

**UNIVERSITY OF NAIROBI**  
**DEPARTMENT OF SOCIOLOGY AND SOCIAL WORK**

**UTILIZATION OF HERBAL MEDICINE DURING PREGNANCY, LABOUR  
AND POST-PARTUM PERIOD AMONG WOMEN AT EMBU  
PROVINCIAL GENERAL HOSPITAL**

**BY**

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**C50/P/8596/03**

**Research Project Paper Submitted in Partial Fulfillment for the Award of  
the Degree in Master of Arts Sociology University of Nairobi**

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**Declaration**

This is my original work and has not been submitted for examination in this or any other University.

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This project paper has been submitted for examination with my approval as University Supervisor.

Signature ..... Date .....

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University Supervisor

**Dedication**

To my departed great friend M.A Osman who never lived to see this piece of work despite his enormous support and advice throughout this process. May God rest his Soul .

To my wife Eliza, Son Wayne and daughter Whitney, they are the precious jewels of my life; they illuminate every breath I take through their very existence.

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## **ABBREVIATIONS**

ANC	Ante-natal Clinic
FCI	Family Care International
GoK	Government of Kenya
KAP	Knowledge Attitude Practice
KIIs	Key Informants Interviews
MOH	Ministry of Health
PGH	Provincial General Hospital
SPSS	Statistical Package for Social Sciences
T/CAM	Traditional, Complementary and Alternative Medicine
WHO	World Health Organization



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## **ABSTRACT**

According to World Health Organization (WHO), a vast majority of people in Africa and Asia rely on herbal medicine for their primary health care needs. The concomitant use of traditional and biomedical systems of care is common in both rural and urban areas in Africa. Use of herbal medicine and traditional systems of care by expectant mothers as well as lack of disclosure to healthcare practitioner has an influence on both health-seeking behavior and outcomes of care.

The broad objective of this study was to assess the utilization of herbal medicine among women in Embu Provincial General Hospital. The specific objectives of the study were: a) to determine the prevalence of use of herbal medicine in the study group, b) to determine the socio-demographic factors associated with herbal medicine use in the study group, and c) assess health-seeking behaviour, disclosure to healthcare practitioner and perception of safety and efficacy among users and non-users. It was a cross-sectional survey of 165 randomly selected women. Data was collected using a semi-structured questionnaire administered by an interviewer or self-administered in presence of interviewer. Quantitative data was entered into SPSS version 16.0 and analyzed descriptively (means and frequencies). Chi-square test was used to compare differences between categorical variables at 0.05 significance level. Multiple logistic regression models were used to analyze for joint effect of more than one independent variable. The prevalence of herbal medicines use during pregnancy, labour and post-partum period among women attending antenatal clinic at Embu Provincial General Hospital (PGH) was high (70%). Age, distance to the nearest health facility, employment status and number of children were found to be significantly associated with use of herbal medicine. The use of herbal supplements in pregnancy is likely to be relatively high in pregnant Kenyan women and it is important to ascertain which supplements (if any) women are taking. Pregnancy care providers should be aware of the common herbal supplements used by women and of the evidence regarding potential benefits or harm. It is essential that health care personnel teach their patients about possible interactions between herbs and prescription or over-the-counter medications.

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Background Information**

Herbal medicines are defined as plant-derived material or preparations perceived to have therapeutic benefits; they often contain raw or processed ingredients from one or more plants (WHO, 2000). Herbal medicines include herbs, herbal materials, herbal preparations, and finished herbal products that contain parts of plants or other plant materials as active ingredients (WHO, 2008).

The use of traditional, complementary and alternative medicine (T/CAM) is growing in both developed and developing countries (Brodeker& Kronenberg, 2002). T/CAM is a blanket term for healing practices other than conventional medicine (Yekta, et. al, 2007; Silenzion, 2002). ). Herbal medicine is a significant component of many T/CAM forms. In some regions, the herbal medicine industry generates billions of dollars in revenue annually (Hayes, 2010; WHO, 2008). The prevalence of use of T/CAMs is highest in the African and Asian region, where up to 80% of the population relies on traditional medicine for their primary health care needs (WHO, 2008). In some developed regions, general prevalence of use may be as high as 50% for complementary and alternative medicine (Silenzio, 2002).

Herbal medicine, as a form of T/CAM is used to treat various chronic and infectious illnesses but data on patterns of use and related health concerns is still lacking (WHO, 2008; Brodeker& Kronenberg, 2002). Although research into T/CAMs such as herbal medicine is growing, much still focuses on “clinical, regulatory, and supply oriented issues to the general neglect of wider public health dimensions” (p1582, Brodeker& Kronenberg, 2002). The World Health Organization proposes four areas of actions to maximize the role of T/CAM in public health: national policy and regulation; safety, efficacy and quality; access; and rational use (Bodeker &Kronenberg, 2002). T/CAMs are viewed as valuable for research and integration in

public health in part because it broadens the scope of the health system and possible ways of intervention (Silenzio, 2002).

The health outcomes of use of some herbal medicines have been documented in studies and case reports (Weneker, *et al*, 2004; Tiran, 2003). Potential risks from concomitant use of biomedical and herbal treatments have also been documented (Giriglian and Sun, 1998; Tiran, 2003; Weneker *et al.* 2004). However, for many herbal medications, health outcomes as well as potential drug-herb interactions in concomitant use are still unknown. Often, people consider herbal products “natural” and thus “safe” (WHO, 2008). There is a need for patient-health practitioner communication about herbal medicine use in order to discuss risks and benefits and best treatment to follow (Brodeker and Kronenberg, 2002; Grigliano, 1998; Tiran, 2003; Weneker *et al.*, 2004; Langloid-Klassen *et al.*, 2007; Anderson and Johnson, 2005).

This study will explore the use of herbal medicine among women of reproductive age during pregnancy, labour and post-partum period in an urban setting in Embu town, Kenya. A report by Family Care International (2003) revealed heavy reliance on herbal medicine during antenatal, labour and post-partum periods in the rural areas of Migori and Homabay districts of Kenya. Besides issues of access, affordability and poor health service, women also preferred traditional forms of care for illnesses perceived to be outside the scope of western medicine. Herbalists and traditional birth attendant’s herbal medicines were also trusted for general well-being in various stages of pregnancy and for easy delivery during labour. A few studies show significant use in other regions as well, such as the rural US (40%) (Glover, *et al.*, 2003), Taiwan (20%) (Hsiao-Yun Yeh, *et al.*, 2009), and urban Ghana (50%) (Addo 2007). These studies show a high prevalence of herbal medicine use despite access to biomedicine. Additionally, gynaecologists and obstetricians were often unaware of use of herbal medicine among their patients (Glover, *et al.*, 2003).

## **1.2 Statement of the Research Problem**

The use of complementary and alternative medicine (CAM) and therapies has increased in most countries in Africa and Asia as in many other developed countries. Approximately 65–80% of the world's population use traditional medicine as their primary form of health care (WHO, 2000). There are limited data on the extent of women's use of either herbal or vitamin supplements during pregnancy labour and post-partum period, despite the fact that knowledge of the potential side effects of many of these products is limited (WHO, 2008).

According to Family Care International (2003), although regulation of alternative medicines has improved in Kenya, herbal medicines are still not subject to the same scrutiny in terms of safety, efficacy and constituents as conventional medicines, although many consumers assume or expect this to be the case. Many consumers do not inform their primary care provider about their use of these herbal and alternative medicines.

There are limited data on the extent of women's use of herbal medicines during pregnancy, despite the fact that knowledge of the potential benefits or harms of many of these products is sparse, particularly with respect to their use in pregnancy.

The use of herbal medicine during pregnancy, labor and post-partum period may affect outcomes of health and care for women of reproductive age. Many physicians are unaware of herbal medicine use among their patients thus cannot make informed decisions about their health (Brodeker and Kronenberg, 2002). Use of herbal medicine also affects health outcomes by influencing health-seeking behaviour of the user and potential for drug-herb interactions. Pregnancy care providers should be aware of the common herbal supplements used by women, and of the evidence regarding potential benefits or harm.

No study had been done in Embu region to determine the magnitude of herbal medicine use during pregnancy and the factors associated to it, therefore there was a need to find out the magnitude of this problem.

This study sought to assess utilization of herbal medicine during pregnancy, labour and post-partum period among women in Embu in order to fill the apparent gap in literature.

### **1.3 Objectives of the Study**

The broad objective of this study was to assess utilization of herbal medicine during pregnancy, labour and post-partum period among women in Embu PGH, Kenya.

#### **1.3.1 Specific Objectives**

The study was based on the following specific objectives:

- i) To determine socio-demographic and other characteristics associated with herbal medicine use during pregnancy, labour and post-partum period.
- ii) To assess health seeking behaviours associated with herbal medicine use during pregnancy, labour and post-partum period.
- iii) To assess women's perception about safety and efficacy of herbal medicine use during pregnancy, labor and post-partum period and in comparison with Western medicine.

### **1.4 Research Questions**

The study was guided by the following research questions:

- i) What are the socio-demographic and other characteristics of women who used herbal medicine during pregnancy, labour and post-partum period?
- ii) What health-seeking behaviours can be associated with herbal medicine useduring pregnancy, labour and post-partum period?
- iii) What is the perception of safety and efficacy of herbal medicine during pregnancy, labor and post-partum period and in comparison to Western medicine in the study population?

### **1.5 Justification of the study**

In developing countries including Kenya, the quality of health provision remains poor. With poor health facilities and poor emergency obstetric care, the maternal and fetal mortality and morbidity have remained high.

Some of the factors contributing to high maternal and fetal mortality and morbidity can be minimized just by health education. This can only be achieved when these factors are well studied. The use of herbal medicine during pregnancy may be among the contributing factors to maternal and fetal morbidity and mortality.

This study aimed at finding the magnitude at which herbal medicines are used during pregnancy and their associated factors. Results obtained will be used in health education delivery in antenatal clinics, enlighten the health providers about the magnitude so that they don't attribute all poor fetal outcomes to herbs and therefore improve obstetric care. Knowledge of the extent and nature of use of herbal medicine related to pregnancy, labour and post-partum period is necessary for proper guidance in the health interest of both the mother and foetus. Further, the results of the study will help inform public health discourse about the use of alternative systems of care in the presence of a modern health care system.

It will also be used as the baseline for more researches regarding use of herbal medicines in pregnancy.

### **1.6 Scope and Limitations of the study**

The study was limited to Mothers attending antenatal, post natal and child care clinics Embu in particular hence the findings can only be applicable to the same setting.

Recall bias was possible in this study since some women may have to recall use during pregnancy that may have occurred up to a year prior. The questions in the questionnaire were designed to be as recallable as possible focusing less on detailed information (such periodicity of use) and more on generalized issues such as ever-use, disclosure to doctor, indication for use etc.

Mothers who were minors could not be assessed and thus information bias occurred when analyzed for the relationship of age to use of herbal medicine. This is acknowledged in the discussion. Data cannot be generalizable to the entire Kenyan population but is intended to explore use in the context of urban access to conventional care.



## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This section deals with review of literature on the use of herbal medicine during pregnancy, labor and post-partum. The chapter also presents a conceptual framework on which the whole study is based.

#### **2.2 Use of Herbal medicine**

Herbal medicines may be used during pregnancy to treat pregnancy symptoms like nausea and vomiting. They may also be used to prepare for labor or for other unrelated health issues such as colds and respiratory illnesses or skin problems to mention a few examples (Nordeng and Havnen, 2004). Reasons reported for ceasing herbal medicine during pregnancy include concerns for the health of the fetus/baby, the 'condition' improving, the herbal medicine not helping and advice from a health care provider (Hepner, et al., 2002).

It is estimated that 80% of the African population use traditional medicine in some way for their primary health care needs (WHO, 2008). Studies by WHO (2008) suggested heavier reliance of people in rural areas on traditional medicine for primary health care. However, similar figures can be observed in some urban contexts: Njoroge and Kibunga (2007) reported that a majority of their respondents relied on traditional herbal preparations for the treatment of diarrhoea in an urban area, Thika, Kenya.

A survey among 400 Norwegian women at Ullevål University Hospital in Oslo in 2004 on the use of herbal drugs in pregnancy found that 36% of pregnant women had used herbal drugs during pregnancy (Nordeng, 2004). Among the women having used herbal drugs in pregnancy, 39% had used herbal drugs that were considered harmful or herbs where there was paucity of information about safety in pregnancy.

In South Africa, the use of herbal medicines by women in reproductive age group is common.

These herbal medicines are used for abortion, breast cancer, contraception, and conception, irregular or even in painful menstruation (Steenkamp, 2003). In pregnancy herbs are normally used orally on a regular basis as a tonic to clean the womb to attain an easy and quick delivery and in order to protect the child from evil and to have a healthy child (Goncalves, 2001). It is estimated that 60% of South African women use herbal medicine during pregnancy. Twenty nine percent of non-users indicated that they had been advised by doctors not to take herbs.

In a prospective study on the use of oral herbal medicine conducted on 214 pregnant women attending antenatal clinics in urban and rural Tanga district in Tanzania, the overall prevalence rate of use of herbal medicine was 42%. The prevalence in urban and rural areas was 43.3% and 40.2% respectively. Of the users, 54% did so to relieve pregnancy-associated symptoms, while the rest used it as a consequence of beliefs, possibly superstitious, circumstantial constraints, and combinations of these (Mbura et al, 1985)

### **2.3 Determinants of herbal medicine use**

The World Health Organization defines herbal medicine as "...herbs, herbal materials, herbal preparations and finished herbal products, that contain as active ingredients parts of plants, or other plant materials, or combinations" (WHO, 2010b). Herbal medicine forms part of traditional medicine if it is indigenous to the region or complementary and alternative medicine (CAM) if products/practices are imported/borrowed from another region/society. A significant portion of traditional medicines in Africa is herbal (Imperato, 1977).

Spatial inequity of facilities favoring urban areas, unavailability of medical services such as drugs and personnel and accessibility problems are quoted as some of the common reasons why people rely heavily on traditional systems in the presence of a

modern medical system. Sindiga et al (1995), however, also suggest that some people use the traditional system of healthcare for predominantly psychosocial and cultural reasons. It is common to find a concomitant use of both systems – traditional and biomedicine (Sindiga *et al.*, 1995).

What is the rationale behind use of herbal medicines among people with at least basic access to healthcare services? In Langloid-Klassen et al (2007)'s AIDS study, the most common reason of use was abundance of traditional medicine as well as its perceived efficacy. "Lack of response" to conventional medicine was one of the main reasons of use of CAMs in an Iranian urban area (Yekta, *et al.*, 2007). Werneke (2004), who studied cancer patients, states that patients often combine CAMs with conventional treatment to improve quality of life, alleviate side effects, take control of their care and accommodate their worldview into the healing process.

What are the determinants of T/CAM use? In developed countries CAM use has been associated with high education and income, or being a cultural minority (Bodeker andKronenberg, 2002). In a study conducted among obstetrics patients in Ghana, use was higher among those with only primary or no education than among secondary and tertiary education. Additionally, use was significantly highest among those in unskilled occupations and lower socioeconomic status (Addo, 2007). In Addo's study, marital status and religion had no significant effect on her use of herbal medicine.

Other factors underlying the use of herbal medicine have been identified as social pressure, dissatisfaction with the behavior of clinic staff, reluctance of clinic staffs to give drugs and lack of privacy within the conventional clinic environment (Jewkes, et al., 1998)

The decision to use traditional medicine is most commonly made by grandmothers or mothers. Where mothers-in-law are involved, refusal is often very difficult as it would show disrespect (Rolanda and Sally, 2006).

A survey of 577 pregnant women attending their first antenatal visit at King Edward VIII hospital in Durban, South Africa, in 1995 revealed widespread use of herbal

medication. Of these women, 60% had secondary or tertiary education and 43.7% were currently taking medicinal herbs. The two common sources of knowledge about these medicines were parents, relatives (69.8%) and traditional birth attendants / herbalists (22.6%) (Jewkes, et al, 1998).

#### **2.4 Effects of concomitant use of synthetic drugs and herbal medicine**

Often herbal medicine are prescribed by family/friends/relatives and/or prepared by patients themselves (Langloid-Klassen et al.2007, Yekta *et al.*, 2007 and Addo 2007).Gibson et al (2001) made an association between prior use of herbal medicine and use during pregnancy among women in the US. The main herbs that were used by women in Gibson's study were ginger, aloe and Echinacea. Similar herbs and others were used in Norden and Havnen (2004)'s Norwegian study. 39% of users in this study had used possibly harmful or herbs where information about safety was missing (Norden and Havnen, 2004).

What effects does concomitant use of synthetic drugs and herbal medicine have on the patient? A study by Langloid-Klassen *et al.*, (2007) in Western Uganda reported a prevalence of use of 63.5% among AIDS patients already undergoing biomedical therapy. More than 50% of patients in an obstetric unit in a hospital in Ghana used herbal and Western treatment concomitantly (Addo, 2007). According to researchers such as Addo (2007) and Langloid-Klassen (2007), there is a potential for drug-herb interactions which may affect course and outcome of patient's condition. From both studies, these adverse effects were not clear.

Most potential drug-herb interactions have been reported from case reports, scarcely from large scale studies (Werneke, *et al.*, 2004). These case reports include Fugh-Beghman's study on anticoagulant effects of garlic and cod liver oil and Izzo and Ernst's report of the interaction of St. John's Wort with hormones, antibiotics and chemotherapeutic agents (Werneke *et al.*, 2004).

When knowledge on herb-drug interactions, safety and efficacy is available, patients can be advised accordingly. In Werneke *et al.*, (2004)'s study among cancer patients it was found that 12% were at potential risk of CAM interference with current treatment. However, such studies and interventions are only possible given three conditions:

- i) Health professionals have knowledge of CAM use among their patients as well as potential risks,
- ii) There is a local “medicines information and toxicology service that provides access to and interpretation of herbal formularies, reference texts and web-based resources” (Werneke *et al.*, 2004) and
- iii) Pharmacists play a role in issuing health warnings (services need to be designed accordingly).

Randomized controlled studies show effectiveness of some herbs such as ginger for prenatal nausea and vomiting among other complementary and alternative therapies (Anderson and Johnson, 2005). There is a scarcity of such data on safety and efficacy for herbal medicines taken by pregnant women in the African region.

## **2.5 Health seeking behavior and herbal medicine**

The concomitant use of herbal and Western treatments indicates that use of both systems of care significantly influences health-seeking behaviour of users. In a Family Care International (2003) report, use of traditional birth attendants and herbal medicine was claimed to cause delays in seeking biomedical attention when complications arose, especially during labour and post-labour. According to Olenja (2003), health seeking behaviour is “any action undertaken by individuals who perceive themselves to have or to be ill for the purpose of finding an appropriate remedy.” The action taken when ill is influenced by perception of illness, decision-making about steps to follow and the social, cultural and economic context in which illness occurs.

In behavioural studies, the most common approach to study health seeking behaviour is assessment of people's knowledge, attitude and practices –otherwise known as KAP studies (Hausmann-Muela et. al. 2003). Models such as Health Belief Model, Theory of Reasoned Action and Theory of Planned Behaviour are employed in public health studies to explore similar concepts. In practice, various models are fused depending on key factors of consideration or relevant variables (Hausmann-Muela et.al. 2003). What types of herbs do women use during pregnancy? Herbal preparations can be used as supplements for nutritional purposes and some are used for medicinal purposes such as nausea, urinary tract infections, and other uses (Glover *et al.*, 2003).

In the developed world, popular herbs include ginger for nausea, St. John's Wort for depression, Blue or black cohosh for efficiency of contractions, echinacea as an immuno-stimulant, ginseng for energy and immune function, ginkgo biloba to stimulate cognitive functioning, raspberry leaf for facilitation with labor (Tiran, 2003). In developed regions, women also use other complementary and alternative therapies such as yoga, reflexology and massage for stress-reduction (Tiran and Chummun, 2004). Midwives in a developed country are increasingly incorporating CAM care into their practice, and expectant mothers are increasing its use (Tiran and Chummun, 2004).

## **2.6 Role of health professionals in disclosing herbal medicine use**

There are precautions to be taken with herbal medications during pregnancy, though they are considered natural. For example, women taking anti-coagulants and anti-hypertensive should avoid ginger (Tiran, D 2003). Blue cohosh poses risk of fetal hypoxia and cardiac conditions (Tiran, 2003). 39% of users in Noden and Havnen's (2004) Norwegian study had used possibly harmful or herbs about which safety was unknown.

What is the role of health professionals in rational use of herbal medicine among their patients? The challenges concerning the rational use of T/CAM, of which

herbal medicine is a part include: Lack of training for both T/CAM and biomedical practitioners in T/CAM use, Lack of communication not only among practitioners but among biomedical practitioners and their patients about T/CAM use and Lack of communication to the public about “rational use” of T/CAM (Bodeker & Kronenberg, 2002).

Researchers (Addo, 2007, Weneker, 2004, Langloid-Klaasen, 2007; Grigliano and Sun, 1998) urge medical practitioners to communicate with their patients about use of herbal medicine. When medical practitioners were knowledgeable about patient use and information on the particular herbal medicines was available, they gave advice to: Stop herbal treatment, Alter course of treatment, Patient must report certain signs, Medicine not recommended since unable to assess safety (Weneker *et al.*, 2004)).

Interestingly, for cancer patients who disclosed use, 80% of doctors gave a favourable response (Weneker, 2004). In Yekta *et al.*, (2007) study, only a minority of patients used herbal medicine with their doctor’s awareness or recommendation (13.5%). Lack of physicians’ inquiry is one of the common reasons why physicians were unaware of patients’ use of herbal medicine (Yekta, *et al.*, 2007). According to Weneker *et al.*, (2004), patients should also be encouraged to disclose use of herbal medicine without prompting from the health professional. Even though disclosure is important, does it really alter outcomes of care for the patient?

According to Donabedian (1988), outcome of care is one of the three components of quality of care and it is a measurable quantity. It depends on a broad definition of health status of patient after consultation which includes patient’s knowledge and behavior change, as well as satisfaction. The subjectivity of the patient’s experience is an important component of outcome of care (Silenzio, 2002) and alternatives should be provided, best method chosen with patient preferences taken into account (Donabedian, 1988). The criteria for measuring outcomes of care should derive from sound, scientific knowledge or authoritative sources.

It is imperative for doctors to communicate with their patients about herbal medicine as it is no longer “acceptable for the clinician simply to state that these products do not work or to claim ignorance regarding their use” (Girigliano and Sun, 1998) they are in a position of discussing risks and benefits with their clients. Physicians should discuss with their patients among other things that natural does not mean safe. There is potential for herb-pharmaceutical interaction and there can be variability of content and efficacy depending on the manufacturer. Authors urge special advice for women about to conceive or pregnant as data on safety is not always available for all herbs (Girigliano and Sun, 1998). Most importantly use should be recorded in medical record.

## **2.7 Theoretical and conceptual framework**

There are several theories that can be used to explain the use of herbal medicine and the health seeking behaviours. Some of the theories that were instrumental in the study are; The Health Belief model, Theory of Reasoned Action and Theory of planned Behaviour, Mystical Approach Theory, and Social Cognitive Theory of Learning.

### **2.7.1 Health Belief model (HBM)**

The health belief model was one of the first, and remains one of the best known social cognition models (Janz, N. K.; Becker, M. H 1984). It is a health behavior change and psychological model developed by Irwin M. Rosenstock in 1966 for studying and promoting the uptake of health services. Originally, the model was designed to predict behavioral response to the treatment received by acutely or chronically ill patients, but in more recent years the model has been used to predict more general health behaviors.

The model postulates that health seeking behavior is influenced by a person’s perception of a threat posed by a health problem and the value associated with actions aimed at reducing the threat. The health belief model addresses the relationship between a person’s beliefs and behaviors. It proposes that a person’s health related behavior depends on the person’s perception of four critical areas



namely; the severity of a potential illness, the persons susceptibility to that illness, the benefits of taking a preventative action and the barriers of taking that action. It provides a way to understanding and predicting how clients will behave in relation to their health and how they will comply with health care therapies. This model will be used to explain the main factors that motivate women to seek and use herbal medicine.

However some of the limitations of this model include emphasis on individuals hence ignoring social and economic factors. The model doesn't consider emotional factors such as fear and denial.

### **2.7.2 Theory of Reasoned Action (TRA)**

Derived from the social psychology setting, the theory of reasoned action (TRA) was proposed by Ajzen and Fishbein (1975 & 1980). The components of TRA are three general constructs: behavioral intention (*BI*), attitude (*A*), and subjective norm (*SN*). TRA suggests that a person's behavioral intention depends on the person's attitude about the behavior and subjective norms ( $BI = A + SN$ ). If a person intends to do a behavior then it is likely that the person will do it.

According to Ajzen and Fishbein, behavioral intention measures a person's relative strength of intention to perform a behavior. Attitude consists of beliefs about the consequences of performing the behavior multiplied by his or her valuation of these consequences. Subjective norm is seen as a combination of perceived expectations from relevant individuals or groups along with intentions to comply with these expectations. In other words, "the person's perception that most people who are important to him or her think he should or should not perform the behavior in question" (Ajzen & Fishbein, 1975).

To put the definition into simple terms: a person's volitional (voluntary) behavior is predicted by his/her attitude toward that behavior and how he/she thinks other people would view them if they performed the behavior. A person's attitude, combined with subjective norms, forms his/her behavioral intention.

Theory of Reasoned Action (TRA) concerns expectancy. Individuals rate how current and alternative actions can reduce their health problems. Like the HBM, this theory focuses on motivations, the individual's assessments of risk, and the desire to avoid negative outcomes. Individuals evaluate whether or not to engage in healthy (for examples, taking exercise) or risky (for example, smoking) behaviours and whether to seek preventative as well as curative medical services.

Fishbein and Ajzen say, though, that attitudes and norms are not weighted equally in predicting behavior. "Indeed, depending on the individual and the situation, these factors might be very different effects on behavioral intention; thus a weight is associated with each of these factors in the predictive formula of the theory.

In the context of this study, this theory will explain the role of attitudes, subjective norms and behavioral intentions in influencing women to make particular choices in the use of herbal medicines.

### **2.7.3 Theory of planned Behaviour**

The theory of planned behavior was proposed by Icek Ajzen in 1985 through his article "From intentions to actions: A theory of planned behavior." The theory was developed from the theory of reasoned action, which was proposed by Martin Fishbein together with Icek Ajzen in 1975. The theory of reasoned action was in turn grounded in various theories of attitude such as learning theories, expectancy-value theories, consistency theories, and attribution theory. According to the theory of reasoned action, if people evaluate the suggested behavior as positive (attitude), and if they think their significant others want them to perform the behavior (subjective norm), this results in a higher intention (motivation) and they are more likely to do so. A high correlation of attitudes and subjective norms to behavioral intention, and subsequently to behavior, has been confirmed in many studies.

A counter-argument against the high relationship between behavioral intention and actual behavior has also been proposed, as the results of some studies show that, because of circumstantial limitations, behavioral intention does not always lead to actual behavior. Namely, since behavioral intention cannot be the exclusive determinant of behavior where an individual's control over the behavior is incomplete, Ajzen introduced the theory of planned behavior by adding a new component, "perceived behavioral control." By this, he extended the theory of reasoned action to cover non-volitional behaviors for predicting behavioral intention and actual behavior.

In addition to attitudes and subjective norms (which make the theory of reasoned action), the theory of planned behavior adds the concept of *perceived behavioral control*, which originates from self-efficacy theory (SET). Self-efficacy was proposed by Bandura in 1977, which came from social cognitive theory. According to Bandura, expectations such as motivation, performance, and feelings of frustration associated with repeated failures determine effect and behavioral reactions. Bandura separated expectations into two distinct types: self-efficacy and outcome expectancy. He defined self-efficacy as the conviction that one can successfully execute the behavior required to produce the outcomes. The *outcome expectancy* refers to a person's estimation that a given behavior will lead to certain outcomes. He states that self-efficacy is the most important precondition for behavioral change, since it determines the initiation of coping behavior.

Previous investigations have shown that people's behavior is strongly influenced by their confidence in their ability to perform that behavior (Bandura, Adams, Hardy, & Howells, 1980). As the self-efficacy theory contributes to explaining various relationships between beliefs, attitudes, intentions, and behavior, the SET has been widely applied to health-related fields such as physical activity and mental health in preadolescents, and exercise.

#### **2.7.4 Mystical approach theory**

This study was guided by the mystical approach theory. Mystical approach theory was first developed by Bohr Niel (1922) who used the theory to explain quantum physics. Quantum physics represents the ability to accurately predict totally counter-intuitive aspects of the physical world. However, this study will rely on the tenets of mystical approach theory as developed by Stace (1967). Mysticism according to Stace is a super sense-perceptual or sub sense-perceptual experience granting acquaintance of realities or states of affairs that are of a kind not accessible by way of sense perception, somato sensory modalities, or standard introspection. Mysticism is based on the belief in the existence of realities beyond perceptual or intellectual apprehension that are central to being and directly accessible by subjective experience.

According to Geoff (2009) as herbal treatments have been around for so long, and in so many cultures, there are numerous ways that they are believed to work. Many explanations lie in the mystical thinking of ancient cultures. Some believe that the appearance of the plant gives an indication of what it can be used to treat, there is also the belief that herbal medicine can treat anything, it is holistic, which reason is given why no two practitioners will prescribe the same treatment for exactly the same condition in the same person.

In the context of this study, mystical approach is explains why many women opt to take herbal medicine in place of conventional medicine, they believe that herbal medicine is the remedy to the problem where convectional medicine do not work. This is for example, in cases such as cancer and diabetes. The use of herbal medicine prevails even though the after effects of the drugs are not known.

#### **2.7.5 Social Cognitive Learning Theory**

This study was also be guided by social cognitive learning theory by Albert Bandura (1986). According to this theory behavior is determined by the persons thought processes, the environment and behavior itself. This means that individuals determine their own behavior while being influenced by the environmental factors

and their own behavior. The social cognitive learning theory perspective emphasizes social cognition and not simply coping. Bandura's social cognitive learning theory tends to focus more on cognitive expectancy, vicarious learning and self regulations as explanatory mechanism of alcohol abusers.

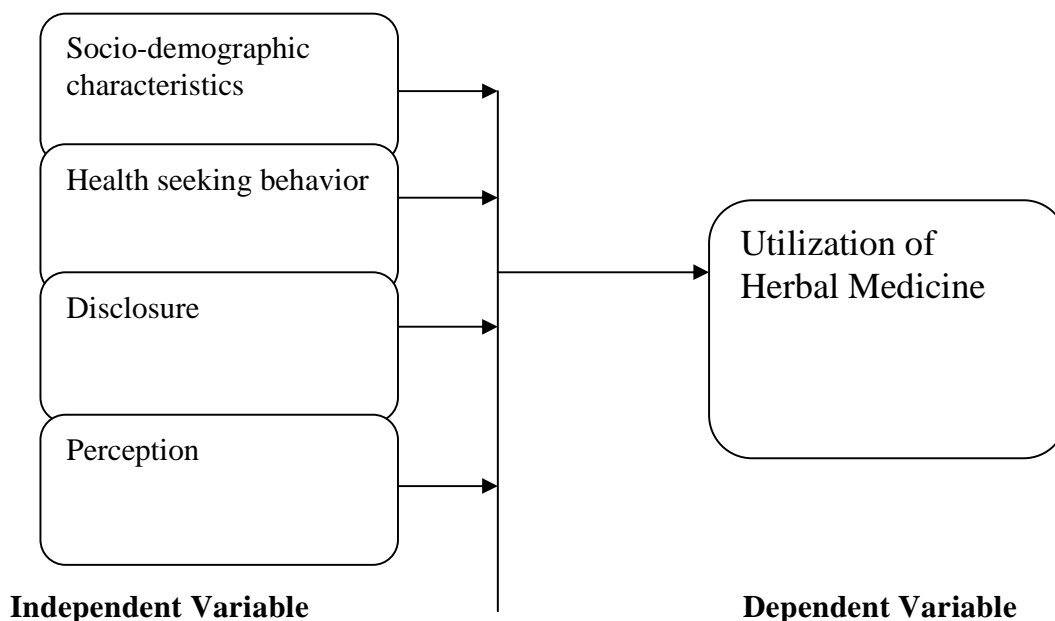
Bandura (1986) contends that behavior is largely regulated by cognitive factors such as perception of an issue and the pattern within the environment. Social cognitive theory emphasizes the role of observational learning with regard to the presence and influence of models. Hausmann-Muela et al. (2003) links health seeking behavior of patients using herbal medicine to their knowledge, attitude and practices that they acquire from their environment. Social cognitive learning theory postulates that the environment does not only affects behaviors but that it also leads to the development of thoughts and emotions that shape behavior.

In the context of this study, the researcher argues that women who seek herbal medicine have most likely learnt the behavior from the environment. The perception in this case implies their culture and beliefs towards herbal medicine and from their peers of older women. This study therefore seeks to explore this line of thinking by looking at the health seeking behavior of women using herbal medicine in the rural areas.

## **2.8 Conceptual Framework**

Conceptual framework (Mugenda and Mugenda, 2003) is defined as a set of broad ideas and principles taken from relevant fields of enquiry and used to structure a subsequent presentation. It is a hypothesized model identifying the module under study and the relationship between the dependent and independent variables.

## Conceptual framework on utilization of herbal medicine



**Figure 1: Conceptual Framework; Source (Author, 2012).**

### 2.9 Study Variables

Dependent variable in this study is the Utilization of Herbal Medicine. Independent variables are sex, age, distance from the health facility, religion, household size, employment status, education, number of children and marital status.

### 2.10 Definition of Concepts and Operationalization of terms

#### Traditional Medicine

Traditional medicine is defined as the health practices, approaches, knowledge and beliefs incorporating plant, animal and mineral based medicines, spiritual therapies, manual techniques and exercises, applied singularly or in combination to treat, diagnose and prevent illnesses or maintain well-being.

**Herbal medicine**

Herbal medicines are defined as plant-derived materials or preparations perceived to have therapeutic benefits; they often contain raw or processed ingredients from one or more plants.

Herbal medicines include herbs, herbal materials, herbal preparations, and finished herbal products that contain parts of plants or other plant materials as active ingredients (WHO, 2008). In this study, mothers were considered as herbal medicines users if they take the herbal medicines through oral, intra-vaginal or topical routes. Other preparations that are consumed as nutriments and within routine meal preparation such as food additives were excluded.

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.1 Introduction**

This chapter deals with the research methodology. It explores target population, sampling methods and data collection procedures. It also describes how data was analyzed.

#### **3.2 Site selection**

This study was conducted at Embu Provincial General Hospital (PGH). It is situated in Embu town and it is the provincial General hospital for Eastern Province. The hospital is a 5 minutes' drive from Embu town situated along Embu- Meru highway. It provides out as well as in-patients services which includes; reproductive services, X-Ray, ENT, Laboratory, Pharmacy and Dental services among others. Patients seeking the services from the hospital are from both rural and urban setting hence it serves as an appropriate site for this study. The hospital was established in 1952 by the colonial government to provide referral services to both locals and neighboring districts. Both antenatal and postnatal care services are key in the hospital and the region. The hospital serves between 100 to 120 women seeking reproductive health services daily.

#### **3.3 Unit of analysis**

Schutt (1996) defines a unit of analysis of a study as the level of social life on which the research questions focus. Singleton (1998) also defines unit of analysis as the entity under study and could include people, social roles or positions and relations. In this study, unit of analysis was the utilization of herbal medicine among women during pregnancy, labour and post-partum period at Embu PGH.



### **3.4 Unit of observation**

In this study, the units of observation were women attending antenatal, postnatal and child care clinics at Embu PGH.

### **3.5 Research Design**

The study adopted cross-sectional survey of the pattern of use of herbal medicine during pregnancy, labour and post-partum period. Each respondent provided cross-sectional/comprehensive information about use during all three stages. According to Moser et al (1985) cross-sectional survey is research which makes observations at only one period in time. It is analogous to taking one still picture of the population or group being investigated.

The major advantage of cross-sectional research is that data can be collected on many different kinds of people in a relatively short period of time. Cross-sectional research has several weaknesses. One it is difficult to establish time order and conditions for causality

The study adopted both quantitative and qualitative approaches. Quantitative methods were used to supplement the quantitative data. Both primary and secondary data was collected.

### **3.6 Target Population**

The study targeted pregnant Women attending antenatal clinic and those with children aged less than 9 months old, attending child care clinic at Embu PGH. The woman must be above 18 years of age and a biological mother of a child less than 9 months old. Minors and those of whom the infants are non-biological children were excluded from the study. The choice of age for mothers was as a result of the need for consent since they are adults. For the age of children; it was assumed that 9 months would provide the mother an opportunity to remember clearly any responses regarding herbal use. Ethical approval was sought and obtained from management of Embu PGH.

### **3.7 Sampling Procedure**

The study was conducted at Embu PGH due to convenience. Embu was purposively selected since it is a regional referral hospital that serves a large catchment area

which would provide a reasonable number of women seeking antenatal as well as other maternal child services.

Embu PGH provides antenatal as well as other maternal child services to approximately 13,400 women per year according to available records at the hospital. This translates to 1,120 women per month seeking at least some antenatal, post natal and maternal child care services. This was used as a guide to determine the number of respondents to be targeted within the study period.

### **3.7.1 Sampling of women**

A sample frame was established by considering all women at the facility waiting to be served at the time of the study. The actual data collection at the hospital took 10 days of which the researcher met the respondents. The mothers admitted on the wards and booked clients at the antenatal, postnatal and Family planning clinic were established upon considering the average admissions at the hospital during the two weeks of study period which stood at 280. This became the sampling frame of the study.

The mothers were put into 3 classes according to their maternal pregnancy status. The following classes of women were created; (i) Mothers in post-natal wards who had delivered (ii) Those mothers attending family planning clinic and child health clinic and (iii) Mothers in the prenatal wards awaiting delivery. Mothers in labor and those undergoing surgery were excluded on ethical grounds.

A proportionate sampling was then done according to the classes identified. By applying the formulae for finite population (Reid & Boore (1991)) below, the sampling frame was taken as (N=280). Hence;

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

Where n = sample, N = population size and e = accepted level of error taking alpha as 0.05.

By substitution in the formula above, we get a sample size as 165.

Proportionate sampling yielded the following number of samples from each of the three classes; Women awaiting delivery 60, Women who have delivered 45, Women

who had booked family planning and child health clinic 60. From each class a simple random sample was done to pick the women to participate in the study. A total of 165 women were picked. With the assistance of midwives, these women were selected and recruited while waiting for ante and post-natal check-ups.

Excluded were those who were ill at the time of recruitment or who declined to participate. Verbal informed consents were obtained from women who agreed to participate after the study had been explained to them in English or the local language. In all, the assistance of two interpreters who were hospital midwives were engaged where necessary for about 30 women that could not speak English.

### **3.7.2 Key Informants Interviews**

Key informants supplemented the questionnaires. A total of 6 key informants were engaged. The key informants used in this study included health workers working at the provincial general hospital. They included; 1 medical doctor, 2 nurses, 1 clinical officer, 1 midwife in-charge and 1 pharmacist. They were purposively elected on the basis of their academic and professional experience.

### **3.7.3 Focus Group Discussion (FGD)**

More qualitative information was obtained through focus group discussion (FGDs) with small groups of women. The focus group was useful as it allowed participants or correspondence to share thoughts and experiences thus reaching some kind of consensus about the topic of discussion (Bles & Higson 1991)

It was therefore important to use this method to explore the range of perceptions of factors which contribute to use of herbal medicine. One FGD of 8 pregnant women was carried out. Issues were discussed as they arose. Documents were also reviewed.

### **3.8 Data collection**

#### **3.8.1 Sources of data**

The main source of data for this study was primary data from subjects under study.

#### **3.8.2 Methods and tools for data collection**

The methods of data collection used in the study included; Interviews, Observation and review of medical records.

Interviews were used to collect primary data from women under the study. Records were reviewed to obtain Secondary data. The research used questionnaires for data collection. According to Mugenda and Mugenda (1999) questionnaires have advantage as a tool of data collection since they are easy to analyze and can be structured in a way to collect the specific information. Data was collected on a semi-structured questionnaire administered by an interviewer. Questionnaire was administered to the respondents by trained research assistants. Questionnaire was also pretested on 10% of sample size not involved in the actual study but with similar characteristics of the target population. For this case, 17 women were selected using conservative sample size of 165. This was done where the researcher administered the questionnaires. This was necessary for the research assistants to get properly informed with the actual task of data collection.

The Questionnaire was divided into five parts. The first part explored the socio-demographic characteristics of women. The other parts investigated use of herbal medicine and prescription during pregnancy, use during labour and post-partum period, ever use and perception of safety and efficacy respectively.

### **3.9 Data Processing and Analysis**

Quantitative data was entered into SPSS version 16.0 and analyzed descriptively (means and frequencies). Chi-square test was used to compare differences between categorical variables at 0.05 significance level. Multiple logistic regression models were used to analyze for joint effect of more than one independent variable.

Qualitative data from focus group on attitudes and beliefs that influence health-seeking behaviour of users was coded and analyzed by description and interpretation, determining themes.

### **3.9.1 Validity of Instruments**

According to Trochim, (1996) validity has to do with how much accurate the data obtained in a study represents the variable of study. The validity is compromised positively or negatively depending on the tools used to gather data. To increase validity of the tools that were used during the study, the University Supervisor was consulted for expert opinion.

### **3.9.2 Reliability of the Instruments**

A reliable tool should not vary according to the environment of use. Mugenda and Mugenda, (1996) defines reliability as a measure. To ensure reliability of the research instruments, the researcher used straight forward questions to avoid ambiguity and also pre-tested the research tools. The pre-test was done by administering the tool to mothers with similar characteristics but not part of the target population to be studied.

### **3.10: Study limitations**

Some women seemed to fear admitting the use of herbal medicine in pregnancy. This is due to the fact that herbal medicines are very often perceived negatively by the health workers. To reduce this problem, emphasis that the study was not aiming at judging anybody but rather finding the magnitude at which herbal medicines are used during pregnancy and associated factors was made. They were told that the main objective was to improve maternal and fetal outcomes. After this explanation they freely answered the questions and shared their experience without any worry.

Estimation of the distance to the nearest public health facility was also a limitation in that even though it was categorized into nearest kilometers, the estimated distance may not be very perfect. However it gives a picture of how far or close the interviewed women lived from the public health facility and therefore this shows how distance can influence the use of herbal medicine during pregnancy.

It was a bit difficult to put a clear boundary between traditional medicines and herbal medicines as herbal medicines are part of traditional medicines. Emphasis was put on plant derived medicines and excluded spiritual therapies and other mineral and animal based medicines.

This study being a cross sectional study could only show associations and not causality.

This study was also limited by the fact that the women were not grouped according to gestational age and the respondents were not asked to name or identify the particular herbs used. This was considered to be outside the scope of the study which was to determine the extent of use, evaluate factors affecting use in pregnancy and to document the incidence of herb use among this population.

## **CHAPTER FOUR**

### **DATA ANALYSIS AND FINDINGS**

#### **4.1 Introduction**

This chapter presents the data analysis, interpretation and discussion of research findings. The findings are mainly qualitative and therefore descriptive statistics were used.

The chapter examines the categories and tabulates the evidence so as to address the study's research questions. The study sample comprised of 165 respondents, 6 key informants and 1 Focus Group Discussion of 8 participants. The broad objective of the study was to assess the utilization of herbal medicine during pregnancy, labour and post-partum period among women in Embu District.

The study further sought to achieve the following specific objectives; (i)To determine socio-demographic and other characteristics associated with herbal medicine use during pregnancy, labour and post-partum period.(ii)To assess health seeking behaviours associated with herbal medicine use during pregnancy, labour and post-partum period and (iii)To assess women's perception about safety and efficacy of herbal medicine use during pregnancy, labor and post-partum period and in comparison with Western medicine.

#### **4.2 Social Demographic Characteristics of Respondents**

In this study, a total of 157 (95.2%) respondents completed the questionnaires. As in Table 1 below, a third of the respondents 84 (33.5%) who attended the post and prenatal clinic and responded to the questionnaires were aged 18-28 years old. Also significant are the 29-39 and 40-50 age brackets which accounted for 35 respondents (22.3%) and 29 (18.9% respectively).

The highest frequency 74 (48.7%) of women,had between one and three biological children. The majority of the respondents 71 (45.5%) were primary school goers and 49 (31.2%) respondents had attained secondary education. This adds up to three

quarters of the total respondents who have secondary education and below. Only 3 (1.9%) had a master's degree and higher level of education.

It is evident from the Table below that 94 (59.9%) of the respondents were married. Single women accounted for 55 or (35.7%) whereas other categories were 5 (3.2%). Half of the respondents 77 (50.7%) were unemployed. The study also shows that the majority 57 (38.8%) of the respondents had 4-7 household members, 38 (25.9%) had 1-3 household members, 35 (23.8%) had 8-10 household members and 7 (4.8%) had 11-13 household members.

**Table 1: Social Demographic Characteristics of Respondents**

<b>Characteristic</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Age (yrs)</b>		
18-28	84	53.5
29-39	35	22.3
40-50	29	18.5
51-61	9	5.7
<b>Total</b>	<b>157</b>	<b>100</b>
<b>No. of biological children</b>		
1-3	74	48.7
4-7	33	21.7
8-10	37	24.3
>10	8	5.3
<b>Total</b>	<b>152</b>	<b>100</b>
<b>Education level</b>		
Primary	71	45.5
Secondary	49	31.2
Middle college	19	12.1
Bachelor degree and Above	17	11.2
<b>Total</b>	<b>156</b>	<b>100</b>



<b>Marital status</b>		
Single	55	35.7
Married	94	59.9
Others	5	3.2
Total	<b>154</b>	<b>100</b>
<b>Employment</b>		
Employed	45	29.6
Unemployed	77	50.7
Self employed	30	19.7
Total	<b>152</b>	<b>100</b>
<b>H/hold size</b>		
1-3	38	25.9
4-7	57	38.8
8-10	35	23.8
11-13	7	4.8
>13	10	6.8
Total	<b>147</b>	<b>100</b>
<b>Religion</b>		
Christian	122	78.7
Muslim	12	7.7
African traditional	21	13.5
	<b>155</b>	<b>100</b>

**Source: Field Data**

Majority of the respondents were Christians. More than three quarters 122 (78.7%) were Christians with African traditional and Muslim accounting for 21 (13.5%) and 12 (7.7%) respectively.

### 4.3 Socio-Demographic and other Characteristics associated with herbal Medicine use during Pregnancy, Labour and Post-partum period.

The first objective of the study was to determine Socio-Demographic and other characteristics associated with herbal medicine use during pregnancy, labour and post-partum period. These characteristics are; age, number of children, marital status, employment status, size of the household, religious affiliation and the distance to the nearest health facility. The chi-square test of association indicated that number of children, education level, marital status, employment status, household size, religion and ANC attendance were independently significantly associated with use of herbal medicine ( $p < 0.05$ ) as in table 4.2.

#### 4.3.1 Distribution of herbal medicine use by women's age

Age of the respondents in the use of herbal medicine was an important component of this study. Majority of those in the age-group 18-28 years reported to have used herbs during pregnancy, labor or post-partum period 66 (78.6%). This was followed by those in the age-group 51-60 years 6 (66.7%). The age-group 29-39 years had the least percentage 20 (57.1%) reporting having used herbs. In general age was not statistically significantly associated with used of herbal medicine ( $\chi^2=8.924$ ,  $p=0.026$ ).

**Table 2: Distribution of herbal medicine use by women's age**

Factor	Herbal use			
	No		Yes	
Age-group	Frequency	Percentage	Frequency	Percentage
<b>18-28</b>	18	21.4	66	78.6
<b>29-39</b>	15	42.9	20	57.1
<b>40-50 and above</b>	14	36.8	24	63.1

**Source: Field data**

Generally all the age brackets reported 50% in herbal use.

### 4.3.2 Distribution of herbal medicine use by number of Children

Table 3 shows the distribution of women who use herbal medicine by the number of children they had. All the respondent 8 (100%) with more than 10 children reported to have used herbal medicine while majority of those with 8-10 children 31 (83.8%) reported to have used herbal medicine. More than half 46 (62.6%) of those with 1-3 children reported to have used herbal medicine. The percentage use of herbal medicine increased with an increase in the number of children and this was statistically significant ( $\chi^2=8.924$ ,  $p=0.026$ ).

**Table 3: Distribution of herbal use by number of children the respondent had**

Factor	Herbal use			
	No		Yes	
No. of children	Frequency	Percentage	Frequency	Percentage
1-3	28	37.8	46	62.2
4-7	10	30.3	23	69.7
8-10	6	16.2	31	83.8
>10	0	0	8	100

**Source: Field data**

### 4.3.3 Distribution of herbal use by level of education of the respondents

Education level is important in the study because it reflects the intellectual growth of a respondent. None of the respondents 0 (%) with masters level of education reported to have used herbal medicine while only 3 (21.4%) with bachelors level of education reported use of herbal medicine. Majority of those with primary education 59 (83.1%) reported to have used herbal medicine. This implies that the higher the level of education the lower the percentage of used of herbal medicine ( $\chi^2=25.988$ ,  $p<0.001$ ).

Level of education played a role in determining the use and non-use of herbal medicine as supported by some participants in the FGD.

“...Most of those who accept to use herbs (herbal medicine) don’t think twice for themselves. Just because others even use then they use...it is all about going to school....and it helps to go to school. Just a little. (A Woman in FGD)

**Table 4: Distribution of herbal use by level of education of the respondents**

Factor	Herbal use			
	No		Yes	
Education level	Frequency	Percentage	Frequency	Percentage
Primary	12	16.9	59	83.1
Secondary	15	30.6	34	69.4
Middle college	5	26.3	14	73.7
Bachelor’s degree and above	14	78.6	3	21.4

**Source: Field data**

#### 4.3.4 Distribution of herbal use by marriage status of respondents

Knowing the marital status of the respondents can provide an insight into the influences of marriage partner in herbal medicine use. With regards to marital status and use of herbal medicine, majority of those married 72 (76.6%) reported to use herbal medicine compared to 32 (58.2%) of the singles and 3 (60%) others (Divorced/separated and widows).It is therefore possible that the spouse of the married women influences herbal medicine use of the respondents. The difference was significant ( $\chi^2=5.767$ ,  $p=0.039$ ).

Asked what influences use of herbal medicine during pregnancy, labour post-partum period, and spouse seems to influence the use.

“..I never hide using traditional herbs during my pregnancy from my husband... since he pays for me whenever I want....i go to hospital and it takes long to heals backache and he encouraged me to use this medicine(herbs)..(Woman in FGD)

**Table 5: Distribution of herbal use by marital status of respondents**

Factor				
	No		Yes	
Marital status	Frequency	Percentage	Frequency	Percentage
single	24	42.1	33	58.9
Married	22	22.9	74	77.1

**Source: Field data**

There was no so much significance in the use of herbal medicine in the single and other categories according to the study.

#### **4.3.5 Distribution of herbal use by employment status of the respondents**

Employment status was also found to be significant in the use of herbal medicine. Respondents who were self-employed reported the highest rates of herbal use with a frequency of 26 (86.7%). Unemployed and self-employed respondents also had 84.1% use compared to 15.8% non-use. However the employed category had the highest non-use at 28 (62.2%). This could be attributed to incomes of the respondents.

*“...the use of herbal medicine can be attributed to perceived high cost of conventional medicine...for me it impacts on the options the women take...but other medicines in hospitals are free and they still use herbs. It could be because of influence from peers...” (Doctor)*

*“...as i attend to them (pregnant women) especially at homes, I find most of them with both herbs and modern medicines. Women at home acknowledge that herbs help them since they don't go to hospitals frequently and are not covered since they aren't employed formally” ... (Midwife)*

The statement seems to support the findings on high herbal medicine use by the unemployed.

**Table 6: Distribution of herbal use by employment status of the respondents**

Factor	Herbal use			
	No		Yes	
Employment	Frequency	Percentage	Frequency	Percentage
Employed	28	62.2	17	37.8
Unemployed and Self-employed	17	15.8	90	84.1

**Source: Field data****4.3.6 Distribution of herbal use by size of household of respondents**

Majority 11 (64.7%) of those with a household size of more than 11 reported to use herbal medicine as compared to only 20 (52.6%) of those with a household size of 1-3.

**Table 7: Distribution of herbal use by size of the household of respondents**

Factor	Herbal use			
	No		Yes	
Household size	Frequency	Percentage	Frequency	Percentage
1-3	18	47.4	20	52.6
4-7	16	28.1	41	71.9
8-10	6	17.1	29	82.9
11>	6	35.2	11	64.7

**Source: Field data**

The percentage use of herbal medicine increased with an increase in the household size and this was statistically significant ( $\chi^2=10.528$ ,  $p=0.027$ ).

**4.3.7 Distribution of herbal use by religious affiliation of the respondents**

Though the majority of the respondents in this study were Christians at 122 (78.7%), All the African traditionalists and Hindus 21 (100) reported to use herbal medicine and 86 (70.5%) of the Christians.

**Table 8: Distribution of herbal use by religious affiliation of the respondents**

Factor	Herbal use			
	No		Yes	
Religion	Frequency	Percentage	Frequency	Percentage
Christian	36	29.5	86	70.5
Muslim	11	91.7	1	8.3
African tradition and Hindu	0	0	21	100

**Source: Field data**

These proportions were significantly higher compared to only 1 (8.3%) of the Muslims ( $\chi^2=29.879$ ,  $p<0.001$ ). This could be attributed to the small number of the Hindu and Muslim population and respondents in the study.

#### **4.4 Health-Seeking behaviours associated with herbal medicine use during Pregnancy, Labour and Post-partum period**

This study sought to assess the health seeking behaviours associated in herbal medicine use during pregnancy, labour and post-partum period. Herbal medicine use can be associated with a number of health seeking behaviours that is worth understanding. As such, respondents were asked questions ranging from the prescription of medicine to boost their immunity, sources of herbal medicine, distance from the nearest facility, place of delivery and reasons for using herbal medicine were important.

##### **4.4.1 Distance from the nearest health facility (Kms)**

The distance from the nearest health facility was found to be significantly associated to use of herbal medicine. Use of herbal medicine seems to have increased with the increase in the distance to the health facility. Almost one third of the respondents 41 (64.1%) who travelled less than 5 kilometers to a health facility reported using herbal

medicine to cure ailments. 77.4% of those who travelled between 5-10 kilometers reported using herbal medicine compared to 14 (22.6%) who did not use. Also significant in this study are those who covered over 10 kilometers to the health facility which showed use of 21 (67.7%) and 10 (32.3%) non-use.

Only some women emphasized a quick, less painful delivery as their principal motive for using Traditional Medicine. Remarkably, several young pregnant women took Traditional medicine but 'did not ask why'. Many participants illustrate, however, other influential factors and persons:

*“They say it is our tradition, so I just drink.” (Woman in Focus Group)*

Some were very categorical about the distance and the means of transport to the health facility.

*“I used the Traditional medicine because I had some bleeding in the 4th month [of the pregnancy]. I was afraid i might miscarry before reaching the hospital which is quite a far.” (Another Woman in Focus Group)*

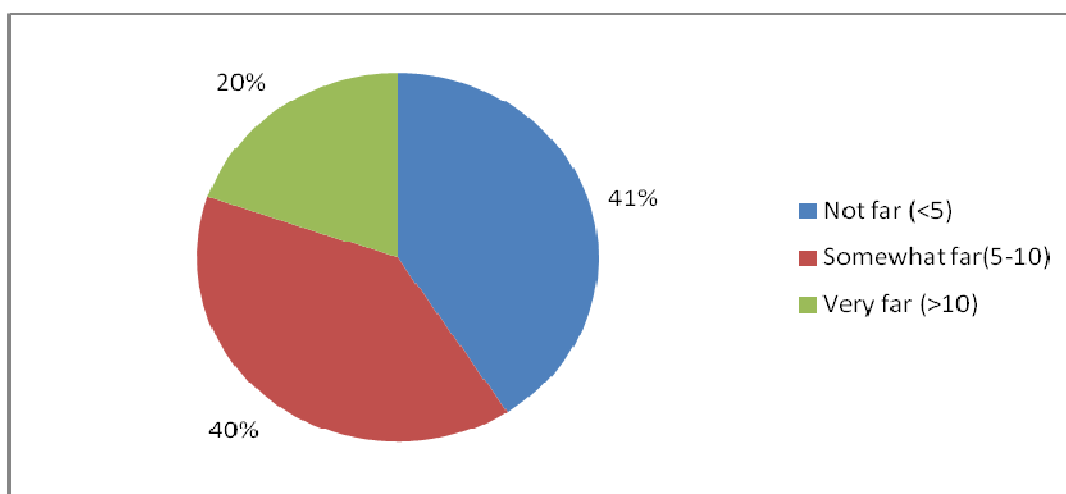
**Table 9: Distribution of herbal use by distance from the nearest health facility**

Factor	Herbal use			
	No		Yes	
Distance from nearest facility (km)	Frequency	Percentage	Frequency	Percentage
<5	23	35.9	41	64.1
5-10	14	22.6	48	77.4
>10	10	32.3	21	67.7

**Source: Field data**



**Figure 2: Distance from the nearest health facility ((Kms)**



**Source: Field data**

#### **4.4.2 Herbal medicine use in relation to respondent's ANC attendance**

To determine the relationship between herbal medicine and ANC attendance, respondents were asked to state the number of times they attended ante-natal clinic during their last pregnancy. The findings revealed that herbal medicine use increased with the decrease in ANC attendance. Nearly half of the respondents 22 (48.9%) reported attending ANC more than 3 times. 38 respondents or (82.6%) of those who never attended ANC reported using herbal medicine.

**Table10: Distribution of herbal use in relation to respondent's ANC Attendance**

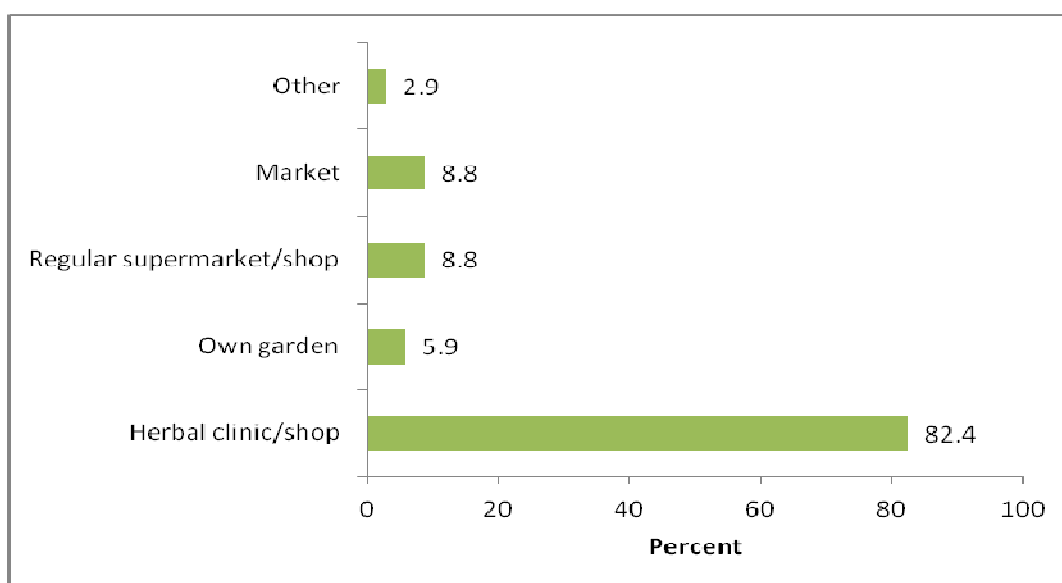
Factor	Herbal use			
	No		Yes	
ANC attendance	Frequency	Percentage	Frequency	Percentage
Never	8	17.4	38	82.6
≤2	17	26.6	47	73.4
≥3	22	48.9	23	51.1

**Source: Field data**

#### 4.4.3 Source of herbal medicine to boost/maintain respondent's health

To assess the use of medicine to boost their health, respondents were asked to state the source of the herbal medicine used to boost/maintain your health. Majority of those that used herbal medicine (82.4%) obtained it from herbal clinic or shop. Both regular supermarket and market accounted for 8.8 percent of the total source of herbal medicine.

**Figure 3: Source of herbal medicine to boost/maintain health**



**Source: Field data**

#### 4.4.4 Prescribed medicine to boost/ maintain health

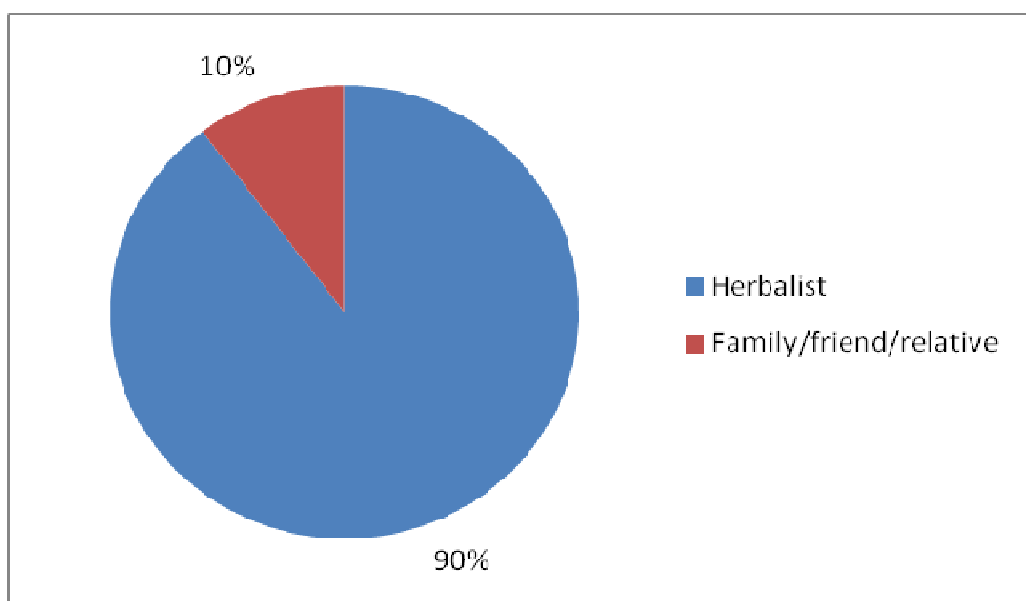
Figure 4 show that Family, friends and relatives played a key role in prescribing herbal medicine to the respondents in the study. Majority of the herbal medicine used to boost/ maintain health were prescribed by an herbalist. 90% of the respondents indicated that the herbal medicine was prescribed herbalist. Their family, friends and relative prescribed to only 10% of the respondents. This was also attested to by comments a woman in an FGD. Traditional Medicines are usually prescribed by a Traditional Herbalist or bought in herbal shops.

Apart from the use of Traditional Medicine to protect from evil and harm, other important reasons were to stimulate prolonged labour and to induce labour when overdue.

*“..At times it takes long before you deliver...and you can’t just wait! Wait for whom? I have plenty of this (herbs) already in the house or from our my grandma... in case of any eventuality (Woman in Focus Group)*

*“I went to the midwife because my mother also used her service. It is also cheaper”*  
**(Woman in Focus Group)**

**Figure 4: Prescribed medicines to boost/ maintain health**



**Source: Field data**

#### **4.4.5 Doctors advice regarding use of herbal medicine**

The research also sought to establish whether respondents received any doctor’s advice regarding herbal medicine use during pregnancy. Only 26 (25%) of those who used herbal medicine during pregnancy discussed with the doctor.

This finding corresponds to the view of a clinical officer’ comments in key informants interviews;.

*“..Pregnant women use herbal remedies during pregnancy and most (75%) don’t inform their doctor or midwife. Most women believe herbal medicine gives them greater choice, control and participation in their child bearing experience.*

*Personally, women have come to me to inquire whether some herbs can determine the sex of the child they want to get.”(Clinical officer)*

For those who didn't discuss with the doctor reported that the doctor didn't ask. Significant majority 100 (100%) were advised by their doctors to discontinue the use of herbal medicine. This response was also supported by the doctor's view on the use of herbal medicine.

*““Herbal medicine use among adults and specifically with pregnant women with or without chronic illnesses is quite high in Embu.Many of the pregnant women think herbal medicines are always safe, effective and beneficial....which is not true”-*  
**(Doctor)**

The doctor believes that despite the belief of many of the respondents those herbal medicines rarely produce adverse effects, a few experienced them mildly and moderately.

The doctor affirmatively suggested that there should be a deliberate move to evaluate the efficacy of these herbal medicines.

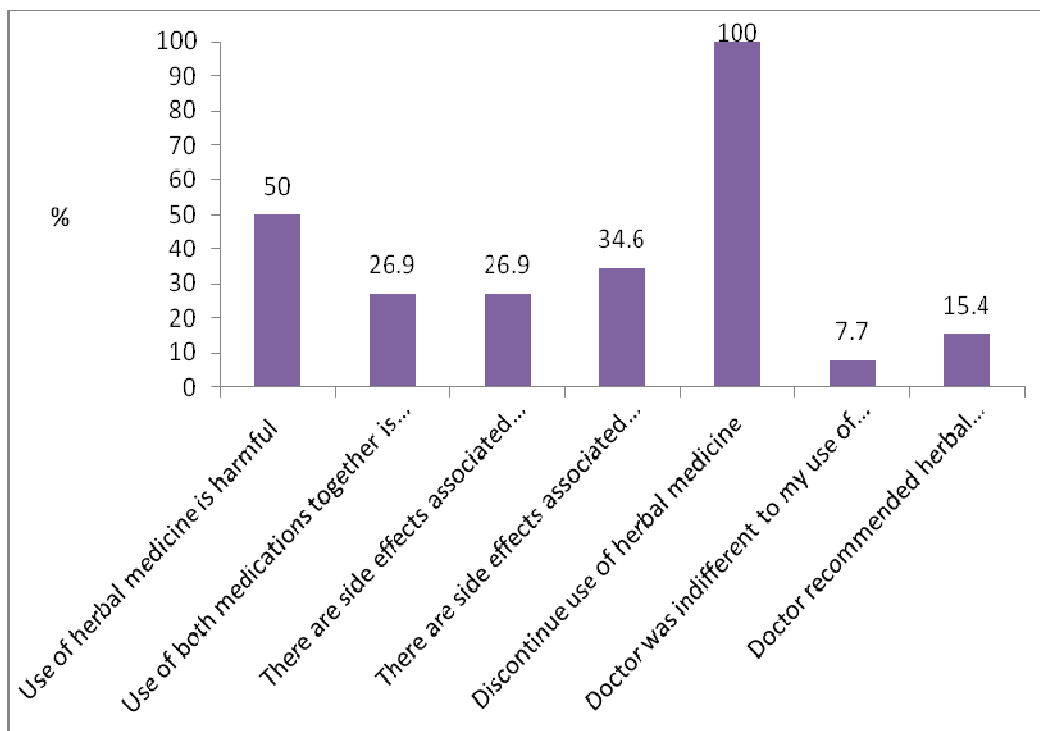
*“Considering the magnitude of popularity of herbal medicines among the respondents and their levels of ignorance of the potential toxicities, it is necessary to evaluate the safety, efficacy and quality of these preparations and products which may involve clinical trial studies”-***(Doctor)**

He suggested that Public enlightenment programme, in the form of health education about safe use of herbal medicines, may be a useful means of minimizing the potential adverse effects.

Also half of the respondents' belief that use of herbal medicine is harmful (50%).

*“..At times it feels uncomfortable when you take them...i prefer adding sugar of milk...diarrhea if common with the use of some..(A woman in FGD)*

**Figure 5: Field data Doctors advice regarding use of herbal medicine**



**Source: Field data**

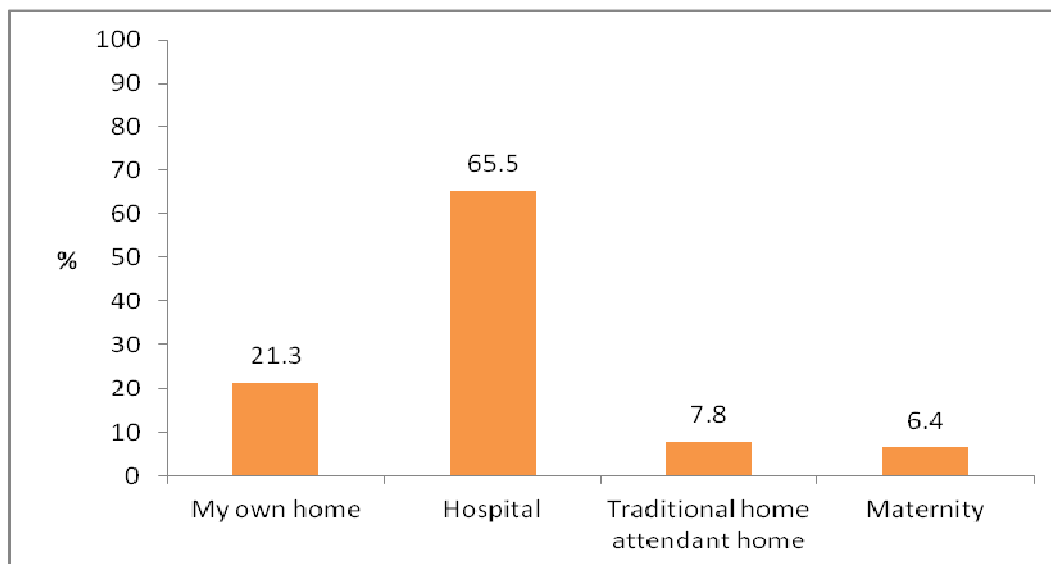
As indicated in Figure 5, among the 26 (25%) that discussed with doctor on use of herbal medicine, 26 (100%) said that the doctor advised them to discontinue the use of the prescribed medicine.

#### **4.4.6 Place of delivery of respondents**

Concerning the place of delivery of the respondents, More than half of the respondents delivered in the hospital 91 (65.5%) as in Figure 6.

Those who delivered in the hospital got the opportunity to be assisted by the skilled personnel.

**Figure 6: Place of delivery of respondents**



**Source: Field data**

A good number 94 (66.7%) were assisted to deliver by skilled nurse/ midwife. Only 80 (56.7%) used at least a traditional medicine of which 39 (49.4%) were provided by a traditional birth attendant.

More than half 99 (63.1%) had ever used herbal medicine for other purposes other than for pregnancy with 42 (26.8%) reporting that western/ conventional medicine was not working as in Figure 4.6

*“...unlike in my previous pregnancy when I used herbal medicine to treat excessive bleeding...sometimes I use it(herbs) to cure pain in the swollen legs...this also applied to my sister who was not pregnant and she got healed (A woman in the FGD)*

#### **4.4.7 Reasons given by respondents for using herbal medicine**

Respondents were also asked to outline the reasons why they use herbal medicine.

Slightly more than a quarter (26.8%) of the respondents indicated that Western or conventional medicine was not working. Whereas 25.5% reported that they could not

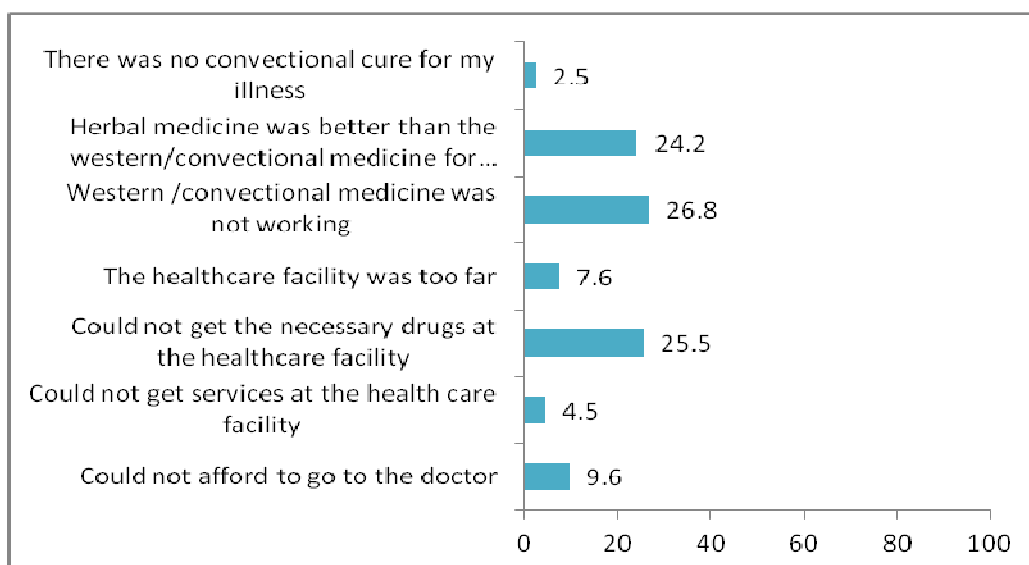
get the necessary drugs at the health care facility, 24.2% preferred herbal medicine to western or conventional medicine.9.6% indicated that they could not afford to go to the doctor.

Midwives and other health professionals emphasized on evidence-based approach towards use of herbal medicine and CAM in order to provide the best care to childbearing women.

*“More than two-third of the women who come to me use herbal medicine.Infact the herbs they use are so crude.....but I encourage them to use what they can cheaply obtain within reach. Some even prepare for themselves...! But I advise those who self-prepare to be cautious since it can harm the foetus”-(Midwife)*

*“Personally, I don’t see anything wrong with them using herbal medicine so long as they have been advised by professional herbalists.....they believe that use of herbal medicines during pregnancy is safe. They say herbs are natural and safer than conventional medicines. They can also find them easily and cures many illnesses”-(Midwife)*

**Figure 7: Reasons given by respondents for using herbal medicine**



**Source: Field data**

#### 4.4.8 Common herbal medicines used by women

**Table 11: Herbal Medicines used by women**

Herbal medicines	Pregnancy		Labor		Post-partum	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Ginger	42	26.7	47	29.9	46	29.2
Raspberry leaf	18	11.4	17	10.8	24	15.2
Castor oil	7	4.4	6	3.8	11	7.0
Folic acid	23	14.6	16	10.1	15	9.5
Garlic	40	24.4	39	24.8	34	21.6
Cranberry juice	20	12.7	23	14.6	17	10.8
Others	7	4.4	9	5.7	10	6.3
<b>N-157</b>		<b>100</b>		<b>100</b>		<b>100</b>

**Source: Field data**

The common herbal medicines that are used across the three stages in significant amounts are; during pregnancy Ginger 42(26.7%) and Garlic 40(24.4%), during labour Ginger 47(29.9%) and Garlic 39(24.8%) and during post-partum are Ginger 46 (29.2%), Garlic 34 (21.6%). Castor oil and Raspberry leaf were reported as the lowest used herbal medicine at 7 (4.4%), 18 (11.4%) during pregnancy respectively.

#### **4.5 Perception of Safety and efficacy of herbal Medicine during Pregnancy, Labour and Post-partum period in comparison to Western Medicine in the study population.**

The research also sought to establish the perception of safety and efficacy of herbal medicine compared to Western Medicine. In Table 10, Majority of the respondents 100 (70.4%) agreed that most herbal medicine is natural. There are illnesses or conditions for which western medicine is more effective than herbal medicine 88



(62%) and that there are illnesses or conditions for which herbal medicine is more effective than Western medicine 106 (74.6%). Close to half of the respondents 66 (46.5%) disagreed that herbal medicine may be beneficial in general during pregnancy, labor and post-partum if recommended by family member/relative and that Most Western/prescription medicine is not safe for me during pregnancy 67 (47.2%)

**Table 11: Perception of safety and efficacy of herbal medicine**

<b>Statement</b>	<b>Agree</b>	<b>Disagree</b>	<b>Not sure</b>
Most Western/prescription medicine is not safe for me during pregnancy	60(42.3)	67(47.2)	15(10.6)
Most Western prescription medicine is not safe for my baby during pregnancy	65(41.4)	49(34.5)	28(19.7)
Herbal medicine is not safe for me during pregnancy	60(42.3)	55(38.7)	27(19)
Most herbal medicine is not safe for my baby during pregnancy	61(43)	61(43)	20(14)
Most herbal medicine is natural	100(70.4)	26(18.3)	16(11.3)
Most herbal medicine is safe	65(45.8)	51(35.9)	26(18.3)
Herbal medicine may be beneficial in general during pregnancy, labor and post-partum period if recommended by doctor	69(49.3)	44(31.4)	27(19.3)
Herbal medicine may be beneficial in general during pregnancy, labor and post-partum if recommended by herbalist	62(43.7)	43(30.3)	37(26.1)
Herbal medicine may be beneficial in general during pregnancy, labor and post-partum if recommended by family member/relative	49(34.5)	66(46.5)	27(19)

There are illnesses or conditions for which herbal medicine is more effective than Western medicine	106(74.6)	18(12.7)	18(12.7)
There are illnesses or conditions for which western medicine is more effective than herbal medicine	88(62)	13(9.2)	41(28.9)

According to respondents, weaknesses in Traditional Medicine include unclear measurements and preparations, which could cause overdosing and enhance harmful effects.

*“I think that they [Traditional Medicine] can be dangerous because they don't have measurements. Maybe when you cook you don't know how much water to use, maybe it is strong you don't know, and again how much to take in a day” (Woman in Focus Group Discussion)*

Women were greatly appreciative of the technical possibilities offered by western medicine. However, western medicine was critiqued due to lack of massage, the impossibility of having a companion during labour and the judgmental attitude of the staff towards Traditional Medicine. This lack of communication about use, dose and ingredients of Traditional Medicine and the parallel use with western medicine hamper evaluation of effects.

The qualitative information recorded and reported was collected from FGDs with pregnant women. While the majority of the participants seemed to be knowledgeable about Traditional Medicine, a few participants were not well-informed about how Traditional medicine work and were not aware of its consequences. Perceptions about Traditional Medicine were not uniform among the participants. Some described Traditional medicines as having significant side-effects, while others perceived traditional Medicine to be very helpful medicines which ensure a quick and less painful delivery.

According to all the participants interviewed in a FGD, Traditional medicines were most commonly ingested in the third trimester of pregnancy. At this stage pregnant

women take them to prevent and solve difficulties and stimulate a smooth delivery. Traditional Medicines are usually prescribed by a Traditional Herbalist or bought in herbal shops.

Apart from the use of Traditional Medicine to protect from evil and harm, other important reasons were to stimulate prolonged labour and to induce labour when overdue.

*“..At times it takes long before you deliver...and you can't just wait! Wait for whom? We already have herbs in the house in case of any eventuality (Woman in Focus Group)*

*“I went to the midwife because my mother also used her service. It is also cheaper” (Woman in Focus Group)*

Only some women emphasized a quick, less painful delivery as their principal motive for using Traditional Medicine. Remarkably, several young pregnant women took Traditional medicine but 'did not ask why'. Many participants illustrate, however, other influential factors and persons:

*“They say it is our tradition, so I just drink.” (Woman in Focus Group)*

*“I used the Traditional medicine because I had some bleeding in the 4th month [of the pregnancy]. I was afraid i might miscarry.” (Another Woman in Focus Group)*

## **CHAPTER FIVE**

### **SUMMARY CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Introduction**

In this chapter, a summary of what has already been discussed in the previous chapter is given, conclusion is drawn and finally recommendations for further research are made.

#### **5.2 Summary of the findings**

The study set out to establish the utilization of herbal medicine during pregnancy, labour and post-partum period among women in Embu County.

The prevalence of herbal medicines use during pregnancy, labour and post-partum period among women attending antenatal clinic at Embu provincial General hospital (PGH) was 70%. This finding is higher to that in South Africa where 55% of women used herbal medicines during pregnancy (Mabina, etal. 1997). Another study in South Africa found that about 60% of women used traditional medicine during pregnancy (Jewkes, etal 1998). Similarly, it is higher than the findings in Tanga in which prevalence in urban and rural areas were 43.3% and 40.2% respectively. In their study pregnant women at different gestation age were asked about the use of herbal medicine in their index pregnancy and during labor in their previous pregnancy using a structured Swahili questionnaire. This difference can be explained by differences between the Kenyan herbal drugs market and the situation in other countries, and differences in characteristics of the study population. Apart from other factors, this increment may be attributed to the rapid increase in promotion of traditional medicine in the society and the media. It is very common to see posters advertising traditional medicines and herbalists.

The finding is also higher compared to those reported in USA where they found that about 45.2% of women from rural outreach clinics and the Physician's Office Centre of West Virginia University, Morgantown used at least one type of herbal medicine during pregnancy.

In this study more than half of the women who used herbal medicines during their immediate past pregnancy, delivered in health facilities. This is similar to other studies where it was found that in the African context, herbal medicine in pregnancy and labor continues to play, as it did in the past, an important role in health systems. Western oriented medicine and health systems, introduced during the colonial era, did not completely eliminate well established systems of traditional medicine practice and many Africans learnt to use both health systems in parallel depending on the availability of medicine and/or the nature of the illness. Induction of labor was the most common purpose for the use of herbal medicines, followed by the belief to protect the baby (Foetus related use). In another study herbal medicines were used for certain indications such as to facilitate labor, relieve muscle and body ache, space pregnancies, promote baby's physical health and intelligence, enhance sexual pleasure, prevent retained placenta and abortion purposes

### **5.2.1 Socio-Demographic and other Characteristics of women using herbal medicine during Pregnancy, Labour and Post-partum period**

In the current study, age, distance to the nearest health facility, employment status and number of children were found to be significantly associated with use of herbal medicine. However education level was not a significant predictor of herbal use. The findings are contrary to the report that in developed countries CAM use has been associated with high education and income, or being a cultural minority (Bodeker and Kronenberg, 2002). In a study conducted among obstetrics patients in Ghana, use was higher among those with only primary or no education than among secondary and tertiary education. Additionally, use was significantly highest among those in unskilled occupations and lower socioeconomic status (Addo, 2007). Marital status was not significantly associated with herbal use and similar findings were

reported in Addo's study that marital status and religion had no significant effect on her use of herbal medicine.

However, the findings were lower than the estimate that 80% of the African population use traditional medicine in some way for their primary health care needs (WHO, 2008). Studies by WHO (2008) suggested heavier reliance of people in rural areas on traditional medicine for primary health care. However, similar figures can be observed in some urban contexts.

Most of the respondents that reported to use herbal medicine reported to use it for treatment of malaria and diarrhoea. Similarly, Njoroge and Kibunga (2007) reported that a majority of their respondents relied on traditional herbal preparations for the treatment of diarrhoea in an urban area, Thika, Kenya. They added that spatial inequity of facilities favouring urban areas, unavailability of medical services such as drugs and personnel and accessibility problems are quoted as some of the common reasons why people rely heavily on traditional systems in the presence of a modern medical system. Sindiga et al (1995), however, also suggest that some people use the traditional system of healthcare for predominantly psychosocial and cultural reasons. Similar findings were also reported in the current study.

In addition, it was reported that western/conventional medicine "was not working". Similar findings were reported by Langlois-Klassen et al (2007)'s AIDS study, that most common reason of use was abundance of traditional medicine as well as its perceived efficacy. "Lack of response" to conventional medicine was one of the main reasons of use of CAMs in an Iranian urban area (Yekta, et al., 2007). Werneke (2004), who studied cancer patients, states that patients often combine CAMs with conventional treatment to improve quality of life, alleviate side effects, take control of their care and accommodate their worldview into the healing process.

### **5.2.2 Health-seeking Behaviours associated with herbal medicine use during Pregnancy, Labour and Post-partum period**

The findings from the study indicated that herbal medicine was used because the necessary drugs could not be found at the facility and that the western medicine was not working. The concomitant use of herbal and Western treatments indicates that use of both systems of care significantly influences health-seeking behaviour of users. In a Family Care International (2003) report, use of traditional birth attendants and herbal medicine was claimed to cause delays in seeking biomedical attention when complications arose, especially during labour and post-labour. Herbal preparations can be used as supplements for nutritional purposes and some are used for medicinal purposes such as nausea, urinary tract infections, and other uses (Glover et al., 2003). In the developed world, popular herbs include ginger for nausea, St. John's Wort for depression, Blue or black cohosh for efficiency of contractions, echinacea as immuno-stimulant, ginseng for energy and immune function, ginkgo biloba to stimulate cognitive functioning, raspberry leaf for facilitation with labor (Tiran, 2003). In developed regions, women also use other complementary and alternative therapies such as yoga, reflexology and massage for stress-reduction (Tiran and Chummun, 2004). Midwives in a developed country are increasingly incorporating CAM care into their practice, and expectant mothers are increasing its use (Tiran and Chummun, 2004).

### **5.2.3 Perception of Safety and efficacy of herbal medicine during Pregnancy, Labour and Post-partum period**

In comparison to Western medicine, it was reported that most Western/prescription medicine is not safe during pregnancy for the baby and mother during pregnancy. Similar findings were reported by Addo (2007) and Langloid-Klassen (2007), that there is a potential for drug-herb interactions which may affect course and outcome of patient's condition. Most potential drug-herb interactions have been reported from case reports, scarcely from large scale studies (Werneke, et al., 2004). These case reports include Fugh-Beghman's study on anticoagulant effects of garlic and cod liver oil and Izzo and Ernst's report of the interaction of St. John's Wort with

hormones, antibiotics and chemotherapeutic agents (Werneke et al, 2004). When knowledge on herb-drug interactions, safety and efficacy is available, patients can be advised accordingly. In Werneke et al., (2004)'s study among cancer patients it was found that 12% were at potential risk of CAM interference with current treatment.

### **5.3 Recommendations**

Based on the findings of this study, it is recommended that:

- Health care personnel should educate themselves sufficiently to guide their patients in the safe use of herbs. Discussing the use of herbs in an open and nonjudgmental way will go a long way toward helping the patient and provider to communicate effectively about this topic.
- It is essential that health care personnel teach their patients about possible interactions between herbs and prescription or over-the-counter medications.
- The health care personnel should also familiarize themselves with how specific herbs are used, because the same key concepts underlying the administration of medications apply to herbal medicines as well, i.e. right medication, right route, right dose, and right time.
- It is difficult to discard use of traditional medicine, particularly herbal medicines, because they have been using herbs and recommending use of herbs for many years, however there are several alternative messages that can be given to them, such as consulting a doctor, before using any herbal medicines during pregnancy.

### **5.4 Conclusion**

The use of herbal medicines during pregnancy among women attending antenatal clinic at Embu provincial General hospital (PGH) was associated with, low education level of pregnant women, age and employment status.

The use of herbal supplements in pregnancy is likely to be relatively high in pregnant Kenyan women and it is important to ascertain which supplements (if any) women



are taking. Pregnancy care providers should be aware of the common herbal supplements used by women, and of the evidence regarding potential benefits or harm. It is important that care providers do not prescribe any treatments, medications or herbal supplements where they are unaware of the evidence supporting their use. There is therefore a need for planning and streamlining strategies to maximize benefits and minimize dangers of use traditional medicine in pregnancy.

The use of herbal medicines by pregnant women in Embu was seen to be quite high. Many patients have confidence in the efficacy of herbal remedies and found them helpful as a cost effective and accessible alternative treatment. Health care providers, especially those that are involved in ante-natal, pre-natal and post-partum care should therefore be aware of evidence regarding potential benefits or harm of herbal medicinal agents when used by pregnant women, since many of these herbal remedies are self-prescribed based on the women's own information or belief.

### **5.5 Areas for further research**

Recommendation is made for further research on a pharmacological study focusing on local commonly used herbal medicines. This should be carried out to identify the exact pharmacological compounds of the herbs and to evaluate the effects of these compounds to the foetus.

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## APPENDICES

### Appendix i

#### Questionnaire for Mothers on Utilization of Herbal medicine

Serial no.....

##### Introduction of the study

Thank you for the time you may take to participate in this study. The purpose of this study is to explore the use of herbal medicine during Pregnancy, labour and after giving birth for nutrition and/or cure of illness. Even if you do not use herbal medicine, please participate in the study as your responses to the questions will be helpful to us. The information you give is confidential, it will not be disclosed to your doctor or anyone.

##### SECTION A: Biographical information

1. How old are you (yrs)? 1. 18-28 yrs [ ] 2. 29-39 yrs [ ] 3. 40-50yrs [ ] 4. 51-61 yrs [ ] 5. 61 yrs and over [ ]
2. How many biological children do you have? 1. 1-3children [ ] 2. 3-7children [ ] 3. 7-10 children [ ] 4. Over 10 children
3. What is the highest formal education you have completed?
  1. Primary education [ ] 2. Secondary education [ ] 3. Middle level college [ ]
  4. Bachelors degree [ ] 5. Masters degree and higher [ ]
4. What is your marital status? 1. Single [ ] 2. Married [ ] 3. others [ ]
5. What is your employment status? 1. Employed [ ] 2. Unemployed [ ] 3. self employed [ ]
6. What is your household size (Number of family members)? 1. 1-3 people [ ] 2. 3-7 people [ ] 3. 7-10 people [ ] 4. 10 -13 people 5. Over 13 people
7. What is your religion? 1. Christian [ ] 2. Muslim [ ] 3. African traditional [ ] 4. Hindu [ ] 5. Other [ ] specify .....
8. What is the distance to the nearest health facility from where you live?
  1. Not far (<5kms) [ ] 2. Somewhat far (5kms-10kms) [ ] 3. Very far (>10kms) [ ]

9. How often do you travel to this health facility? 1. Have never travelled to the facility [ ] 2. Often (more than two times a month) [ ] 3. Regularly (More than two times a month) [ ]

10. What types of illnesses do you travel to this facility to treat?

.....  
.....

11. Are there diseases you use modern medicine to treat? If yes which are these?

.....  
.....

12. Are there others that you treat at home using herbal medicine? If yes, which are these?.....

.....

13. Why do you use traditional medicine on these illnesses?.....

.....

**SECTION B: USE DURING PREGNANCY; USE WITH PRESCRIPTION**

14. How many times did you attend antenatal care during your most recent pregnancy?

1. Never [ ] 2. Twice or less [ ] 3. Three times or more [ ]

15. Did you use herbal medicine at any point during your most recent pregnancy?

1. Yes [ ] 2. No (skip to 22)[ ]

16. If yes, for what general purpose did you use herbal medicine?

1. I was healthy and wanted to boost or maintain my health [ ]  
2. I was ill and I wanted to relieve or cure ailment/illness (skip to 21)[ ]

17. What was the source of the herbal medicine used to boost/maintain your health?

1. Herbal clinic/shop [ ] 2. Own garden [ ] 3. Regular supermarket/shop [ ]  
4. Market [ ] 5. Other specify ..... [ ]



18. Who prescribed the herbal medicine used to boost/maintain your health?  
 1. Myself [ ] 2. Herbalist [ ] 3. Family/friend/relative [ ]  
 4. Recommended by medical doctor [ ] 5. Other specify..... [ ]
19. Did you take any prescription medicine meant to boost health as well?  
 1. Yes [ ] 2. No (Skip to 24) [ ]
20. If yes, for what kind(s) of illness/ailments did you use herbal medicine during pregnancy?  
 .....  
 .....
21. Where did you obtain the herbal medicine you used to cure illness?  
 1. Herbal home/ clinic [ ] 2. Market [ ] 3. Regular supermarket/shop [ ]  
 4. Own garden [ ] 5. Other specify..... [ ]
22. Who prescribed the herbal medicine you used to cure illness/ailments?  
 1. Myself [ ] 2. Herbalist [ ] 3. Traditional birth attendant [ ]  
 4. Family/Friend/Relative [ ] 5. Recommended by medical doctor [ ]  
 6. Other specify..... [ ]
23. Did you also take prescription medicine for similar illness/ ailments?  
 1. Yes [ ] 2. No [ ]
24. Did you and your doctor discuss herbal medicine use at any point during pregnancy?  
 1. Yes [ ] 2. No (skip to 27) [ ]
25. If No, why did you not discuss with your doctor?  
 1. Feared to discuss with doctor [ ] 2. Doctor did not ask [ ] 3. Doctor refused to discuss  
 4. Other (Specify) .....
26. If yes, what was your doctor's advice regarding herbal medicine use?  
 1. Use of herbal medicine harmful [ ]  
 2. Use of both medications together harmful [ ]  
 3. There are side effects associated with herbal medicine use [ ]  
 4. There are side effects associated with use of both medicine together [ ]  
 5. Discontinue use of herbal medicine [ ]  
 6. Discontinue use of prescription medicine [ ]  
 7. Doctor was indifferent to my use of herbal medicine [ ]

8. Doctor recommended herbal medicine use [ ]

9. Other..... [ ]

**SECTION C: USE DURING LABOR AND POST-PARTUM PERIOD**

27. Where did you deliver your baby?

1. Health facility [ ] 2. My own home [ ] 3. Hospital

4. Traditional home attendant home [ ] 5. Maternity home [ ]

6 .Other specify ..... [ ]

28. Who helped you with delivery? ( you can tick more than one, e.g. doctor and nurse)

1. Skilled nurse/midwife [ ] 2.Traditional birth attend [ ]

3.Obstetrician/Doctor [ ]

4. Other ..... [ ]

29. Did you use any traditional/herbal medicine before, during and after labor?

1. Yes [ ] 2 No (skip to 32) [ ]

30. Who provided the herbal medicine during labor?

2. Myself [ ] 2. Traditional birth attendant [ ] 3. Herbalist [ ]

4. Family/Friend/Relative [ ] 5 Recommended by doctor [ ]

6. Other specify.....

31. For what labor related purpose did you use the herbal medicine?

1. To induce labor [ ] 2. To ease or speed up labor [ ] 3.Foetus-related use [ ]

3. Bleeding related use [ ] 5.Other specify ..... [ ]

32. Did you use herbal medicines soon after delivery?

1. Yes [ ] 2. No (skip to 34) [ ]

33. For what purpose did you use the herbal medicine after giving birth?

.....  
.....

**SECTION D: EVER-USE**

34. Have you ever used herbal medicine for other purposes other than for pregnancy?

1. Yes [ ] 2.No [ ]

35. Have you ever used herbal medicine for other purposes other than labor?

1. Yes [ ]                      2.No [ ]

36. In general, how have you used herbal medicine?

1. Never (I have never used herbal medicine) (skip to 38) [ ]  
 2. Rarely (On very rare occasions/ once in a long while) [ ]  
 3. Sometimes (at times when I'm ill) [ ]  
 4. Always (every time I'm sick) [ ]

37. Have you ever used herbal medicine at least once because of any of the following reasons?

1. Could not afford to go to the doctor [ ]  
 2. Could not get service at the health care facility [ ]  
 3. Could not get the necessary drugs at the healthcare facility [ ]  
 4. The healthcare facility was too far [ ]  
 5. Western/conventional medicine was 'not working' [ ]  
 6. The herbal medicine was better than the western/conventional medicine for this illness/purpose [ ]  
 7. There was no conventional cure for my illness [ ]  
 8. Other specify..... [ ]

**SECTION E: PERCEPTION OF SAFETY AND EFFICACY**

**38. Please indicate whether you agree, disagree, or are unsure about the following statements:**

Statement	Agree	Disagree	Not sure
Most Western/prescription medicine is not safe for me during pregnancy			
Most Western prescription medicine is not safe for my baby during pregnancy			
Herbal medicine is not safe for me during pregnancy			
Most herbal medicine is not safe for my baby during pregnancy			
Most herbal medicine is natural			
Most herbal medicine is safe			

Herbal medicine may be beneficial in general during pregnancy, labor and post-partum period if recommended by doctor			
Herbal medicine may be beneficial in general during pregnancy, labor and post-partum if recommended by herbalist			
Herbal medicine may be beneficial in general during pregnancy, labor and post-partum if recommended by family member/relative			
There are illnesses or conditions for which herbal medicine is more effective than Western medicine			
There are illnesses or conditions for which western medicine is more effective than herbal medicine			

**39.** Do you have any last comments regarding use of herbal medicine during pregnancy and labor?

.....

## **Appendix ii**

### **Focus Group Discussion (FGD) Guide**

I would like to thank you for agreeing to participate in this Focus Group Discussion. The purpose of this discussion is to share thoughts about utilization of herbal medicine during pregnancy, labour and post-partum period. This discussion will be tape recorded. The information obtained will be treated in absolute confidentiality and will be used only for purpose of this study.

1. What would you say is herbal medicine?
2. For what general purpose do mothers use herbal medicine? (if ever used)
3. Are there any benefits obtained from using herbal medicine?
4. What are the sources of the herbal medicine used?)
5. Who prescribes the herbal medicine used to cure illness/ailments by the women?
6. What do you think influences use of herbal medicine during pregnancy and labour? (Probe for social-cultural, economic and demographic factors)
7. What are your perceptions about use of herbal medicine during pregnancy, labor and post-partum period and in comparison with Western medicine (probe for safety and efficacy)
8. Do you have any comments/suggestions regarding use of herbal medicine during pregnancy and labour?

### **Appendix iii**

#### **Key Informants Interview Guide**

1. What is the level of herbal medicine use by pregnant women in Embu district?
2. Who are the common users of herbal medicine in the district and why?
3. What are the general purposes of women using herbal medicine?
4. Are there any specific benefits of the herbal medicine use into for one's health?
5. Are there any side effects or consequences of herbal medicine use by pregnant women?
6. Do you think doctors or health professionals discuss herbal medicine use with pregnant women at any point in time during and after pregnancy?