long historical background tracing its roots back to the ancient and biblical days when there was no Orthodox medicine. Currently, both developed and developing countries use herbal medicine and it is due to the presence of many traditional medicine practitioners (Mekuria et al., 2017).

Many cultures worldwide use herbal medicine to induce or accelerate labor and the incidence of induction of labor to shorten the duration of labor is on the rise. Most herbal medicine users are pregnant women who have no formal education, low level of income and mostly stay far away from health facilities (Shewamene et al., 2017). Majority of pregnant women use herbal medicine through the oral route and have confidence in its efficacy, safety and effectiveness (Nyeko et al., 2016). Herbal medicine is used by women for maternal health related issues, such as to induce abortion and labor, to correct infertility, for the treatment of pregnancy related issues, breast milk secretion and for general wellbeing during pregnancy (Shewamene et al., 2017).

Women who use herbal medicine during pregnancy and/or labor usually have high risk of postpartum complications (Fukunaga et al., 2020). Again the use of herbal uterotonics can lead to hyperstimulation of the uterus, fetal asphyxia and several other adverse effects of labor (Tripathi et al., 2012). Moreover traditional medicine used by pregnant women comes with several complications including raptured uterus, fresh still birth, macerated still birth, caesarean section and even death of the woman (Maliwichi-nyirenda & Maliwichi, 2015). These herbal medicines have both uterotonic and non-uterotonic effects in labor and delivery and are mostly used to induce or augment labor in prolonged labor or postdate or to relax or widen the pelvis for delivery (Tripathi et al., 2012).

Maternal and neonatal deaths are still a major challenge to most developing countries with obstetric complications especially postpartum hemorrhage (P.P.H) being the major cause of maternal mortalities (Amanuel et al., 2021). Child birth is accompanied by numerous customs that are subject to ethnological research, often rooted in traditional medicine or religion. Cultural influences and sociodemographic characteristics play an important role in a woman's decision to seek maternal and child health services.

It is the fundamental right of every human being to have access to high attainable standard of health irrespective of their race, religion, political belief, economic or social condition (Saeed et al., 2013). Complex factors in the health system as well as the community, household and individual level all determine access to healthcare services. Ghana adopted a strategy in 2008 to help achieve the Millennium Development Goals (MDG's) now known as the Sustainable Development Goals (SDG's) which is to reduce maternal and child mortality (Azaare et al., 2020). The strategy permits free registration with the National Health Insurance Scheme (NHIS) for all

expectant women, following which they are eligible for free care for the duration of their pregnancy, during labor, and for three months following delivery (Dalinjong et al, 2018).

Induction of labor is the process of artificially starting labor by stimulating the uterus by the use of oxytocin or manually by the rapture of amniotic membranes, it is usually not risk free and most women find it to be uncomfortable (WHO, 2018). Induction of labor is an obstetric procedure recommended when the benefits to baby and mother outweigh the benefits of continuing the pregnancy, usually comes with complications and failures and must be done under close monitoring, proper selection of clients and good preparation (Lawani et al., 2014).

Labor induction also changes the normal physiological processes that comes with childbirth and increases the risk of adverse pregnancy outcomes like postpartum hemorrhage, neonatal mortality, fetal distress, uterine rapture and premature birth (Zamawe, King, Jennings, & Fottrell, 2018). Oxytocin is a natural hormone produced by the hypothalamus and responsible for the activation of sensory nerves during labor and during breastfeeding (Roopasree et al., 2019). Clinically there is a commercially manufactured synthetic oxytocin which is administered to commence or increase uterine activity to reduce the duration of labor (Espada-trespalacios et al., 2021).

Induction of labor is not free from risk and must be done with caution because the procedure carries hyper stimulation of the uterus and fetal distress (WHO, 2011). The use of herbal medicine by pregnant women has a long-term effect on both the mother and the baby (Ayelyini et al., 2019). Many pregnant women in the Tamale Metropolis use pre-packaged herbal medicine before and during pregnancy (Paul, Ameade, Zakaria, et al., 2018). Health related factors like cost, distance, access and unavailability of medications have an influence on the utilization of herbal medicine by pregnant women (Ayelyini et al., 2019).

All women should be given a prophylactic dose of oxytocin as soon as they give birth; if they start to hemorrhage, they should also be given a treatment dose of oxytocin, which is greater than the prophylactic dose (Jhpiego, 2014). There is also a traditional manufactured form of oxytocin (kaligutim) which pregnant women use to start labor. Kaligutim is the local name of the mixture of some special plant's parts or a combination of plants prepared and given to pregnant women to start or accelerate the process of labor in the northern part of Ghana (Ayelyini et al., 2019).

1.2 Problem statement of the study

Ideally women are supposed to take medical drugs during pregnancy (folic acid and fersolate) to help prevent birth defects and congenital malformations like neural tube defects of the fetus and spinal bifida during pregnancy (Barišić et al., 2017). But for the past decades women all over the world use herbal medications during pregnancy and labor with some taking both herbal medicine and orthodox medicine at the same time (Ameade et al., 2018). Despite this, little is known about the use and safety of these medicines especially during pregnancy, the dosages, indications and contraindications are not also known (Illamola et al., 2020).

There are studies on herbal medicine use by women during pregnancy and labor but there is currently no literature on the use of Kaligutim (local oxytocin) for labor induction among pregnant women in Ghana but similar studies have been conducted in Uganda, Malawi, Tanzania and Nigeria. Despite the efforts of government and other non-governmental organizations to ensure maximum coverage of skilled delivery to help reduce maternal and neonatal mortalities, women still use locally prepared oxytocin to induce labor. Although herbal medicine is commonly used by pregnant women, healthcare providers especially midwives are often unprepared to communicate effectively with patients or make proper decisions concerning complementary and alternative medicine use especially during pregnancy and labor (Bahall & George, 2017).

It is openly known that herbs have played a vital role since the precolonial era during pregnancy, delivery and postpartum care in many parts of the country but there is still scanty data on the use of herbs among pregnant women in Ghana (Peprah et al., 2019). Towards the end of pregnancy, a lot of women are tired and eager to welcome their babies into the world. And as the expected date of delivery approaches these women are given local oxytocin by their mother in-laws, grandmothers, mother's, TBA'S or even by the women themselves to start labor at home before going to the health facility (Kamatenesi-mugisha & Oryem-origa, 2007).

Medicinal plants that are used to hasten or speed up labor are mostly taken towards the end of pregnancy or the beginning of labor (Ngoma, 2017). These herbs even after delivery may be found in small amounts in the mother's breast and some may cross the placental barrier and have harmful effects on the baby. The use of herbal medication by pregnant women is inevitable given that up to 80% of people who live in developing nations rely on traditional medicine for their healthcare needs (Paul, Ameade, Zakaria, et al., 2018).

The situation in Ghana especially Northern Ghana is not different as pregnant women continue to use herbs despite the availability of health facilities (Peprah et al., 2019). It is an established fact from the above that, the use of herbal medicine (kaligutim) among the Ghanaian population is alarming. Pregnant women in Tamale use herbal products at a rate of 42.5% prior to pregnancy and 52.7% during pregnancy (Zakaria & Abubakar, 2018). Residents of Tamale who seek healthcare services in hospitals or herbal clinics are therefore at a higher risk of experiencing the adverse consequences of drug-herb interactions (Paul, Ameade, Ibrahim, et al., 2018).

Herbal product manufacturers should clearly state that pregnancy is a contraindication, and vendors should use caution when selling these items to pregnant women (Zakaria & Abubakar, 2018). The use of herbal medicine by pregnant women has a long-term effect on both the mother

and the baby (Ayelyini et al., 2019). In the unfortunate event, maternal and neonatal deaths may occur and hence the need to explore the perspectives of midwives on the use of kaligutim (local oxytocin) for induction of labor among pregnant women in the three major government hospitals in Tamale

1.3 Research Questions

- What are the experiences of midwives on the use of Kaligutim (local oxytocin) by pregnant women for the induction of labor?
- What are the effects of Kaligutim (local oxytocin) usage on the progress of labor?
- What are the effects of Kaligutim (local oxytocin) usage on the outcome of labor?
- What is the relationship between Kaligutim (local oxytocin) use and birth outcome?

1.4 Objectives of the Study

1.4.1General Objective

 To examine the perspectives of midwives on the use of Kaligutim (local oxytocin) for induction of labor among pregnant women in the three major government hospitals in Tamale Metropolis.

1.4.2 Specific Research Objectives

- To examine the experiences of midwives on the use of kaligutim (local oxytocin) by pregnant women for induction of labor.
- To examine the effects of Kaligutim (local oxytocin) on the progress of labor.
- To identify the effects of Kaligutim (local oxytocin) usage on the outcome of labor.
- To establish the relationship between Kaligutim (local oxytocin) use and birth outcome.

1.5 Significance of the study

Approximately 810 women died in 2017 from preventable causes related to pregnancy and childbirth (WHO, 2019). There is the need for skilled care before, during and after childbirth to help save the lives of women and newborns (Damian et al., 2020). The issue of the use of Kaligutim (local oxytocin) by pregnant women is a maternal and child health problem. Maternal and child health service is an important and essential service related to the overall development of mother and child.

The delivery of healthcare services is still of poor quality in developing nations (James et al., 2018). Maternal and fetal mortality and morbidity have remained high due to inadequate health services and inadequate emergency obstetric treatment. The study seeks to explore midwives' perspectives with local oxytocin use during labor, its effects and impact on the progress and outcome of labor respectively and the relationship between kaligutim use and birth outcome.

The main purpose of this study is to fill the research gap and add to existing knowledge by analyzing the perspectives of midwives on the utilization of Kaligutim (local oxytocin) by pregnant women in Tamale to induce labor. Taking evidence from Northern Ghana at the three major government Hospitals in Tamale. The findings will be used in health education, antenatal clinics, and community durbars. This will also advise health-care providers especially midwives about ways to improve obstetric care.

It will also serve as a starting point for future studies on the use of herbal medications during pregnancy and labor. The study will help mothers between the ages of 15 and 49 who are fertile by reducing maternal mortality and complications linked to the usage of kaligutim, a substance

known to induce labor and solve pregnancy related problems. If maternal mortality is decreased, it will also help with attaining the sustainable development goals, particularly goal three.

The study will also be relevant to philanthropic organizations and agencies that are working in the areas of maternal and child health such as UNICEF to use it as a supporting document for the implementation of their strategic plans. The findings of the study will also serve as a reference document to health institutions for policy formulation and implementation on maternal and child health with particular reference to pregnant women.

1.6 Limitations of the study

Time has been very challenging in the whole process of this research. The duration for the study was not sufficient to conduct a very sensitive investigation such as this. In addition to this was also resources limitation, fuel and transport. The support from family members and friends help to overcome the financial challenges. Another challenge was delay in getting ethical approval from authorities to collect data. Unwillingness of some respondents to answer the questionnaire was again a challenge in writing this dissertation.

1.7 Theoretical foundation

Ronald M. Andersen's Behavioral Model of Health Service Utilization (1968).

This study adopted and adapted Andersen's Behavioral model of healthcare service utilization (Use and non-use of health services). The Andersen's healthcare utilization model is a conceptual model aimed at demonstrating the factors that lead to the use/non-use of health services. The study was guided by Andersen's Behavioral Model of Health Service use as a theoretical framework to identify the effects of Kaligutim on the progress and outcome of labor respectively and to establish the relationship between the use of Kaligutim and non-use of kaligutim and birth outcome. The

Behavioral Model is a multilevel model that incorporates both individual and contextual determinants of health services use.

1.8 Conceptual framework

Many people rely on products made from medicinal plants to maintain their health or treat illness, and current general development trends in developing and developed countries suggest that consumption of medicinal plants is unlikely to decline in the short to medium term because of the benefits to consumers, producers, and society as a whole (Smith-Hall et al., 2012). Therefore, there is the need to increase our understanding of what motivates the consumption of medical plants, despite the barriers to the establishment of a solid evidence basis on safety and efficacy for herbal medicines and related products (Smith-Hall et al., 2012).

This unified conceptual framework offers a step towards establishing a comprehensive approach to understanding the experiences midwives encounter when their clients use herbal medicine to induce their labor. The exposure variable in this study refers to kaligutim (local oxytocin) used by pregnant women in the three major government hospitals to induce their labor through several routes including oral, rectal, vaginal among others. When this oxytocin is used by pregnant women it produces several results which can be immediate or late.

The results elicited on labor is termed as the outcome variables which can be immediate outcomes (the progress of labor) or after delivery (the outcome of labor). The progress of labor includes the three stages of labor, from progressive dilatation of the cervix from 1cm to 10cm, delivery of the baby and expulsion of the placenta. And several factors can be used to determine the progress of labor (obstructed labor, prolonged labor, nature of uterine contractions, precipitate labor, fetal distress and poor progress of labor.



Outcome variables

Outcome of Kaligutim (local oxytocin) use during labor

Immediate outcome

- Obstructed labor
- Prolonged labor
- Nature of uterine contractions
- Poor progress of labor
- Precipitate labor
- Fatal distress

Outcome after delivery

- Mode of delivery
- Postpartum hemorrhage
- Raptured uterus
- Birth asphyxia
- Cervical tear
- Uterine atony
- Maternal mortality

Figure 1.1 Anderson's Behavioral model of healthcare service utilization (Use and non-use of health services).

The outcome of labor on the hand talks about what happens during the delivery of the baby, how the baby was delivered, fetal condition and maternal condition. The following factors were used for the purpose of this study to determine the outcome of labor (mode of delivery, postpartum hemorrhage, raptured uterus, cervical tear, birth asphyxia, uterine atony, maternal mortality and neonatal mortality. The study focuses on immediate effects of Kaligutim (on labor progress) and effects of Kaligutim after delivery (on labor outcome) and the relationship between the use of Kaligutim and birth outcome.

Chapter summary

The use of herbal medicine by pregnant women during pregnancy and childbirth is evident from the preceding, and it is widespread worldwide. It is the treatment of choice in the majority of developing countries because of a lack of adequate healthcare services. The situation is similar in Ghana, where herbal medicine is widely practiced.

Pregnant women in Tamale consume herbal goods at a rate of 42.5% prior to pregnancy and 52.7% during pregnancy, prompting the necessity for this study. The main purpose of this study is to fill the research gap and add to existing knowledge by analyzing the perspectives of midwives on the utilization of Kaligutim (local oxytocin) by pregnant women in Ghana to induce labor, taking evidence from Northern Ghana at the three major government Hospitals in Tamale.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter is devoted to a review of research literature. The empirical literature consists mostly of journal articles in the disciplines of public health, with an emphasis on the use of herbal medicine for labor induction. Other researchers' viewpoints and concerns are discussed in the literature review. The literature review also aims to determine whether there are any gaps in the available material that require additional research.

The review discusses the use of herbal medicine use during pregnancy and/or labor, prevalence of herbal medicine usage during pregnancy and labor, midwives' experiences with herbal medicine, the effects of herbal medicine on labor progress and labor outcome and the association between herbal medicine use and labor outcome.

2.2 Herbal Medicine Use during Pregnancy and Labor

Traditional medicine has a long history, according to the World Health Organization, 'it is the sum total of knowledge, skills, and practices based on theories, beliefs, and experiences indigenous to diverse cultures, whether explicable or not, that are used in the maintenance of health as well as the prevention, diagnosis, improvement, or treatment of physical and mental illness, whether explicable or not' (WHO Report, 2019). Herbal medicine is an aspect of traditional medicine that includes herbs, herbal materials, herbal preparations, and finished herbal products that contain plant parts, other materials, or a combination of them as active ingredients, and may also contain natural organic and inorganic active ingredients that are not plant parts, according to tradition (like animal and mineral materials) (WHO, 2019).

Another author also say herbal medicines are herbal preparations or completed herbal products that comprise plant parts, other plant components, or a combination of plant parts as their active ingredient (Sweileh et al., 2013). These Herbal medications come in a variety of forms, including powder, liquid, tablets, capsules, and ointment, some of which are pre-packaged and others which are made as needed. Herbal medicine plays a significant role in modern medicine, with more than 30% of all marketed modern medicines derived directly or indirectly from medicinal plants used all over the world (Goma et al., 2017).

Because Sub-Saharan Africa is home to a diverse range of medicinal plants, herbal medicine is widely used in this part of the world (El Hajj & Holst, 2020). Despite improved access to healthcare services and higher levels of education for women, the use of herbal medications during pregnancy and labor still occurs frequently (Al-ghamdi et al., 2017). Pregnancy, also known as gravidity or gestation, is the 40-week period during which one or more babies develop inside a woman, either through sexual activity or assisted reproductive technologies (Stephanie et al., 2019).

The mother and baby interact through the placenta throughout pregnancy in the form of hormone distribution, nutritional and blood supply, and placental development (Hundley et al., 2020). During pregnancy, the physiological makeup changes leading to pregnancy-related issues such as hyperemesis gravidarum, pica, constipation, heartburn, and other issues (John & Shantakumari, 2015). Pregnancy is a delicate time, especially in the first trimester, when cell division occurs, and any change in the mitosis and meiosis processes can cause major pregnancy complications that will affect both the mother and the baby (Onyiapat et al., 2017).

In a literature on self-reported use of herbs during pregnancy and/childbirth, the authors found that herbal medicine has been used to treat a wide range of illnesses since ancient times, and it also has

a stimulatory effect on the innate immune system, with active components that are similar to refined pharmaceuticals (Sattari et al., 2012). And these herbal products for pregnant women are processed by picking, cleaning, and then boiling or steaming fresh plant parts or a combination of plant parts or a combination of plants (Nalumansi et al., 2017). Herbal medications are used as means to induce labor involving mechanical rapture of membranes, and the majority of these herbal medicines are produced and administered orally (Tibazarwa & Flora, 2011).

Again, they are used all over the world despite the lack of scientific evidence to support its safety and efficacy, which is a major source of concern for health authorities and the general population (Dabaghian et al., 2015). Also, the use of herbal medicine is becoming more popular due to the lack of severe restrictions governing its usage, unlike Orthodox medicine (John & Shantakumari, 2015). Moreover, there is widespread usage of herbal medicine since access to it is unrestricted, and the laws governing its sales and distributions are equally lacking (Fakeye et al., 2009).

In addition to this, pregnant women take herbal medication throughout pregnancy and labor due to a lack of access to medical services or standard modern healthcare, as well as the belief that herbal treatments are more effective (Nyeko et al., 2016). Another reason many women utilize herbal preparations, according to the authors, is that they feel allopathic treatment is only beneficial for a limited length of time, whereas herbal medications cure for a longer period of time (Wet & Ngubane, 2014). According to the authors of a cross-sectional study done in Kumasi in Ghana, the finding showed that knowledge of herbal medicine is widespread, with evidence of rising use of herbs for the treatment and management of acute and chronic disease (Agyei-Baffour et al., 2017).

In addition, women in Sub-Saharan Africa regularly utilize medicinal plants to relieve painful menstruation, to initiate or control menses, and/or to induce abortion (Nergard et al., 2015). The use of herbal medicine during pregnancy and childbirth is influenced by health beliefs and

practices, health knowledge, attitudes and practices, healthcare seeking behaviors and health behaviors (Ariadne et al., 2018). Traditional, complementary, and alternative medicine is mostly used as a complementary therapy rather than an alternative to conventional care in Sub-Saharan Africa, according to a five-year systematic review of literature on available research evidence on traditional, complementary, and alternative medicines in the general population (James et al., 2018).

The African woman will continue to use herbal medicine during pregnancy and labor because it is engraved in their culture and they have absolute faith in them (Tsitsi Panganai, 2016). Pregnant women with a higher level of education are more aware of the dangers of taking pharmaceuticals and herbal medicines during pregnancy and labor (Barišić et al., 2017). According to a study on the prevalence and knowledge of herbal medicine use, not even formal education can keep women from taking herbs during pregnancy and labor, as the majority of women who use herbal preparations during pregnancy have a high school education or higher, with evidence that over 57.5 percent of pregnant women who use herbs have a high school education or higher (Al-ghamdi et al., 2017).

Other researchers in their study in Western Ethiopia, results show that herbal medicine is also believed to serve as a cure to most medical problems and promote health in many rural communities around the world during pregnancy, labor, and postpartum care (Bayisa et al., 2014). Similarly, in a study conducted in South Africa, the researcher found that plant availability is not the only criterion for herbal medicine use, but that cultural influence plays a significant role in the selection of plant species, and that cultural views on medicinal plants outweigh the use of allopathic treatment (Wet & Ngubane, 2014).

And as a result of this women that use herbs before becoming pregnant also use herbal medication during their pregnancy, and these herbs have an influence on the fetus. (Adane et al., 2020). Family members, friends, neighbors, and other trusted members of the community frequently encourage the use of herbal medication during pregnancy and labor (M. Ahmed et al., 2018). In many rural communities around the world, medicinal plants play a significant role during pregnancy, delivery and postpartum period (Malan & Neuba, 2011). Moreover herbal medication is used throughout pregnancy to promote the baby's optimal development as well as a safe birth (Malan & Neuba, 2011).

Other studies, on the other hand, discovered that herbs are a potent instrument for treating ailments, and that herbal remedies are sometimes more superior and effective than their chemically prepared medicines (Karemore & Nagpur, 2017). According to a cross-sectional study conducted in Nigeria to assess the socio-demographic determinants of herbal medicine use among pregnant women, the authors found that some of these herbs can cause adverse effects due to adulteration, inappropriate formulations, plant and drug interactions, and can be life threatening or lethal (Duru et al., 2016). In contrarily to this, Frankincense scientifically known as Boswellia Carterii essential oil, a medicinal plant with a pleasant and sparkling aroma that can be used to relieve stress and anxiety, reduce pain and inflammation, and improve immunity is also patronized during pregnancy and labor (Saeieh et al., 2018).

Another researcher on the other hand argued that traditional medicine provides therapeutic effects and adds to modern medicine, as seen by its widespread use around the world (Goma et al., 2017). Moreover, some Ghanaian researchers in their article states that herbal medication is used by pregnant women because they believe it is natural, harmless, safe, and free of artificial ingredients and have less risk (Ahmed et al., 2018, Zakaria & Abubakar, 2018). In addition to this, in Mali it

was also discovered that the use of medicinal herbs to treat malaria and urinary tract infections during pregnancy is harmful to both the mother and the unborn child (Nergard et al., 2015).

Conversably, another study carried out in India pointed out that because of the natural elements they contain, herbs taken throughout pregnancy, labor, and postpartum are beneficial in toning and nourishing the system to help mitigate potential difficulties and alleviate discomforts that pregnant women may go through (Karemore & Nagpur, 2017). In assessing the attitudes and use of herbal medicine among pregnant women in Nigeria, it was established by the authors that women consume both self-prepared herbal medicine and herbal medicine that has been prefabricated (Fakeye et al., 2009).

According to systematic review and meta-analysis done among Antenatal attendants on herbal medicine use and predictors in Ethiopia, it was confirmed that herbal medicine is often used by pregnant women who attend antenatal appointments on a regular basis (Adane et al., 2020). A similar study that was carried out in the Eastern part of Uganda have it that Traditional Birth Attendants employ herbal medicine to treat pregnancy-related illnesses, as well as during childbirth and the postpartum period, because most children are born outside the mainstream of health facilities (Nalumansi et al., 2017).

Additionally, herbal medicines are taken by pregnant women for nutritional and therapeutic grounds, as they are used to cure anemia and urinary tract infections (Nalumansi et al., 2017). In a study conducted among Saudi women to determine the prevalence, knowledge and attitudes towards herbal medicine use during pregnancy, childbirth and postpartum, it was revealed that castor oil, black and blue cohosh, and red raspberry are among typical herbs used to trigger uterine contractions (Al-ghamdi et al., 2017). Other researchers also established in their article that, Self-

medication of herbal medicine by the mother during pregnancy can have teratogenic effects on the fetus, especially in the first trimester (Bánhidy et al., 2014).

Herbal medicines, on the other hand, may be used as part of maternal care to treat pregnancyrelated issues and to promote the health of the mother and/or unborn baby (Hajj & Holst, 2020). Because different herbs are used by pregnant women to induce labor, there is a need to investigate the effects of herbal medicine on pregnancy outcomes so that pregnant women can make informed decisions (Ngoma, 2017).

2.3 Prevalence of Herbal Medicine Use during Pregnancy and Labor

According to the World Health Organization, herbal medicine use is prevalent in around 80% of the population and is on the rise around the world, especially among pregnant women, as documented in (Fukunaga et al., 2020). Traditional medicine, of which herbal medicine is a prominent component, is widely used throughout the world especially Africa for the diagnosis, prevention, and treatment of sickness, as well as for the enhancement of general health. Pregnant women rely on informal sources of information for their decision to use herbal medicine during pregnancy, according to the findings of a worldwide survey, with prevalence rates ranging from 4.3 percent in Sweden to 69 percent in Russia (Kennedy et al., 2013).

Also, in a study examining the prevalence and determinants of herbal medicine usage in the United States, the use of herbal medicine is on the rise in the United States, with a prevalence rate ranging from 26% to 34% (Rashrash et al., 2017). Literature published from systematic review showed that Traditional, complementary, and alternative medicine are widely used in many Sub-Saharan Africa countries yet there are little studies from few countries (James et al., 2018). According to a five-year systematic review of the literature on available research evidence on traditional, complementary, and alternative medicines in the general population in Sub-Saharan Africa,

prevalence rates in urban and semi-urban populations range from 4.6 percent to 94 percent(James et al., 2018).

Others in Iran investigated self-reported use and attitudes toward the safety of herbal products during pregnancy and childbirth, came out with findings that 32.3 percent of respondents are aware of the potential effects of herbal products but use them anyway, with a prevalence of 22.3 percent in labor and delivery (Sattari et al., 2012). In Ethiopia, 80 percent of the population uses herbal medicine, and 90 percent of all deliveries are managed by Traditional Birth Attendants or relatives, which is promoting the use of herbal medicine. However, there is little information on the use of herbal medication by pregnant women (Bayisa et al., 2014). Similarly, another study that was conducted in 2014, revealed that the usage of herbal items by pregnant women attending an antenatal clinic in a rural district of Tanzania (Kigoma region) revealed a prevalence rate of 40.2 percent (Fukunaga et al., 2020).

Moreover, in Western Ethiopia, 50.4 percent of pregnant women receiving antenatal care utilize herbal medicine during their pregnancy (Bayisa et al., 2014). In a cross-sectional study conducted in Nigeria to investigate the socio-demographic correlates of herbal medicine usage among pregnant women, the prevalence rate was found to be 36.8 percent with bitter leaf/iron weed being the most commonly used herb (Duru et al., 2016). The prevalence of herbal medicine use during pregnancy and labor is 60 percent according to a cross sectional study on herbal medicine use during pregnancy and/or delivery to start labor or shorten labor duration (Tengia-Kessy & Msalale, 2021).

Another cross sectional study conducted in Ethiopia on medicinal plants use among pregnant women in tertiary hospitals came out with a prevalence rate of 28.6 percent with the most common reason being to prepare for labor, induce labor or shorten the duration of labor (S. M. Ahmed et

al., 2021). Others researchers in assessing the prevalence of herbal medicine use for reduction of labor duration in Mwanza stated there is a prevalence rate of 23.0 percent use of herbal products among pregnant women during the course of labor with 56.1 percent using it to induce labor while 43.9 percent of them using it after the commencement of labor to augment labor (Dika et al., 2017).

According to various national and subnational surveys aimed at determining the prevalence of herbal medicine use among pregnant women in Ghana, the general population has a prevalence rate of 16 percent to 95 percent (Gyasi et al., 2015). In a multi-center community-based cross-sectional study to evaluate the prevalence, trends, and perceptions regarding herbal medicine usage in Ghana, the prevalence of herbal medicine use among pregnant women was 76.5 percent, according to the literature (Kretchy et al., 2021). Similarly, the results of a quantitative retrospective cross-sectional study conducted in Kumasi and the Sekyere south district of Ghana to determine the prevalence and pattern of traditional medicine use, the author discovered that the use of traditional medicine alongside conventional medicine is widespread, with an 86.1 percent prevalence (Gyasi et al., 2015).

Other researchers discovered a prevalence of 27.3 percent among pregnant women attending family health centers in Alexandra in their study on the usage of herbal medication among pregnant women (Orief et al., 2014). Other South African researchers found a prevalence rate of 33.7 percent in their investigation of the negative perinatal consequences of herbal medicine use in pregnancy, with the purpose for use being to induce labor and shorten labor time (Kekana & Sebitloane, 2020). In addition to this, another study also revealed that the prevalence of herbal medicine use during pregnancy and labor is 69.9 percent to facilitate delivery, prevent tears, easy or safe delivery and to avoid prolonged labor (Mawoza et al., 2019).

2.4 Experiences of Midwives on the Use of Local Oxytocin for Induction of Labor

Complementary and alternative medicine has long been an integral aspect of midwifery practice. Midwives regard the conventional and empirical basis of complementary and alternative medicine as questionable, despite the fact that it is a vital and traditional aspect of midwifery practice supporting normal delivery (Foureur & Harding, 2009). Although herbal medicine is commonly used by pregnant women, healthcare providers especially midwives are often unprepared to communicate effectively with patients or make proper decisions concerning complementary and alternative medicine use especially during pregnancy and labor (Bahall & George, 2017).

Herbal medicine use during pregnancy and/or labor, as well as its effects on the mother and unborn baby, is frequently not discussed or communicated adequately between midwives and clients (Bjerså et al., 2012). But it is necessary for health care personnel's like midwives to understand the effects of herbal medicine use during pregnancy and labor in order to address the needs of pregnant women (Bayisa et al., 2014). The use of herbal medication during pregnancy, as well as the uncoordinated and concurrent use of herbal and conventional treatment, necessitates collaborative communication among healthcare providers who care for pregnant women (El Hajj & Holst, 2020).

In a published literature, the authors stated that traditional plant medicine use by pregnant women was estimated to be 50 to 80 percent by midwives, with possible unfavorable perinatal consequences (Beste et al., 2015). Although information on the safety of herbal medications is not comprehensive, midwives should advise these expectant mothers not to expose themselves or their unborn babies to the dangers of herbal medicines (Sattari et al., 2012). In contrast, findings from a study on the safety and efficacy of herbal medicine use in obstetric-review indicate that midwives and/or other healthcare providers are unable to provide appropriate advice to pregnant women
about the safety and efficacy of these herbs due to a lack of documentation on their safety and efficacy (Holst et al., 2011).

In circumstances where midwives suspect their clients of using herbal medication during pregnancy and/or labor, midwives should interrogate them as healthcare professionals who care about their clients' well-being (Nordeng & Havnen, 2005). They can also inquire about their clients' herbal medicine use and highlight the risks of taking herbal medicines alone or in combination with prescribed pharmaceuticals during pregnancy, allowing pregnant women to make more educated decisions (Smeriglio et al., 2014). In addition to this, midwives who take care of pregnant women during antenatal care must be aware of potential benefits and effects of herbal products used by these pregnant women and then give health education on the effects of herbal medicine use on pregnancy during antenatal secessions (Laelago et al., 2016).

An article on integrating herbal medicine into the mainstream healthcare in Ghana, revealed that although they know it is not the correct thing to do for treatment efficacy reasons, 98.4% of pregnant women do not disclose their herbal medicine use to their midwives because they are afraid of being insulted (Agyei-Baffour et al., 2017). Similarly, other authors in their study reported that about 87.8% of pregnant women do not disclose their herbal medicine use to their midwives because most midwives do not enquire about their clients use or non-use of herbal products during pregnancy and labor (Gyasi et al., 2015). Contrarily, in a study on the prevalence and knowledge of herbal medicine use pregnancy and labor results indicated that about 40.7 percent of pregnant women disclose their herbal medicine usage to their healthcare providers or midwives (Al-ghamdi et al., 2017).

In addition, a study of registered healthcare workers' understanding of complementary, integrated, and alternative medicine indicated that most midwives lack adequate knowledge of these herbal

preparations, despite admitting that learning more about this topic is beneficial to them and their clients (Bjerså et al., 2012). Regardless of the lack of research and knowledge on herbal medicine use by pregnant women, both the midwife and the pregnant woman need to be educated on the effectiveness, potential toxicity, and negative consequences of herbal medicine use during pregnancy and labor (Illamola et al., 2020). Furthermore, midwives must provide constant counseling and health education about herbal medicine use and its repercussions, particularly for mothers and their fetuses during pregnancy (Duru et al., 2016).

This can include topics such as the potential negative effects of herbal medicine usage during pregnancy and labor, contraindications to herbal medicine use, drug-herb interactions, and other problems that may emerge as a result of herbal medicine use during pregnancy (Mothupi, 2014). It is necessary for the midwife and anesthetist to ask their clients about their herbal medicine use during the pre - operative period, labor, or delivery, as this may interact with the pharmaceuticals or anesthetic used in cesarean deliveries (Kam et al., 2019b). Also, because it will be difficult to prevent pregnant women from using herbal medicines, it is essential to establish a trusting rapport between the midwife and the mother so that discussion regarding herbal usage can be done freely and without fear of being judged (Panganai & Shumba, 2016).

In order to promote safe mother and fetal delivery outcomes, maternity healthcare professionals such as midwives must have an open and nonjudgmental discussion with women about their complementary and alternative medicine use during pregnancy or childbirth (Frawley et al., 2014). According to a study conducted in Ghana to access the types of herbal medicines used by pregnant women, literature revealed that midwives and other healthcare practitioners have inadequate knowledge about herbal medicine use among pregnant women but there is an urgent need for them to know so that necessary measures can be taken to address this situation (Vanotoo et al., 2015).

In a study carried out in Northern Ghana, the authors stated that midwives who have knowledge of herbal medicine will be better able to educate pregnant people on the limitations and potential negative effects of herbal therapy, particularly during pregnancy and delivery (Paul, Ameade, Zakaria, et al., 2018). They can also engage in community sensitization campaigns about the dangers of indiscriminate use of herbal medicine during pregnancy and labor, as well as integrating trained traditional herbalists and all community members who influence the process of addressing pregnant women's diverse health needs (Nyeko et al., 2016).

Midwives play a vital role in the care of pregnant women from conception to delivery. They should endeavor to provide pregnant women with evidence-based guidance, and assist them in making informed decisions if they choose to use traditional medicine (Holst et al., 2011). The majority of pregnant women who use herbal medicine during the first trimester, which is quite harmful, and they do not tell their midwives because they seek advice from family and friends (John & Shantakumari, 2015). As a result, healthcare practitioners, particularly midwives, should get familiar with the forms of herbal medicine often taken by these pregnant women at home, and then create an atmosphere that encourages medicinal herbs disclosure during appointments (Zamawe et al., 2018).

Furthermore, every midwife must aim to have trust, confidentiality, and high-quality treatment in order to make the hospital a welcoming environment for pregnant women and to limit the use of herbal products at home (Ng et al., 2015). Midwives and all health care professionals are expected to use the best available evidence when making clinical decisions and providing health care advice on herbal medicine use during pregnancy and delivery in the age of evidence-based practice, while respecting their clients' right to make their own decisions (Steel et al., 2015). Herbal medication is

commonly used by pregnant women without seeking medical advice, as it is frequently advocated by informal caregivers (Adane et al., 2020).

Because herbal medication use is rooted in the culture of pregnant women who use it, midwives should also engage in community outreach and education while also conducting scientific research on the effects of the herbs being used (Kekana & Sebitloane, 2020). These pregnant women also don't believe it's important to get their midwives' or other healthcare providers' permission before using herbal medicine during pregnancy or labor (Nordeng & Havnen, 2005). Despite the fact that herbal medications are natural, not all herbs are safe to use during pregnancy, pregnant women need to seek medical advice from their midwives before using herbal remedies (Smeriglio et al., 2014).

2.5 Effects of Kalgutim (Local Oxytocin) on the Progress of Labor

Labor and delivery are the final stages of pregnancy and usually comes with different experiences varying from individuals. Transition from pregnancy to labor is usually a gradual process that begins with the onset of regular uterine contractions (Myles, 2014). Labor should be spontaneous in onset with regular, periodic uterine contractions, free from risk and should not put the mother or baby at risk. The fetus and other products of conception (placenta and membranes) are evacuated from the uterus through the birth canal as a consequence of a series of continuous, progressive uterine contractions that help the cervix dilate and efface (Wei et al., 2015).

According to research on the stages of labor and nursing care, Labor is grouped into four stages first, second, third and fourth stages of labor respectively with varied experience in each stage of labor (Sharma, 2019). Normal labor begins on its own between 37 and 42 weeks of pregnancy, and any birth happening before 37 weeks of pregnancy is called preterm (Stephanie et al., 2019). Nulliparity, fetal abnormalities, gestational age, and basal metabolic index are all factors that can

influence whether a woman's labor starts before, on, or after her expected delivery date (Torkzahrani et al., 2017).

Dystocia refers to a labor or delivery that is slow or difficult for any reason, and it is the second most common reason for a caesarean section (Wei et al., 2015). The partograph is a useful instrument for monitoring the progress of labor and as a warning device for detecting deviations from normal labor, which helps to avoid obstructed labor and improve mother and fetal outcomes (Mukasa et al., 2013). The first stage of labor begins with regular uterine contractions and ends with the cervix or neck of the uterus being fully effaced and dilated (Myles, 2014).

The first stage of labor, commonly known as "dilating," lasts 8-12 hours and starts with the first genuine labor contraction and finishes with full cervical dilatation of the cervix (10cm) (Sharma, 2019). The woman's parity, birth interval, psychological condition, presentation and position of the fetus, maternal pelvic shape and size, and the nature of the uterine contractions all influence the length and duration of labor (Myles, 2014). The uterotonic effects of oxytocin in labor are determined by the number of uterine oxytocin receptors, which is influenced by uterine sensitivity (Hundley et al., 2020).

Herbal preparations aid in the prevention of postdate by shortening the gestational period and the first stage of labor, as well as increasing cervical dilation, which prevents prolonged labor and blocked delivery (Nasiri et al., 2019). According to published research, lavender massage therapy can help reduce pain and shorten labor duration in the first and second stages, as well as a large variety of intrapartum complications (Zahra, 2013). This massage is encouraged during the active stage of labor since it has no negative effects and improves maternal and newborn care quality, lowering the demand for newborn care (Kheirkhah et al., 2013). Furthermore, additional

researches discovered that inhaling Boswellia Carterii essential oil has effects on labor pains and can be used in the first stage of labor to ease pains during labor (Saeieh et al ., 2018).

In contrast, according to another study, plants that produce uterine contractions have similar effects to the oxytocin hormone, but these herbs also generate stronger than normal uterine contractions (Ngoma, 2017). Similarly, other authors also indicated that herbal medications used during labor results in stronger and more frequent uterine contractions, which do not always correspond to cervix dilatation (Lampiao et al., 2018). These uterine contractions are constant and do not wear off, causing bearing down, even in the early stages of labor when the woman is still in the latent phase (1-3cm) of labor. The second stage of labor, also known as the "delivery or expulsive" stage, lasts from when the cervix has fully dilated to when the baby is delivered (Sharma, 2019).

Several factors like parity of the woman, maternal age, fetal weight, maternal efforts, epidural analgesia, longer active phase and excessive maternal weight gain have an influence on the duration of the second stage of labor. Local oxytocin taken by women to hasten labor progress also have an influence on the second stage of labor as it causes maternal exhaustion and making the woman not to push baby in time. Inadequate contractions can cause labor to stall, and oxytocin can be administered or started in the second stage of labor if the frequency of uterine contractions has decreased (Wei et al., 2015). The second stage of labor can be confirmed by vaginal examination to confirm a full dilatation of the cervix, gaping of the anus, appearance of the presenting part and the edge to push.

The usage of dates fruits throughout the latter trimester of pregnancy has been demonstrated to improve pregnancy and labor outcomes while having no adverse effects on the mother or the fetus, it also helps to avoid the need for synthetic oxytocin for labor augmentation and should be considered during labor (Razali et al., 2017). Furthermore, in a study of the negative perinatal

outcomes of herbal medicine usage during pregnancy and delivery, 59 percent of herbal medicine users had meconium-stained liquor, compared to 29.6% of non-user (Kekana & Sebitloane, 2020). The use of boiled Anethum graveolens seeds to induce labor in pregnant women has been shown to be beneficial in reducing the duration of labor in the active phase, second stage, and third stage, respectively (Akbari et al., 2016).

Another study on the effects of herbal medicine usage during the peri-partum period found that herbal medicine use during the peri-partum period is linked to intra-partum vaginal hemorrhage, dystocia, tachysystole, and uterine atony (Dohbit et al., 2019). Other studies have found that herbal drugs can assist to shorten the active period of labor and enhance bishops scores, which can help determine if induction of labor is necessary (Bagherzadeh Karimi et al., 2020). The use of herbal preparations during pregnancy is also linked to a higher incidence of threatening abortions, preterm deliveries, and small for gestational age (Maguire et al., 2007). In a contrary study authors reported that herbs are used to tone the uterine muscles, stimulate uterine contractions, and ease the labor process without causing any harm to the mother or the baby (Ramasubramaniam et al., 2015).

The application of almond oil to spread on the belly stimulates the myometrium, inducing premature uterine contractions and so reducing the gestation time, as well as creating rashes and itching (Facchinetti et al., 2012). When a woman's due date passes and she hasn't given birth, it is usually recommended to induce labor to help save the baby's life because the placenta begins to detach and the baby's oxygen and food supply decreases or stops. Herbal drugs, such as chamomile, are utilized to induce labor in postdate pregnancy without causing any negative effects, and as such should be considered when initiating labor in a postdate pregnancy (Gholami et al., 2016). Indigenous herbal medicine use during pregnancy and labor has also been associated to

significant adverse effects such as abnormally dark green meconium-stained liquor and poor newborn respiratory effort, according to other studies (Beste et al., 2015).

2.6 Effects of Kaligutim (Local Oxytocin) on the Outcome of Labour

The outcome of a pharmacological study provides insight into the possible side effects/unwanted consequences in those using the treatment. If the adverse effects outweigh the beneficial effects, a medicine is withheld and not used (contraindicated) in people with specific diseases and/or during pregnancy. Orthodox medicine, including herbal medicine taken by pregnant women, gets to the fetus through the placenta, the same path taken by oxygen and nutrients in the mother's blood, which are essential for the fetus's growth and development. Harmful medicines during pregnancy (particularly in the first trimester) work in a variety of ways, resulting in underdeveloped and underweight kids, or babies with low birth weight and congenital birth abnormalities.

Many societies around the world, particularly in Africa, use herbal medicine to induce labor, this raises concerns about the possible negative effects these herbs may have on the mother and baby, as well as the overall labor process (Ngoma, 2017). Pregnant women self-medicate with herbal medicine throughout their pregnancy, ignoring the fact that they are aware that it may be hazardous to both the mother and the fetus (Sattari et al., 2012). According to a preliminary investigation on the effects of labor inducing plants, herbal medicine usage during pregnancy causes adverse obstetric and labor outcomes such as uterine rapture and fetal distress, which can result in mother and neonatal mortality and morbidity (Lampiao et al., 2018).

Similarly, in a study conducted in Europe to determine uterotonic plants and their bioactive constituents, the researchers found that majority of herbal medicines used by pregnant women have negative side effects and, when taken in large doses, can cause intrauterine fetal mortality, uterine rapture, and a variety of long-term repercussions on both the mother and the baby (Gruber

& Brien, 2012). In a related study to identify the factors that influences herbal medicine use in preparation for labor, the author indicated that herbal medicine use has been associated to precipitate labor, which can lead to significant birth canal tearing, postpartum hemorrhage, uterine atony, raptured uterus, and, if not treated, maternal mortality (Frank, 2018).

Despite the increasing number of complaints about side effects, a significant number of pregnant women who used herbal medicine indicated that they will continue to use it in future pregnancies, even though they are aware of the potential side effects they may be exposed to (Duru et al., 2016). Herbal massage therapy, on the other hand, provided during labor to relieve pain and shorten labor time is both cost-effective and has an impact on the quality of a woman's delivery experience as well as favorable birth outcomes (Zahra, 2013). Herbal medicine for labor induction is effective, however it should be avoided due to insufficient evidence of safety due to a lack of high-quality information (Zamawe et al., 2018).

Medicinal herbs use during pregnancy and labor has been linked to uterine rapture, which is still one of the leading causes of maternal and neonatal deaths and morbidity, as well as unnecessary caesarean sections (Mukasa et al., 2013). Cissampelos mucronate, a herbal remedy used by pregnant women in a preliminary study on labor inducing plants, has oxytocic actions and initiates early labor, resulting in preterm birth and low birth weight (Lampiao et al., 2018). Another study on the other hand, discovered that herbal products are used to boost the mother's and baby's health, treat infections, prepare for labor, induce labor, and/or relieve labor pains during pregnancy and labor (Illamola et al., 2020). The use of herbal medications during pregnancy has once again been associated to negative pregnancy outcomes such as fetal compromise and a higher risk of caesarean sections among users, raising concerns and requiring caution (Kekana & Sebitloane, 2020). Other researchers found that a variety of herbs are utilized for perceived uterotonic benefits, including inducing and augmenting labor, delivering retained placentas, and managing post-partum bleeding in their study (Tripathi et al., 2013). During labor, nulliparous women who used complementary and alternative medicine had shorter labor duration, less synthetic oxytocin augmentation, decreased epidural rates, and decreased rates of postpartum hemorrhage (Koh et al., 2019). Herbal medication is also used to reduce fetal discomfort and vaginal tears during delivery, as well as to prevent postpartum problems and to start breastfeeding (Ariadne et al., 2018).

2.7 Relationship between Kalgutim (Herbal Medicine) Use and Birth Outcome

Every woman hopes to carry her pregnancy to term without issues and to give birth to a healthy baby at the end of her pregnancy, with both mother and baby in good health and no birth complications during labor or delivery. However, it does not always work in the favor of certain women, as some of them have to deal with unpleasant pregnancy experiences and delivery issues, which are frequently linked to a variety of circumstances, including the use of herbal medication during pregnancy and labor. Pregnant women continue to take herbal medications throughout their pregnancy and delivery because they believe that herbs help them have a healthier pregnancy and a less complicated delivery (Kekana & Sebitloane, 2020).

They prefer complementary therapies over orthodox treatments during pregnancy and delivery because they believe they have fewer adverse effects, however the mechanism of action of these complementary therapies is largely unknown (Torkzahrani et al., 2017). In a different study, Zamawe and his counterparts in a systematic literature review and meta-analysis on herbal medicine use for induction of labor, indicated that herbs are not regarded safe during pregnancy since they have been linked to negative pregnancy outcomes (Zamawe et al., 2018). Some of these medical plants might cause pre-term labor by producing contractions, as well as major obstetric

difficulties especially if ingested in the case of cephalopelvic disproportion (Tsitsi Panganai, 2016).

Published literature on factors influencing the use of Kaligutim (local oxytocin) during pregnancy and labor from the Tolon district of the northern region indicated that women who used kaligutim (herbal medicine) during labor are 4.4 times more likely to experience postpartum hemorrhage than those who did not use kaligutim (herbal medicine during labor (Ayelyine, 2018). Additionally, the use of herbal preparations during pregnancy has been linked to threatened abortions, pregnancy-related morbidities, premature births, and small for gestational age babies (Sattari et al., 2012). Due to a lack of evidence-based data, the safety of herbal preparations used during pregnancy is unknown, yet herbal medicine may not be as hazardous as it appears in everyday use (Yildirim et al., 2016).

On the contrary, myocardial infarction, heart failure, convulsions, and kidney failure have all been linked to black and blue cohosh, which are used to stimulate uterine contractions as reported in a study (Al-ghamdi et al., 2017). Furthermore, in a study on the negative perinatal outcomes of herbal medicine use during pregnancy and delivery, the rate of caesarean section delivery was 79.2 percent among pregnant women who used herbal medicine to induce labor, compared to 52.8 percent among women who did not use herbs during labor (Kekana & Sebitloane, 2020). In addition to this, Mwanamphepo usage by pregnant women in rural Malawi is connected to pregnancy-related problems, and the risk of neonatal mortality/morbidity is higher among users than among non-users (Zamawe et al., 2018).

The use of different substances during pregnancy can have major effects on the pregnancy and development of the child, including growth issues, learning or motor abnormalities, brain impairments (attention, memory), and language disorders, among other things (Barišić et al.,

2017). Multiparous women who used complementary and alternative medicine during labor had a 5.3 percent higher risk of perineal damage and were more likely to need an emergency caesarean section (Koh et al., 2019). In addition to this, 92.5 percent of pregnant women who used Chamomile to induce labor at post term started labor, compared to 62.5 percent of those who didn't (Gholami et al., 2016). According to a different study, herbal drugs used to induce and augment labor have uterotonic effects and increase the risk of postpartum hemorrhage and fetal asphyxia due to uterine hyperstimulation (Tripathi et al., 2013).

The use of herbal medicine is linked to negative effects such as drug-herb interactions, direct toxicity, toxic components, and adulteration with hazardous metals (Kam et al., 2019a). Another study also pointed out that, women who use herbal medicine during pregnancy are at risk of congenital malformations, intrauterine growth restriction, fetal hypoxia and premature delivery as these may cause excessive uterine contractions (Lampiao et al., 2018). Another systematic review of qualitative literature revealed that some of these women take herbal medicine throughout pregnancy to avoid negative pregnancy outcomes, as well as to aid normal physiological processes of pregnancy, such as miscarriage, fetal abnormalities, and mother's health (Ariadne et al., 2018).

In addition to this, other authors in a systematic review among Asian countries, also came out with their findings that, women who use herbal medication during pregnancy are also more likely to be at risk of abortion and have kids that are smaller than expected for their gestational age (M. Ahmed et al., 2017). Contrarily, herbal medicine has a variety of functions during pregnancy, including delivering a retained placenta and treating postpartum hemorrhage (Gruber & Brien, 2012). According to other research, cannabis, an antiemetic and one of the most commonly used herbal medications by pregnant women throughout pregnancy, has teratogenic and embryotoxic effects even at low doses and should not be used during pregnancy (Samavati et al., 2017).

2.8 Research Gap

All finding shows that the use of herbal medicine during pregnancy and labor is widespread, but no study specifically addresses this issue I wish to study in the northern region and Ghana at large. This study aims to look into the perspectives of midwives on the usage of herbal medicine to induce labor in pregnant women, as well as the challenges and possible solutions to this problem.

More research into the use of herbal medicine during pregnancy and labor is required in order to produce findings that will assist policymakers and other agencies in making the right choices and passing laws to help solve this problem.

Chapter summary

This chapter included literature on the four objectives of the study from a global perspective, Africa, Ghana, and Tamale. The majority of the empirical literature consists of journal publications in the disciplines of public health, with a focus on the use of herbal medicine for labor induction. The preceding literature explores the perspectives and issues expressed by different researchers.

An overall review of the literature recognizes that herbal medicines are commonly utilized throughout pregnancy and labor, but there is little evidence on midwives' perspectives on the use of herbal remedies for labor induction. As a result, this work is critical since it will contribute to closing a research gap.

CHAPTER THREE

Methodology of the Study

3.1 Introduction

This chapter explains the method and techniques that were used in gathering information on the topic of study. The chapter comprises of; study area, study design, study population, sampling technique, data collection instrument, data management and analysis and ethical consideration.

3.2 Study Area

The study was carried out in Tamale which is the capital city of Northern Region, Ghana. It is located 600km north of Accra and most residents are Muslims. According to the World Urbanization review 2021, Tamale has an estimated population of 671,812. Tamale shares boundaries with Tolon/Kumbungu district on the north-west, Savelugu/Nanton district on the North, West and Central Gonja on the south and East Gonja and Yendi district on the East and covers approximately 922 square kilometers of land. Tamale still has a blend of typical rural and urban communities although it has attained the status of a metropolitan. Because of the central location, it serves as a hub for all administrative and commercial activities in the Northern Region, doubling as the economic, financial and political capital of the Northern Region.

There are three major government hospitals in Tamale and they are the Tamale Central Hospital, Tamale West Hospital and Tamale Teaching Hospital. The Tamale Teaching Hospital is the only Tertiary facility in Northern Region and serves as the main referring center for the five regions of the North (Northern Region, North-East Region, Savannah Region, Upper West Region and Upper

East Region). The Tamale Central Hospital was established in 1929 to cater for the health needs of the northern territory and provides 24-hour services including OPD, Pharmacy, antenatal care, postnatal care, family planning, obstetric service, laboratory services, ENT services, medical and surgical services. And Tamale West Hospital serves as referral center for clinics and nearby districts like Tolon, Nyankpala, Kumbungu and Central Gonja. It offers 24-hour services and renders services like Emergency, Outpatient, Antenatal services, postnatal, family planning, maternity and labor, medical and surgical, NHIS service, X-ray services, Newborn Care service among others.

3.3 Study Population

The main study population was midwives working in Tamale Metropolis. The sampling frame was all midwives practicing in the three major hospitals in Tamale Metropolis and willing to participate in the study.

3.4 Study Design

A facility based cross-sectional research design was used for this study. A cross-sectional study is a type of observational study design carried out at one point in time or over a short period of time to estimate the prevalence of the outcome of interest for a given population for the purpose of public health planning (Levin & Levin, 2014).

This study adopted a quantitative research approach to obtain information for the study. Quantitative research approaches are used to observe situations or events that affect people across various academic disciplines especially in social sciences and applied science like education, health sciences among others to produce objective data that can be clearly communicated through statistics and numbers.

3.5 Sampling Technique

Convenience sampling technique was used for this study. Convenience sampling is a nonprobability sampling method where units are selected for inclusion in the sample because they are the easiest for the researcher to access. This can be due to geographical proximity, availability at a given time or willingness to participate in the research.

3.6 Sample Size Calculation

Total number of midwives = 458

Using Taro Yamane formular (1967) with a confidence interval of 95% and margin of error of 5%

N= population size (458)

n= the sample size (?)

e= margin of error (5%)

 $n = \frac{N}{1 + N(e)2}$

 $n = \frac{458}{1 + 458(0.05)2}$

Sample size = 214 midwives

3.7 Inclusion Criteria

All midwives practicing in the three major government hospitals in Tamale Metropolis who are willing to participate in the study were included in the study.

All midwives in the three-government hospital with experience with kaligutim use during labor were also be included in the study.

3.8 Exclusion Criteria

All midwives who are not practicing in the three major government hospitals in Tamale Metropolis were excluded from the study.

Midwives who are practicing in the three major government hospitals in Tamale and not willing to participate in the study were also be excluded from the study.

All midwives who do not have experiences with kaligutim use for induction of labor were excluded from the study.

3.9 Data Collection Instrument

The data collection tool that was used for the study was a questionnaire. The questionnaire was constructed by reviewing various documents including existing questionnaires that have been used in previous research. Closed ended questions with few open-ended questions were used to as the question format. It was designed in line with the objectives of the study to help obtain the necessary information needed for the study. The questionnaire was pre-tested with midwives before the actual data collection took place.

3.10 Data Management and Analysis

Data collected from the field was coded, cleaned and entered using statistical package for Social Services (SPSS) version 21.0. Descriptive and analytical statistics including simple frequencies, percentages were used for the analysis and presentation of data. The relationship between predictor and outcome variables were assessed by means of bivariate (Chi square test) analysis to determining potential predictors of kaligutim (local oxytocin) at p-values less than 0.05. Adjusted odd ratios were reported and p-values less than 0.05 were deemed statistically significant at 95% confidence level after a multivariate analysis. The collected data will be kept in Google Forms for four years. The study data will be accessible to myself, my supervisor, and my research assistants.

3.11 Ethical Consideration

There are ethical implications in a research project. I cannot conduct this research without taking into consideration the ethical issues. The following ethical principles guided this study, respect for persons, beneficence and justice for all. These principles are based on the human rights that must be protected during any research project including the right to self-determination, privacy, anonymity, confidentiality, fair treatment and protection from discomfort and harm. First of all, an introductory letter was obtained from the University for Development Studies authorities. This letter was then presented to the authorities of the three major government hospitals in Tamale namely, Tamale West Hospital (T.W.H), Tamale Central Hospital (T.C.H) and Tamale Teaching Hospital (TTH) to seek for permission to undertake the study. Ethical clearance was also obtained from the Kwame Nkrumah University of Science and Technology (KNUST) (CHRPE/AP/332/22) (appendix IV).

Permission was once sought through a consent form of which participants were asked to consent to if they were willing to participate in the study. They were assured of confidentiality of every information they were going to provide. They were also encouraged to participate in the study as much as they can but were also made aware that, the study was voluntary and they can withdraw at any point in time during the process if the need arises. There was no compensation for the study participants.

3.12 Plans for Dissemination of Results

After this research paper is completed and approved by the University, a copy will be prepared for dissemination to the University, Ministry of Health/Ghana Health Service and Tamale Teaching Hospital. The study's results will also be published in peer-reviewed journals so that those who can benefit from it can access it.

Chapter summary

The methods and strategies utilized to collect data on the study's subject were examined in this chapter. This facility-based cross-sectional survey included 214 midwives from the three main government hospitals in Tamale Metropolis. Following clearance from Kwame Nkrumah University of Science and Technology (KNUST) for the study's ethical conduct, data for the study was gathered using a quantitative research approach.

CHAPTER FOUR

PRESENTATION OF RESULTS

4.1: Bio Data

4.1.1: Age in years

From the study, it was observed that 96 people, representing 45 percent of the respondents were between the ages of 20 and 30. A total of 81 persons who make up 38 percent of the respondents were between 31 and 40 years. Also, 33 persons who represent 15 percent of the respondents are between the ages of 41 and 50 whilst 4 persons making up just 2 percent of the respondents were between the ages of 50 and 60. This is presented in figure 4.1



Figure 4.1: Age of Respondents

Source: Authors' field survey, 2022

From figure 4.1, it can be seen that a majority of the respondents were in their twenties and thirties. Those who were in the first half of their work life constituted 73% of the respondents whilst 17% were in the second half of their working life.

4.1.2: Number of years as a midwife

The study also tried to know the number of years that the respondents have been practicing as midwives. This was to help have an idea about the depth of experience of the respondents. It was observed that 133 persons who represent about 62 percent of the respondents were in the first 5 years of their services, 53 respondents constituting about 23 percent of the respondents have 6 to 10 years of experience practicing as midwives. Whilst 15 respondents representing about 7 percent had between 11 to 15 years of experience working as midwives and 9 persons who are about 4 percent of the respondents had between 16 and 20 years of experience. The remaining 4 respondents said they had more than 20 years of experience working as midwives. Figure 4.2 illustrates the various responses.



Figure 4.2: Number of years as a midwife

Source: Authors' survey, 2022

4.1.3: Level of education

The study also tried to know the level of education of the various respondents. It came out that almost half (102) of the respondents, representing about 48 percent said they hold a Diploma in midwifery, 41 respondents who represent 19 percent of the respondents had a degree in midwifery. Also, 68 respondents said they had a post basic certificate in midwifery and only 3 respondents had a master's degree. This is presented in table 4.1

Qualification	Frequency	Percentage (%)
Diploma	102	48
_		
Degree	41	19
Masters	3	1
	<u>(</u>)	22
Post-basic	68	32
Total	214	100
Total	214	100

Table 4.1: Level of education

Source: Authors' survey, 2022

From table 4.1, it can be observed that majority of the respondents are Diploma midwives representing 48% of the respondents, post-basic midwives constitute 32%, whiles degree and master's holders represents 19% and 1% respectively.

4.1.4: Rank

Another thing that the study also tried to find out about the respondents is their rank as midwives. It was discovered that 58 respondents who constitute 27 percent of the respondents were

Midwifery Officers whilst 7 respondents who are 3 percent of the respondents are Principal midwifery Officers. A total of 19 respondents representing 9 percent of the respondents are Senior Midwifery Officers whilst 33 respondents who are 15 percent of the respondents are Senior Staff Midwives and the remaining 97 respondents who are 45 percent of the respondent are Staff midwives. This date is presented in figure 4. 3.



Figure 4.3: Rank of respondents

Source: Authors Field Survey, 2022

From figure 4.3, it can be seen that staff midwives form the largest group of the respondents whilst Principal Midwifery officers is the group with the lowest participation in the study. The least rank in midwifery practice in the study is a staff midwife and the highest is the principal midwifery officer. Also, midwives are promoted based on the number of years' service, this could mean that the principal midwifery officers are late career midwives and most of them are near pension or on pension reason why only 3% responded.

4.2: Experiences of Midwives on the use of local oxytocin for induction of labor by

pregnant women

4.2.1: Intake of local oxytocin at home to start labor

As part of the first objective of the study, the researcher tried to find out if midwives were aware some of their clients take local oxytocin at home to start labor. About 90 percent of the respondents who are 192 of the respondents saying that they were aware and only 22 (10%) respondents saying that they were not aware of that. This is presented in figure 4.4. This was assessed through interaction with the clients. A midwife in the TTH revealed "her client confesses that through interrogation". Also, another midwife at the Tamale Central Hospital indicated "her client came in with severe contraction yet the cervix wasn't dilating, upon interrogation, she opened up and said she was given a substance to drink by her mother in-law".



Figure 4.4: Intake of local oxytocin at home

Source: Authors' field study, 2022

4.2.4: Average number of local oxytocin cases per week

The study also tried to find out the average number of local oxytocin's use cases that the midwives encounter per week. Out of the 214 respondents 202 people responded to this question. It came out that 16 people, representing 7.9 percent of the respondents said they encountered the use of local oxytocin cases once every week. Also, 14 respondents representing 6.9 percent of the respondents said that they encountered local oxytocin use twice every week whilst 44 respondents who represent 21.8 percent of the respondents said they encountered the use of local oxytocin cases thrice every week and the remaining 128 respondents who form 63.4 percent of the respondents saying they encountered the use of local oxytocin cases more than three times every week. This is presented in figure 4.5



Figure 4.5: Average number of local oxytocin cases per week

Source: Authors' field survey, 2022

From figure 4.5, it can be observed that the use of local oxytocin cases is widespread in the Northern Region. This is because most midwives are reporting that they encountered such cases almost on a daily basis.

4.2.5: Induction of labor by clients through local oxytocin under certain conditions

According to the midwives, 148 persons who represent 72.9 percent of the respondents saying their clients have ever induced labor during previous C/S. also, 121 midwives who represent 59.6 percent of the respondents said that they have met clients who also induced their labor during twin cyesis. Another 131 respondents who are 64.5 percent of the respondents said that they also met client with big baby who also induced labor through the use of local oxytocin whilst 175 respondents representing 86.2 percent of the respondents saying that they have also met clients who induced labor with local oxytocin even when they had grand multiparity.

Another 23 (11.3 percent) of the respondents said that they met clients who used local oxytocin to induce labor during transverse lie and another 126 of them said that they met pregnant women who also induced labor with local oxytocin when they had breech presentation whilst 31 respondents who are 15.3 percent of the respondents said they have experienced when clients with mal presentation used local oxytocin to induce labor. This is presented in figure 4.6



Figure 4.6: Induction of labor by clients through local oxytocin under certain conditions

Source: Author's field survey, 2022

4.2.6: The experience of using local oxytocin to induce labor

The study additionally requested midwives to report on how pregnant women who had taken local oxytocin to induce labor coped during their care. Midwives were expected to respond whether the women they cared for experienced a good, difficult, bad, painful, life-threatening, terrible, or normal labor. A total of 188 (93.5 percent) respondents said that the women who used the local oxytocin had very bad experience, whilst only 1 respondent representing 0.5 percent of the respondents said the experience for pregnant women was very painful. One (1) person said it was life threatening and another person also said it was a difficult experience for the pregnant women. Some 8 persons also said it was a terrible experience for the pregnant women and only 4 people, (about 2 percent) said it was a normal experience for the pregnant women. Not a single respondent said the experience was a good one. This is presented in figure 4.7.



Figure 4.7: experience of using local oxytocin to induce labor

Source: Authors' field survey, 2022

From figure 4.7, it can be seen that generally, the experience that pregnant women go through when they use local oxytocin to induce labor is not a good one. Except the 4 respondents who said that the experience in their view was normal, no other respondent had any good thing to say about the experience.

4.2.7: Stage of pregnancy when induction was started

Respondents were also asked the stage of pregnancy where pregnant women begin to use local oxytocin and 75 percent (153) respondents said that they have seen situations where pregnant women used the local oxytocin during term cyesis, post term cyesis and term cyesis. Some 4 respondents who represent 2 percent of the respondents said that pregnant women use the local oxytocin during preterm cyesis, whilst 36 respondents representing 17.6 percent of the respondents said local oxytocin was used by pregnant women during term cyesis. The remaining 11 respondents who form 5.4 percent of the respondents said that, local oxytocin was used by pregnant women during post term cyesis as presented in figure 4.8.



Figure 4.8: Stages of pregnancy when induction was started

Source: Authors' field survey, 2022

4.2.8: Maternal deaths as a result of local oxytocin use

The study went to find out if there have been scenarios where some pregnant women died as a result of the use of local oxytocin. It came out that 31 respondents who form 15.2 percent of the respondents saying that they have experienced situations where some pregnant women died as a result of the use of local oxytocin. The remaining 84.8 percent of the respondents said they have never experienced any death that occurred due to the use of local oxytocin as shown in figure 4.9



Figure 4.9: Maternal death as a result of local oxytocin use

Source: Authors' field survey, 2022

It can be observed that the use of local oxytocin causes death in some situations. Every single life matter and care must be taken to ensure maternal deaths are reduced if not completely eliminated. So, 15 deaths out of every 100 cases of local oxytocin use are alarming.

4.3: Effects of local oxytocin on the progress of labor

4.3.1: Effects on the Progress of the labor

The study discovered that the effect of the local oxytocin (Kaligutim) on the progress of labor were diverse. However, a majority (65.5 percent) of the respondents said that it caused precipitate labor, prolonged labor, obstructed labor and poor progress of labor. However, 38 respondents, who represent 18.4 percent of the respondents said that it basically caused precipitate labor, another 38 respondents also said that it caused prolonged labor, whilst 52 respondents reported it caused obstructed labor. Additionally, 44 respondents who constitute 21.4 percent of the respondents reported it caused prolonget in figure 4.10



Figure 4.10: Effects on the progress of labor

Source: Authors' field survey, 2022

It can be said that the effects of kaligutim on the progress of labor is negative as it causes prolonged labor for some, obstructed labor for others, precipitate labor and poor progress of labor for other too. With obstructed labor being the leading effect of kaligutim on the progress of labor showing the reason why most of the respondents chose cesarean section as the preferred chose of delivery for most clients who use kaligutim during birth.

4.3.2: State of the amniotic fluid

According to the results of this study, kaligutim can also affect the status of the amniotic fluid. This is due to the fact that it may trigger excessive uterine contractions, which might deprive the baby of oxygen and hence cause fetal distress. When a baby is distressed, he or she passes meconium in utero, which combines with the amniotic fluid to form meconium-stained liquor. Only 2 respondents who represent 1 percent of the total number of respondents said that the amniotic fluid was clear. The rest said it was meconium stained with 12 respondents saying it was meconium stained +, 32 respondents saying it was meconium stained +++. As presented in figure 4.11



Figure 4.11: State of the Amniotic fluid

Source: Authors' field survey, 2022

It is clear from the study that the use of local oxytocin has some effect on the amniotic fluid of the pregnant women as 99 percent of the midwives who responded to the study said that there were some levels of stain of the amniotic fluid and only 1 percent said it was clear.

4.3.3: Hyper stimulation of the uterus

The study also tried to find out if there was hyper stimulation of the uterus of the clients who had used the local oxytocin. A total of 131 midwives who represent 63.3 percent of the respondents saying there was hyper stimulation of the uterus whilst 75 midwives (36% of respondents) said there was no hyper stimulation of the uterus as illustrated in figure 4.12.



Figure 4.12: Hyper stimulation of the uterus

Source: Authors' field survey, 2022

It is evident from the study that for most pregnant women who use the local oxytocin, there is a hyper stimulation of the uterus as most of the midwives confirmed this for the study. They further

said that they had to give more Intravenous fluids (IVF) or drugs to help reduce the concentration or flush out the kaligutim in the system.

4.3.4: Excessive contractions

Majority (133) of the midwives who represent 65.2 percent of the respondents also said that pregnant women who uses the local oxytocin (Kaligutim) had excessive contractions whilst 71 of the midwives' constituting 34.8 percent of the respondents said they did not observe excessive contractions in their clients as shown in figure 4.13



Figure 4.13: Excessive contractions

Source: Authors' field survey, 2022

It can be deduced from the study that most pregnant women who use kaligutim suffer excessive contractions and that could have an effect on both mother and baby. The progress of labor needs to be monitored using a partograph to detect deviations from normal, intravenous fluids to flush out the local oxytocin and CS in the case of an emergency. Nifedipine is also given in certain circumstances to abort the contractions.

4.3.5: Fetal heart rate of the babies

From the study, 47 midwives (22.9% of respondents) said the fetal heart rate was less than 100bpm, 48 midwives (23.4% of respondents) also said the fetal heart rate was 100bpm to 160bpm whilst 110 midwives who represent more than half (53.75) of the respondents also said the fetal heart rate was above 160bpm as illustrated in figure 4.14



Figure 4.14: Fetal heart rate

Source: Authors' field survey, 2022

4.3.6: Cessation of contractions

Majority 152 (77.65) of the respondents said that there was no cessation of the contractions whilst 44 (22.4%) of the respondents said that there was cessation of contractions for those who took the local oxytocin as shown in figure 4.15



Figure 4.15: Cessation of contractions

Source: Authors' field survey, 2022

4.4: Impact of local oxytocin on the outcome of labor

4.4.1: Mode of delivery

The study in an attempt to understand how local oxytocin impacts labor went further to ask participants what the mode of delivery was for those who used Kaligutim. Some 33 respondents who form 16.3 percent of the respondents said it was through spontaneous delivery. A total of 121 midwives representing 59.6 percent of the respondents said that the mode of delivery was through caesarean section. The remaining 49 (24.6%) respondents said that it was through assisted delivery as shown in figure 4.16



Figure 4.16: Mode of delivery

Source: Authors' field survey, 2022

Form the data, it can be seen that caesarean section is the mode of delivery for most women who use the local oxytocin and most are unable to have a spontaneous delivery. And this is contributing to the increasing number of caesarean sections recorded daily.

4.4.2: Apgar score of babies

The Apgar score for babies whose mothers used the local oxytocin was also collected. It came out that 13 midwives representing 6.4 % of the respondents said that the Apgar score for the babies were 7/10 to 10/10. Some 142 (69.6%) midwives also said that the Apgar score for the babies was 4/10 to 6/10 whilst 49 (24%) of the midwives said the score was less than 4/10. This is shown in table 4.2
Table4.2: Apgar score of babies

Apgar score	Frequency	Percentage
4/10 to 6/10	142	69.6
7/10 to 10/10	13	6.4
less than 4/10	49	24
Total	204	100

Source: Authors' field survey, 2022

From Table 4.2, it can be seen that most of the babies have an Apgar score of 4/10 to 6/10. A lot of babies born to mothers who have used herbal oxytocin are born with moderate birth asphyxia (69.6%) and severe birth asphyxia (24%).

4.4.3: Hysterectomy performed on clients

As an effect, the study also tried to see whether hysterectomy is performed on clients who used Kaligutim the local oxytocin and it came out that hysterectomy was performed on some of the clients. Some 42 (20.8%) of those who responded to the question said that indeed hysterectomy was performed on their clients whilst 160 (79.2%) said that no hysterectomy was performed as illustrated in Figure 4.17



Figure 4.17: Hysterectomy performed on clients

Source: Authors' field survey, 2022

From figure 4.17, it can be seen that hysterectomy was not performed on most of the pregnant women that used the local oxytocin. The study also reported that 20.8% of midwives reported that hysterectomy was carried out on their clients who have used herbal preparations to induce or hasten labor. This is alarming because a great number of women have their uterus removed has a result of herbal oxytocin (kaligutm) use.

4.4.5: Postpartum hemorrhage after delivery

On whether there was postpartum hemorrhage after delivery, 187 respondents representing 91.7 percent of the respondents said yes there was postpartum hemorrhage whilst 17 respondents who represent 8.3 percent said there was no postpartum hemorrhage. Figure 4.18 illustrates this.



Figure 4.18: Postpartum hemorrhage

Source: Authors' field survey, 2022

From figure 4.18, it can be seen that most clients who used Kaligutim the local oxytocin did experience postpartum hemorrhage after delivery. Those who experienced it were managed by either uterine massage, IV fluids, Cytotec use, repair of tears, expulsion of retained products, blood transfusions (in severe cases), cervical repairs and catheter use to empty the bladder.

4.4.6: Uterine atony

It also came to the fore that some of the pregnant women who used kaligutim had uterine atony because 68 (34.5%) midwives said there were some cases whilst 129 (65.5%) said there was no uterine atony as shown in Figure 4.19.



Figure 4.19: Uterine Atony

Source: Authors' field survey, 2022

It is evident that some women had a uterine atony though it cannot be said that the Kaligutim was the cause of the uterine atony. Those who had uterine atony were managed by uterine massage, oxytocin administration and Cytotec.

4.4.7: Raptured uterus

A total of 128 respondents who constitute 65.3 percent of the respondents said that some of the pregnant women who use kaligutim experienced a raptured uterus whilst 68 (34.7%) of the respondents said that the women did not get a raptured uterus as shown in figure 4.20.



Figure 4.20: Raptured Uterus

Source: Authors field survey, 2022

As can be seen in figure 4.20, a number of pregnant women who use Kaligutim also end up getting a raptured uterus. Such cases had to be managed through uterine repairs and hysterectomy. Some also had complications such as PPH, Cervical tear, raptured uterus, fetal distress, hypovolemic shock, retained placenta and neonatal death. It is not clear whether it is the kaligutim that causes the rapture uterus but there is the likelihood of there being a relationship between the local oxytocin and the raptured uterus. It is therefore recommended that there should be community sensitization on the negatives of using kaligutim the local oxytocin.

4.4.8: Personal experience with local oxytocin use

A number of the midwives who responded to the study said that they have personally used kaligutim the local oxytocin. Some 22 midwives who constitute10.3 percent of all the midwives who took part in the study said that they have ever used it. See figure 4.21



Figure 4.21: Personal experience with local oxytocin use

Source: Authors' field survey, 2022

Since some trained midwives have said that they have used the local oxytocin before, it says a lot about its use in the Tamale metropolis. Even health professionals who know the implications of herbal preparations and are supposed to advice clients against it use are also using it as 10.3% of midwives agreed to using kaligutim to start their labor.

4.5 Relationship between kaligutim (local oxytocin) use and birth outcome

The measure of association as presented in table 4.3 between the kaligutim (local oxytocin) use and birth outcome among the respondents showed fisher's exact test and chi square test with some birth outcome variables were significantly associated with kaligutim (local oxytocin). Do women who go through the normal process of labour and those who use kaligutim to induce their labour have same birth outcome? (P-value =0.021), what was the fetal wellbeing? (P-value =0.041), When do most neonates whose mothers have taken Kaligutim die? (P-value =0.038), was baby

admitted at the New-born Care Unit? (P-value =0.001), were significantly associated with kaligutim. Additionally, having recorded a maternal death as a result of the use of Kaligutim (p-value =0.002) was also significantly associated with kaligutim as presented in table 4.3 below.

Table 4.3 Relationshi	p between kaligu	tim (local oxytocin) use and birth outcome
-----------------------	------------------	---------------------	-------------------------

Variable	Response category	Kaligutim (Local oxytocin)		Test
		status		Statistics
		No	Yes	-
Do women who	No	14(7.3)	179(92.7)	Fisher
go through the	Yes	8(38.1)	13(61.9)	Exact
normal process				test=31.6,
of labour and				p=0.021*
those who use				
kaligutim to				
induce their				
labour have				
same birth				
outcome?				
What was the	Live birth	8(6.9)	108(93.1)	Chi
fetal wellbeing?	Birth asphyxia	7(0)	63(100)	square
	Still birth	7(91.1)	21(8.9)	test=22.7,
				p=0.041*
When do most	Intrauterine	5(18.2)	31(81.8)	Fisher
neonate whose				Exact

mothers have	Within 30 minutes after	7(10)	81(90)	test=54.9,
taken kaligutim	delivery			p= 0.038
dies?	Within the first week of	6(8)	69(92)	
	life			
	Within the first 28 days of	0(0)	11(100)	
	life			
Was baby	No	8(29.6)	19(70.4)	Chi
admitted at the	Yes	14(7.5)	173(92.5)	square
New-born Care				test=24.9,
Unit?				p=0.001*
Did you get	No	7(46.7)	8(53.3)	Chi
cases of birth	Yes	15(7.5)	184(92.5)	square
asphyxia as a				test=21.3,
result of				p= 0.001
kaligutim use				
during labour?				
Have you ever	No	15(9.5)	143(90.5)	Chi
recorded a	Yes	7(12.5)	49(87.5)	square
maternal death				test=45.1,
as a result of the				p=0.02*
use of				
Kaligutim?				

15(8.6) 159(91.4) Chi	
7(17.5) 33(82.5) squ	are
test	=38.2,
p=	0.21

4.4 Multivariate Analysis of birth outcome Predictors of Kaligutim (local oxytocin) among pregnant women in the three major government hospitals in Tamale Metropolis

In table 4.4, three birth outcome variables strongly depicted kaligutim use among the respondents; what was the fetal wellbeing, was baby admitted at the New-born Care Unit and when do most neonates dies as a result of the use of Kaligutim by their mothers. Respondents who responded yes to baby was admitted at the New-born Care Unit were 25% more likely to use kaligutim (local oxytocin) as compared to those who responded no to baby was admitted at the New-born Care Unit [(AOR= 0.25 95% CI (0.01, 0.53), P=0.021)].

 Table 4.4 Multivariate Analysis of birth outcome Predictors of Kaligutim (local oxytocin)

 among pregnant women (midwives) in the three major government hospitals in Tamale

 Metropolis

Variable	Response	AO	AOR	P-Value
	Category	R	(95% CI)	

Do women who go	No	Ref		0.39
through the normal	Yes	0.48	0.073-5.15	
process of labour				
and those who use				
kaligutim to induce				
their labour have				
same birth				
outcome?				
What was the fetal	Live birth	Ref		0.045
wellbeing?	Birth asphyxia	0.16	0.08-3.08	
	Still birth	1.9	0.01-1.21	
When do most	Intrauterine	Ref		0.047
neonate whose	Within 30			
mothers have taken	minutes after	3.4	0.74-1.5	
kaligutim dies?	delivery			
	Within the first	2.23	0.00-0.02	
	week of life			
	Within the first	2.80	0.26-3.3	
	28 days of life			
Was baby admitted	No	Ref		0.021
at the Newborn	Yes	0.25	0.01-0.53	
Care Unit?				

Have you ever	No	Ref	0.125
recorded a maternal	Yes	3.18 0.27-3.7	
death as a result of			
the use of			
Kaligutim?			

Chapter summary

The use of kaligutim to induce childbirth is common in Tamale. This is because 63.4% of midwives said they experienced such situations almost daily. According to the findings of this study, the usage of this natural medicine (Kaligutim) poses a significant health risk to mothers and their babies.

According to the study's findings, 135 (65.5%) midwives indicated that women who take kaligutim may experience precipitate labor, obstructed labor, prolonged labor, and poor labor progress. The study also showed a strong association between the usage of herbal medications and fetal health, neonatal care unit admission, and newborn deaths.

Despite the fact that midwives are mandated to advise patients about the risks of using herbal medicines, 10.3% admitted to using kaligutim to start their labor. This implies that much work must be done to reduce the use of kaligutim, and it must begin with midwives.

CHAPTER FIVE

5.0 DISCUSSIONS

5.1 Introduction

This chapter discusses the findings obtained from the study by relating various major findings with literature in the chapter two. The chapter has been categorized into key headings comprising of key issues obtained in the study.

5.2 The experiences of midwives on the use of kaligutim (local oxytocin) by pregnant women for induction of labor.

It can be seen that though the respondents cut across with regards to the number of years of experience but a majority of the respondents are early career midwives. The fact that these early career midwives are familiar with and have experienced the use of the local oxytocin by their clients shows that there is widespread use by pregnant women in the Tamale metropolis. About 90% of respondents were aware of the usage of kaligutim (local oxytocin) for inducing labor at home before going to the hospital for delivery.

This contradicts a study conducted in the Ashanti region of Ghana that found that midwives and other healthcare professionals lack proper knowledge about herbal medicine usage among pregnant women, despite the fact that this information is urgently needed so that appropriate action may be taken to address the issue (Vanotoo et al., 2015). The study's findings also demonstrate that pregnant women frequently utilize local oxytocin and that many of them are unaware of the potential negative effects that this hormone may have on them in certain circumstances. The lives of the pregnant mother and her unborn child may also be in danger since pregnant women are unaware that local oxytocin can be contraindicated in some circumstances and must be avoided.

From figure 4.6, it can be observed that the use of local oxytocin was not limited to only one condition. It further shows that the use of local oxytocin by pregnant women is widespread and pregnant women don't know the effect that the local oxytocin can have on them when they have certain conditions. And also, pregnant women are ignorant of the fact that local oxytocin can be contraindicated in certain conditions and must be avoided hence may put the life of the pregnant mother and her baby in danger.

Although herbal medicines are natural, not all herbs are safe to use while pregnant, thus expectant mothers should consult their midwives for guidance before taking herbal remedies (Smeriglio et al., 2014). The experience that pregnant women have when they use local oxytocin to induce labor is not a positive one. A total of 188 respondents, or 93.5 percent of the respondents, stated that the women who used the local oxytocin had a very unpleasant experience. This is supported by additional research results that show midwives believe between 50 and 80 percent of pregnant women use traditional plant remedies, which could have adverse perinatal effects (Beste et al., 2015).

Herbal medicine is utilized at all stages of pregnancy for a variety of reasons; some women use it to treat minor diseases in the first trimester, while others use it to treat other pregnancy-related illnesses and induce labor (Wet & Ngubane, 2014). It can be seen from figure 4.9 that there is no particular stage during the pregnancy that pregnant women would prefer to initiate induction through the use of local oxytocin. They started induction anytime they felt was appropriate. Herbal medicine is used during all stages of pregnancy for various purposes, some use it to treat minor disorders in early pregnancy and other pregnancy related illness end starting labor.

They added that these pregnant women do not also induce their labor at home but they also augment their labor whiles under the care of midwives because relatives bring them kaligutim in

containers that cannot be easily identified by midwives. Midwives needs to be watchful and alert and should inspect whatever their clients eat and drink whiles under their care to prevent those in the ward from using it.

The statistics indicate that local oxytocin is frequently used by pregnant women in the Tamale Metropolis. This is due to the fact that the majority of midwives report seeing these cases virtually daily. This supports a study conducted in Ghana's Ashanti region (Kumasi), which revealed that knowledge of herbal medicine is widely shared and that there is evidence of an increase in the usage of herbs (Agyei-Baffour et al., 2017).

5.3 The effects of Kaligutim (local oxytocin) on the progress of labor.

The study discovered that the local oxytocin (Kaligutim) has a diverse range of effects on the progress of labor, including precipitate labor, prolonged labor, obstructed labor, and labor that progresses slowly. It places emphasis on the reports indicating that dystocia can occur for any reason and is the second most prevalent cause of caesarean sections (Wei et al., 2015). The partograph is a great tool for keeping track of labor's progress and serving as a warning system for abnormalities in normal labor, which helps to prevent obstructed labor and improves mother and fetal outcomes (Mukasa et al., 2013). This is backed by the study's findings, which indicate that using a partograph to monitor labor's progress and identify any deviations is essential.

According to this study, the majority of midwives, or 133 of them, who make up 65.2% of the respondents, also claimed that pregnant women who use the local oxytocin (Kaligutim) have excessive contractions, while only 71 of them, or 34.8% of the respondents, claimed that they do not notice excessive contractions in their clients. This is supported by research done in Zambia, which found that these herbal medicines also elicit stronger-than-normal uterine contractions (Ngoma, 2017).

Most pregnant women who use kaligutim experience excessive contractions, which may have an impact on both the mother and the unborn child. Similar to this, other authors have also claimed that using herbal remedies during labor causes stronger and more frequent uterine contractions, which don't necessarily result in cervical dilatation (Lampiao et al., 2018). This was confirmed in the study's findings, which also noted that herbal oxytocin does not only produce excessive uterine contractions but may also cause contractions to cease, as 44 (22.4%) of the respondents reported that those who took the local oxytocin had a halt in contractions. Intravenous fluids like normal saline and ringers' lactate are used to flush out the local oxytocin in the system and CS in the case of an emergency. Nifedipine is also given in certain circumstances to abort the contractions.

5.4 The effects of Kaligutim (local oxytocin) usage on the outcome of labor.

According to the study, 121 midwives, or 59.6 percent of the respondents, stated that caesarean sections were the preferred method of delivery for women who used kaligutim to induce labor. Both Kekana & Sebitloane (2020) in South Africa and Mukasa et al. (2013) in Western Uganda have reported on these findings. Moderate birth asphyxia (69.6%) and severe birth asphyxia (23%) are common in newborns whose moms utilized herbal oxytocin. According to the survey, 20.8 percent of midwives said they had performed hysterectomy procedures on clients who had utilized herbal induction or hastening methods to induce labor.

One of the main reasons for maternal deaths worldwide, including Ghana, is postpartum hemorrhage (Amanuel et al., 2021). Ninety-one percent of midwives said that when their patients use herbal oxytocin during labor, more of them suffer from postpartum hemorrhage. This is corroborated by research by Frank (2018), who found a connection between postpartum hemorrhage and the use of herbal medications during labor. In contrary, other studies (Koh et al., 2019) showed that using herbal medication during childbirth is linked to a lower risk of postpartum

hemorrhage. Individuals who experienced postpartum hemorrhage were managed with uterine massage, intravenous fluids, Cytotec, repairs to tears, expulsion of retained products, blood transfusions, cervical repairs, and catheter use.

This report supports the findings of a study conducted in the Ugandan village of Kiganda, where the researcher (Frank, 2018) reported that the use of herbal medicines has been linked to labor induction, which can cause significant birth canal tearing, postpartum hemorrhage, uterine atony, raptured uterus, and, if untreated, maternal mortality.From the research even medical experts who are aware of the dangers of herbal remedies and who are obliged to advise patients against using them do so themselves. The majority of women who use herbal preparations during pregnancy have a high school education or higher, according to evidence that shows that over 57.5 percent of pregnant women who use herbs have a high school diploma or higher, which is consistent with findings from Saudi Arabia by (Al-ghamdi et al., 2017) that show not even formal education can stop women from taking herbs during pregnancy and labor.

Kaligutim also causes excessive uterine contractions, fetal discomfort, excessive uterine stimulation, uterine atony, PPH, birth hypoxia, and premature bearing down, claims this study. This is supported by the results of a study carried out in Europe, where the researchers (Gruber & Brien, 2012) found that the majority of herbal drugs taken by pregnant women have undesirable side effects. An Iranian study, however, discovered that utilizing herbal treatments during labor can lessen discomfort, speed up the process, and enhance both the quality of a woman's delivery experience and her odds of having a healthy baby (Zahra, 2013).

5.5 The relationship between Kaligutim (local oxytocin) use and birth outcome.

According to the study's findings, three birth outcome variables strongly depicted kaligutim (local oxytocin) use among the respondents; what was the fetal wellbeing, was baby admitted at the New-

born Care Unit, and when do most neonates dies as a result of the use of Kaligutim by their mothers. Respondents who responded yes to baby was admitted at the New-born Care Unit were 25% more likely to use kaligutim (local oxytocin) as compared to those who responded no to baby was admitted at the New-born Care Unit [(AOR= 0.25 95% CI (0.01, 0.53), P=0.021)]. This is probably one of the effects of taking the local oxytocin. These infants were hospitalized for a variety of reasons, including asphyxia, respiratory distress, and low apgar scores.

Also, the study results indicated that respondents who responded having a still birth outcome to the fetal wellbeing were 1.9 times more likely to use kaligutim (local oxytocin) as compared to those who responded no to having live births [(AOR= 1.9 95% CI (0.01, 1.21), P=0.047)]. This is consistent with findings from a sub-Saharan African study that showed herbal medications used to speed up and induce labor have uterotonic effects and raise the risk of neonatal asphyxia attributable to uterine hyperstimulation (Tripathi et al., 2013). This could be ascribed to the fact that the respondents wanted fast and easy delivery but subsequently caused this effect.

Another interesting finding was respondents who responded having a birth asphyxia outcome to the fetal wellbeing were 0.16 times more likely to use kaligutim (local oxytocin) as compared to those who responded no to having live births [(AOR= 0.16, 95% CI (0.08, 3.08), P=0.047)]. This result is similar to those of Tripathi et., al (2013) who conducted their study in sub-Sahara African. This could be as a result of the effects of the kaligutim on the fetal wellbeing which resulted in the birth asphyxia outcome.

Furthermore, newborns whose mothers used kaligutim during labor who died within the first hour of birth were 3.4 times more likely to use kaligutim (local oxytocin) as compared to those who had Intrauterine [(AOR= 3.4 95% CI (0.74, 1.5), P=0.045)]. In support of the findings from this study, a study on consumption of herbal drugs among pregnant women in rural Malawi is linked to

pregnancy-related issues and that users had a higher risk of neonatal mortality/morbidity within the first hour of life than non-users (Zamawe et al., 2018). This could be attributed to the dangers this herbal poses on the fetal during the delivering process.

Newborns whose mothers used kaligutim during labor who died within the first week of life were 2.23 times more likely to use kaligutim (local oxytocin) as compared to those who had Intrauterine [(AOR= 2.23 95% CI (0.00, 0.02), P=0.045)]. This is supported by findings from a Malawian study that found that the use of labor-inducing plants during pregnancy has negative obstetric and labor outcomes, such as uterine rapture, which can cause neonatal mortality and morbidity (Lampiao et al., 2018). This could be attributed to the fact that PPH, uterine rapture, cervical tear, DIC, and hypoxia were the main causes of death.

Chapter summary

This chapter looked at the study's findings by relating several significant findings to literature in chapter two. The four study objectives are used to guide the discussion. And the discussion revealed that similar findings have been reported by other authors around the world, Africa, and even a few parts of Ghana.

CHAPTER SIX

6.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 Summary

The study was carried out in the three major government hospitals in Tamale among practicing midwives to identify their perspectives with the use of kaligutim by their clients for labor induction. A facility based cross-sectional research was used were 214 midwives out of a total of 454 midwives were included in the study.

6.1.1 Summary of key findings

According to the findings of this study, 90% of midwives have had clients use local oxytocin to induce labor at home before coming to the facility to deliver. Because these pregnant women are unaware of the effects and contraindications of these herbal medicines, they ingest them in potentially dangerous scenarios such as previous caesarean section, transverse lying, huge baby, grand multiparity, breech presentation, and mal position/presentation. Clients who get local oxytocin report excessive contractions, uterine overstimulation, fetal distress, postpartum hemorrhage, birth hypoxia, a raptured uterus, and difficulties labor.

Also, with obstructed labor being the leading effect of kaligutim on the progress of labor, this is evident by most of the respondents choosing cesarean section as the preferred chose of delivery for most clients who use kaligutim during birth. This will continue to increase the rate of caesarean sections in Tamale, Northern Region. Three birth outcome variables strongly depicted kaligutim use among the respondents; what was the fetal wellbeing, was baby admitted at the New-born Care Unit and when do most neonates dies as a result of the use of Kaligutim by their mothers. Other women also have their uteruses removed as a result of the use of kaligutim for labor induction.

These pregnant women also consume herbal oxytocin whilst on admission in the labor ward because these herbs are brought to them in containers that will not be easily noticed by midwives.

The study found out that there is a spiritual form of oxytocin (walgu) that women in Tamale metropolis also use to induce and augment labor which induces labor and also dilates the cervix. In addition, from the research even medical experts who are aware of the dangers of herbal remedies and who are obliged to advise patients against using them do so themselves. Clients who experienced postpartum hemorrhage were managed by either uterine massage, IV fluids, Cytotec use, repair of tears, expulsion of retained products, blood transfusions (in severe cases), cervical repairs and catheter use to empty the bladder.

6.2 Conclusion

Every life matter, which is why mothers' lives and that of their newborn babies must be safeguarded at all costs. A sufficient level of knowledge is always vital since it enlightens the doubtful. Therefore, it is crucial that people are informed of their rights, their health, and the services they can utilize to maintain and improve it in order to have a healthy increasing population. Although herbal medicine could be effective in treating certain ailment associated with pregnancy and delivery and easily accessible to pregnant women especially in rural communities, but the possibility of overdose, drug-herb interactions, contra-indications and the unhygienic conditions under which they are prepared may have an effect on both maternal and neonatal conditions.

This was a facility-based study among 214 midwives in the three major government hospitals in Tamale Metropolis. The results showed that the use of kaligutim by pregnant women in Tamale Metropolis is on the rise as 90% of the midwives reported managing clients who have used

kaligutim to induce their labor. The incidence of kaligutim to induce labor is widespread in the Northern Region. This is because 63.4% of midwives are reported they encountered such cases almost on a daily basis.

A total of 135 (65.5%) midwives reported that women who use kaligutim can have precipitate labor, obstructed labor, prolonged labor and poor progress of labor. Again, 121 midwives representing 59.6 percent of the respondents reported that the preferred mode of delivery for women who use kaligutim is cesarean section. The study also reported that 20.8% of midwives reported that hysterectomy was carried out on their clients who have used herbal preparations to induce or hasten labor.

Also, the study found a significant relationship between herbal medication use and fetal wellbeing, admission to the neonatal care unit and neonatal deaths. Health professionals who know the implications of herbal preparations and are supposed to advice clients against it use are also using it as 10.3% of midwives agreed to using kaligutim to start their labor. This means that a lot needs to be done in order to do away with the use of kaligutim and this must start with midwives.

It can be concluded that the use of this herbal medicine (Kaligutim) possesses a greater long term health challenge for mothers and their babies. Midwives and other healthcare workers in the Tamale Metropolis must therefore intensity their public health campaigns against the use of Kaligutim for labor induction.

6.3 Recommendations

The findings of the study have important implications on maternal and child health. Non-use of kaligutim (local oxytocin) for induction of labor is the best option for pregnant women. Pregnant women should endeavor to visit the hospital for all their health needs during the whole period of

their pregnancy. This will help prevent adverse pregnancy and labor outcomes as well as maternal and neonatal mortalities and morbidities. The following are specific calls that are made to various stakeholders involved in maternal and child health.

6.3.1Midwives and other healthcare workers

- Health education during antennal care (ANC) sessions and one on one counselling during appointment visits should be periodically done by midwives. To help reveal the dangers and complications associated with kaligutim (local oxytocin) use during pregnancy and labor to pregnant women and their families (especially mothers and mother in-laws).
- Midwives should take this as their responsibility to help reduce or solve the issue of kaligutim use among pregnant women. They should constantly monitor what clients eat and drink whiles under their care because some of them come to the ward with kaligutim to augment labor.
- Also, midwives and other healthcare workers should organize community durbars, health education, radio and television talk shows to educate the public especially pregnant women and their families about the side effects of kaligutim (local oxytocin) on pregnancy and labor.
- So, proper health education on the adverse effects and complications of kaligutim especially to pregnant women and their families especially mothers and mother in-laws is required. As the study revealed adverse pregnancy and birth outcomes related to use of kaligutim (local oxytocin) use during pregnancy and delivery that needs to be avoided or prevented.

6.3.2 Governmental institutions

• Local governmental institutions like metropolitan, municipal and district assemblies (MMDA) should also be involved in the education and campaign process to help prevent the use of herbal medicine by pregnant women during pregnancy and delivery.

6.3.3 Religious leaders

• Religious leaders like Mallams should also be educated on the negative effects of kaligutim (walgu) on pregnancy and labor and the adverse effects associated with its use and birth outcomes.

6.4 Areas for further research

- Future researchers should do further studies on the spiritual aspect of kaligutim (Walgu) and its types. An Islamic form of oxytocin prepared by Mallams and causes uterine contractions and also dilates the cervix just as the synthetic oxytocin.
- Again, studies should also be conducted on the efficiency, effectiveness and the biochemical composition of these herbal preparations and their safety especially during pregnancy and delivery. Where samples of these herbal preparations should be taken for laboratory investigations.

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Appendix I: Questionnaire for Practicing Midwives

INFORMED CONSENT

Dear Madam, I am a student pursuing a master's degree in Maternal and Child Health at the University for Development Studies, Tamale. I am conducting a study on the topic "**Perspectives** *of midwives on the use of local oxytocin for induction of labor among pregnant women in the three major government hospitals in Tamale Metropolis*". I will be very grateful if you could participate in my study by helping to answer this questionnaire. It will take a few minutes of your time. All the answers you will give will be confidential and will not be seen by anyone apart from the research team. it will help improve maternal and child health in Tamale Metropolis, Ghana, and the World as a whole. It is my hope that you will assist me carry out this exercise as your views are very important. However, you can choose to withdraw at any point in time.

Would you like to participate?1.Yes []2. No []

Interview date:

Midwife's Phone number:

SECTION A: SOCIO-DEMOGRAPHIC CHARACTERISTICS

- Age in years. a. 20-30 years []
 b. 31- 40 years []
 c. 41 50 years []
 d. 51-60 years []
- 2. How long have you been practicing as a midwife? a. 1-5 years []
 b. 6-10 years []
 c. 11-15 years []
 d. 16-20 years
 e. Above 20 years []
- 3. What is your current level of education?
 - a. Post-basic [] b. Diploma [] c. Degree [] d. Masters []

4. What is your current rank? a. Staff midwife [] b. Senior staff midwife [] c. Midwifery

officer [] d. Senior midwifery officer [] e. Principal midwifery officer []

SECTION B: EXPERIENCES OF MIDWIVES ON THE USE OF LOCAL OXYTOCIN FOR INDUCTION OF LABOUR BY PREGNANT WOMEN.

Q5. Has any of your clients taken local oxytocin at home to start labor before coming to your facility to deliver? a. Yes [] b. No[]

Q6. If yes, how did you find out?

.....

Q7. What was the reaction of the client?

.....

Q8. Within a week, how often do you get cases of local oxytocin use during labor?

a.. Once [] b. Twice [] c. Thrice [] d. More than three times []

Q9. Has any client ever induced her labour with local oxytocin under the following conditions? Choose as many as you can.

a. Previous C/S [] b. Twin cyesis [] c. Big baby [] d. Grand multiparity []

e. Transverse lie [] f. Breech presentation [] g. Mal presentation/position []

Q10. If local oxytocin was taken under the above conditions, how was the experience?

a. Good [] b. Bad [] c. Normal []

Q11. At what stage of the pregnancy do they normally start the induction?

a. Preterm cyesis [] b. Term cyesis [] c. Post term cyesis [] d. All []

Q12. Have you ever recorded a maternal death as a result of the use of local oxytocin by pregnant women to induce labor? a. Yes [] b. No []

Q13. Is there any other experience with local oxytocin use you would like to share?

.....

Q14. Do you have any comment on your experience?

SECTION C: EFFECTS OF LOCAL OXYTOCIN ON THE PROGRESS OF LABOUR

Q15. What was the progress of the labor? Choose as many as you can.

a. Precipitate labor [] b. Prolonged labor [] c. Obstructed labor [] d. Poor progress []

Q16. state of amniotic fluid

a. Clear [] b. Meconium stained + [] c. Meconium stained ++ [] d. Meconium stained
+++[]
Q17. Was there hyperstimulation of the uterus a. Yes [] b. No []
Q18. If yes, how was it managed?
Q19. Excessive contractions 1. Yes [] 2. No []
Q20. If yes, how was it managed?
Q21. What is usually the fetal heart rate (F.H.R) of the babies? You can choose more than one
answer.
a. Less than 100bpm [] b. 100-160bpm [] c. Above 160bpm []
Q22. How was the first stage of labor managed?
Q23. Was there cessation of contractions? a. Yes [] b. No []

Q24. If yes, how was it managed?

Q25. Were there any other effects on the progress of labor?

.....

SECTION D: IMPACT OF LOCAL OXYTOCIN ON THE OUTCOME OF LABOR

Q26. Mode of delivery

a. Spontaneous vaginal delivery [] b. Caesarean section [] c. Assisted delivery []

Q27. What was the Apgar score of the babies?

a. 7/10 to 10/10 [] b. 4/10 to 6/10 [] c. Less than 4/10 []

Q28. Have there been hysterectomy performed on a client as a result of the use of local oxytocin? a. Yes [] b. No []

Q29. Was there postpartum hemorrhage (P.P.H) after the delivery? a. Yes [] b. No []

Q30. if yes, how was it managed?

Q31. Did any of the client get a uterine atony? a. Yes [] b. No []
Q32. If yes, how was it managed?
Q33. Did any of the women get a raptured uterus? a. Yes [] b. No []
Q34. If yes, how was it managed?
Q35. What were some of the complications/challenges you encountered?
Ω_{26} Do you have any recommendations for the study?

Q36. Do you have any recommendations for the study?

Q37. Have you as a midwife ever taken local oxytocin to induce your labor?

a. Yes [] b. No []

SECTION E: RELATIONSHIP BETWEEN KALIGUTIM (LOCAL OXYTOCIN) USE AND BIRTH OUTCOME.

Q38. Do women who go through the normal process of labor and those who use kaligutim to induce their labor have same birth outcome? a. Yes [] b. No []

Q39. If no, why?

Q40. What was the fetal wellbeing? You can choose more than one answer.

a. Life birth [] b. Birth asphyxia [] c. Still birth []

Q41. Type (s) of still births that are associated with the use of kaligutim.

a. Fresh stillbirth [] b. Macerated stillbirth [] c. Neonatal death []

Q42. When do most neonates whose mothers have taken Kaligutim die?

b. Within 30 minutes after delivery a. Intrauterine [] c. Within the first week of life [] d. Within the first 28 days of life [] Q43. Was baby admitted at the Newborn Care Unit? a. Yes [] b. NO [] Q44. If yes, why was baby admitted? Q45. Did you get cases of birth asphyxia as a result of kaligutim use during labour? a. Yes [] b. No [] Q46. If yes, which type of asphyxia? a. Mild [] b. Moderate [] c. Severe [] Q47. Have you ever recorded a maternal death as a result of the use of Kaligutim? a. Yes [] b. No [] Q48. If yes, what was the cause of the death? Q49. Any other relationship between women who use kaligutim during labor and those who do not use it you would want to share.

Q50. Apart from herbal oxytocin, do you know any other of local oxytocin that pregnant women use to induce labor? a. Yes [] b. No [] Q51. If yes, what are the other forms of oxytocin that you know? Q52. Do they work like the local or herbal oxytocin? a. Yea [] b. No [] Q53. What else do you know about this other form of oxytocin?

THANK YOU FOR PARTICIPATING!

Apendix II: Images of herbal medicine



Appendix III : Certificate of authorization to conduct research



Appendix IV: Ethical Clearance



Kwame Nkrumah University of Science and Technology, Kumasi

College of Health Sciences SCHOOL OF MEDICINE AND DENTISTRY

COMMITTEE ON HUMAN RESEARCH, PUBLICATION AND ETHICS

Our Ref: CHRPE/AP/332/22

30th June, 2022

Miss Dakurah Shivera School of Public Health University for Development Studies.

Dear Madam,

LETTER OF APPROVAL

Protocol Title: "Perspectives of Midwives on the Use of Kalgutim (Local Oxytocin) for Induction of Labour among Pregnant Women."

Proposed Site: Tamale West Hospital, Tamale Central Hospital and Tamale Teaching Hospital.

Sponsor: Principal Investigator.

Your submission to the Committee on Human Research, Publications, and Ethics on the above-named protocol refer.

The Committee reviewed the following documents:

- A notification letter of 8th February 2022 from the Tamale Teaching Hospital (study site) indicating approval for the conduct of the study at the Hospital.
- A Completed CHRPE Application Form.
- Participant Information Leaflet and Consent Form.
- Research Protocol.
- Questionnaire.

The Committee has considered the ethical merit of your submission and approved the protocol. The approval is for a fixed period of one year, beginning **30th June**, **2022** to **29th June**, **2023** renewable thereafter. The Committee may, however, suspend or withdraw ethical approval at any time if your study is found to contravene the approved protocol.

Data gathered for the study should be used for the approved purposes only. Permission should be sought from the Committee if any amendment to the protocol or use, other than submitted, is made of your research data.

The Committee should be notified of the actual start date of the project and would expect a report on your study, annually or at the close of the project, whichever one comes first. It should also be informed of any publication arising from the study.

Thank you for your application.

dilly Yours f Rev. P alin dif Honorary Secretary FOR: CHAIRMAN

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